The City of
SAN DIEGO

City of San Diego **CLIMATE ACTION PLAN**
Our Climate, Our Future

**OUR CLIMATE
OUR FUTURE**
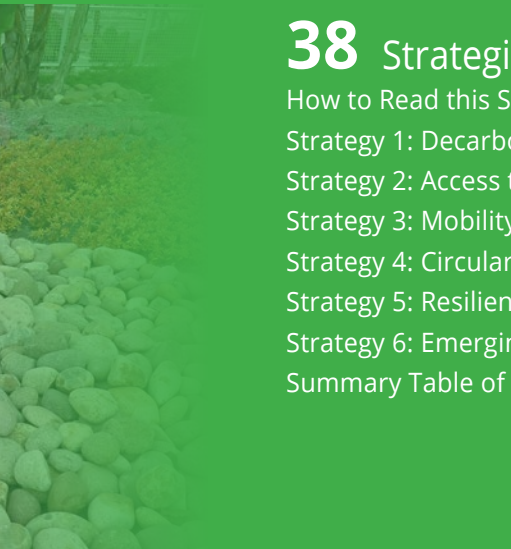City of San Diego Climate Action Plan

DRAFT

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Acknowledgements

Honoring the land's original stewards

The City of San Diego acknowledges that we are on the traditional territory of the Kumeyaay, Luiseño, Cupeño and Cahuilla.

Today, the Kumeyaay people continue to maintain their political sovereignty and cultural traditions as vital members of the San Diego community. We are honored to share this space with them and we thank them for their stewardship.

Acknowledgements

This update to the City of San Diego's Climate Action Plan would not have been possible without the significant contributions in time, energy and thought of many. Thank you to the thousands of San Diegans who gave their time to provide input in the development of this plan.

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Introduction

Like all cities across the world, the City of San Diego (City) is facing a climate crisis. Our residents, especially those who live within our Communities of Concern, are feeling the effects of climate change in the air they breathe, extreme weather events and constrained resources and utilities. We must actively address this increasing threat to our safety and livelihoods; it will take all of us, around the world and across our region, and an unprecedented, equitable dedication of resources.

To meet the magnitude of the crisis, we are setting an ambitious goal to achieve net zero greenhouse gas (GHG) emissions by 2035. San Diego can and must lead with bold and inclusive steps. This Climate Action Plan (CAP) is the City's policy commitment to set clear goals to reduce GHG emissions and details the strategies and actions we will collectively take to make San Diego a more sustainable, healthy and thriving city. The CAP outlines federal, regional and local actions to avoid GHG emissions and allows us to hold ourselves accountable as we implement the plan.

Climate action is a constantly evolving field with new technologies, data, resources and community perspectives shaping the state of the science. While we can quantify the GHG impact of many well-understood actions, an appropriately scaled response to a global existential threat cannot be limited to the science and practices of the moment. The CAP is a visionary and adaptable document, informed by our residents, monitored annually and updated to reflect new approaches. The City has chosen to set a goal that stretches us beyond today, to do better for all of us tomorrow.

To maximize the impacts of core benefits, which are the tangible benefits in addition to the reduction of GHGs, and achieve the goal of this CAP, the City must prioritize the needs of our residents in Communities of Concern. By empowering residents and including them in the decision-making process, the City will be successful in mitigating the effects of climate change with substantial impact in our most vulnerable communities and improving quality of life for all.

The CAP is one part of the City's comprehensive and coordinated approach to addressing climate change referred to as "Our Climate, Our Future." Our Climate, Our Future currently includes Climate Resilient SD, the Municipal Energy Strategy, Building Decarbonization efforts, Blueprint SD and climate equity initiatives. As the CAP is adopted, next steps will include an implementation plan, annual reporting, continuing updates and budgetary decisions.

As we take you through a journey of community input, data and science, we will illustrate our plan and specific actions that will avoid GHG emissions and reduce San Diego's impact on global climate change. Our efforts will focus on our communities most impacted and within the limited window of opportunity remaining to respond to this crisis.

The Climate Emergency

Science shows us that the window to reverse the trends of climate change is rapidly closing and the time for meaningful action is now. The United Nations (UN) Intergovernmental Panel on Climate Change (IPCC) compiles annual assessment reports on the "understanding of the current state of the climate, including how it is changing and the role of human influence, the state of knowledge about possible climate futures, climate information relevant to regions and sectors, and limiting human-induced climate change."

The IPCC released the sixth assessment report (AR6) in August of 2021. The report continues the trend of increasing scientific evidence that climate change is caused by human activity and accelerating at a pace beyond previous predictions. The report concludes that "unless there are immediate, rapid and large-scale reductions in GHG emissions, limiting warming to close to 1.5°C or even 2°C will be beyond reach." This level of warming will lead to an increase in extreme weather events such as heat waves, droughts and rainstorms. These extreme weather events will disrupt the supply chain, our food systems and put pressure on the supply of fresh water.

The National Oceanic and Atmospheric Administration U.S. Climate Normals, a comprehensive data set of observed daily weather, provides information about typical climate conditions for thousands of locations across the United States. Normals act as both a ruler to compare today's weather and tomorrow's forecast, and a predictor of near-future conditions. The 2020 release of the U.S. Climate Normals validates the predicted trend of warming and drying in the San Diego Region on a 30-year average. This will mean more heat waves, warmer nights and more variability in rainfall leading to extreme rainfall or extended periods of drought.

In addition to GHG emissions, pollutants emitted from the same or similar sources have compounding effects, including severe impacts on air quality and public health. For example, black carbon, a particulate pollutant from fossil fuel combustion, contributes to the warming of the Earth, while particulate sulfates cool the Earth's atmosphere. These contaminants also have a significant negative impact on the health of our residents and visitors. They have been shown to increase rates of cancer, asthma, lung and heart disease, particularly in communities overburdened with air pollution. In the San Diego region, we are in nonattainment for the federally designated 8-hour ozone standard, and the state designated PM10 and PM2.5 standards. These pollutants have impaired the health of our residents for decades and must be prioritized alongside GHG emissions in our response to the climate crisis.

The average daily temperature has increased 1-1.5 degrees Fahrenheit, and average annual rainfall has decreased to 9.79 inches, compared to 10.33 inches in 1991.

Human-induced warming reached approximately 1.09 degrees Celsius above pre-industrial levels for the period between 2011 and 2020. - IPCC AR6
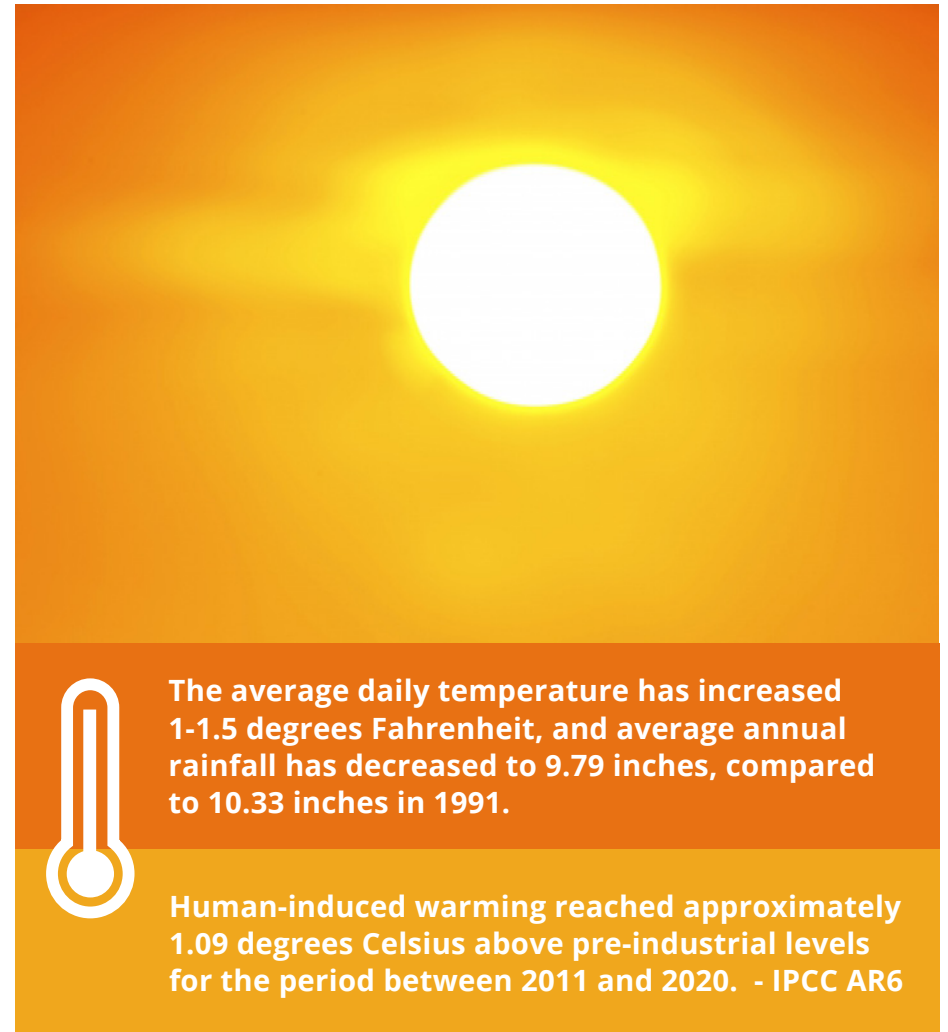
Leading with Climate Equity

Systemic inequity continues to affect the quality of life for many San Diegans, particularly communities of color. After decades of overt or de facto environmental racism, it's important to create new policies and practices that do not maintain inequitable outcomes. We can do this by removing structural barriers imposed by systemic racism to ensure equitable treatment of all City residents. Communities that experience structural exclusion from land use, budgeting and infrastructure decisions, as well a lack of targeted resource and service investments, continue to experience exacerbated historical inequities.

Addressing inequity and systemic racism requires a thoughtful and intentional approach that empowers and is inclusive of our communities experiencing structural exclusion. To create equitable outcomes, we must prioritize action and investment where the need is greatest by involving impacted community members in the City's decision-making process early and through continual partnerships. For this reason, the concept of climate equity is critical throughout the Climate Action Plan.

Recent City policies like the Parks Master Plan incorporate this commitment by prioritizing park and recreation investments in Communities of Concern. With the FY22 budget, the Mayor and City Council created the Climate Equity Fund to supplement funding for infrastructure projects in Communities of Concern. This ensures a dedicated funding source for projects in these communities where funding has been limited in the past. The City will continue to seek new funding sources to expand the capacity of the Climate Equity Fund.

Climate equity requires addressing historical inequities suffered by people of color, allowing everyone to fairly share the same benefits and burdens from climate solutions and attain full and equal access to opportunities regardless of one's background and identity.[1]

[1] *2019 City of San Diego Climate Equity Index,* Nov. 2019, www.sandiego.gov/sites/default/files/2019_climate_equity_index_report.pdf.

Equality
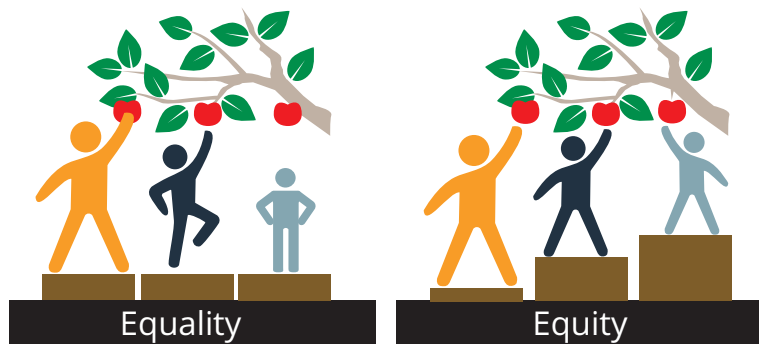
Equity

The City is committed to leading on climate equity by involving more community voices in the decision-making process and exploring ways to shift towards a shared decision-making model. This will require building up trust in communities that have historically been ignored or overlooked by government. Partnerships with trusted community-based organizations (CBOs) have been critical in the preparation of this CAP. By partnering with CBOs in Communities of Concern and increasing their capacity for targeted engagement with and on behalf of the City, we continue to empower the respective communities to have a voice in City policies and increase the levels of engagement from these traditionally disengaged populations based on a lack of inclusive engagement.

THE CLIMATE EQUITY INDEX

Historically, residents of some of our communities have had greater access to opportunities than others and we have lacked policies ensuring underserved communities are provided needed services. To better understand the disparities faced by our residents, the City worked with our Equity Stakeholder Working Group members to develop the first-of-its-kind Climate Equity Index (CEI). The CEI is an innovative tool in terms of both the design and development process. Community voices steered its direction at every step. Residents and organizations in underserved communities have understood and highlighted disparities for decades. The results of the CEI only confirmed these issues have affected the lives of many San Diegans who live or work in neighborhoods. This includes unhealthy air quality, limited availability of alternative modes of transportation and little access to basic necessities like healthy foods. The CEI recognizes these census tracts with very low, low and moderate

access to opportunity as Communities of Concern. The CEI does not use race as an indicator; however, when we compare the designated Communities of Concern to race and ethnicity data, below-average access to opportunity disproportionately impacts communities with high percentages of people of color.

This CAP is intended to address disparities and advance climate equity, uplifting our Communities of Concern and improving the quality of life for all San Diegans. The CAP expands on the City's climate equity initiatives by identifying specific actions in each strategy that serve Communities of Concern. Throughout the CAP, actions utilize the CEI to prioritize Communities of Concern first, focusing on our residents most vulnerable to the effects of climate change and related issues like air quality. The update to the CAP was done in close collaboration with the development of Climate Resilient SD to ensure that Communities of Concern were prioritized synchronously.

City of San Diego
2021 Climate Equity Index

Legend

CEI Category
- Very Low
- Low
- Moderate
- High
- Very High
- Military

0 1 2 4 Miles

N
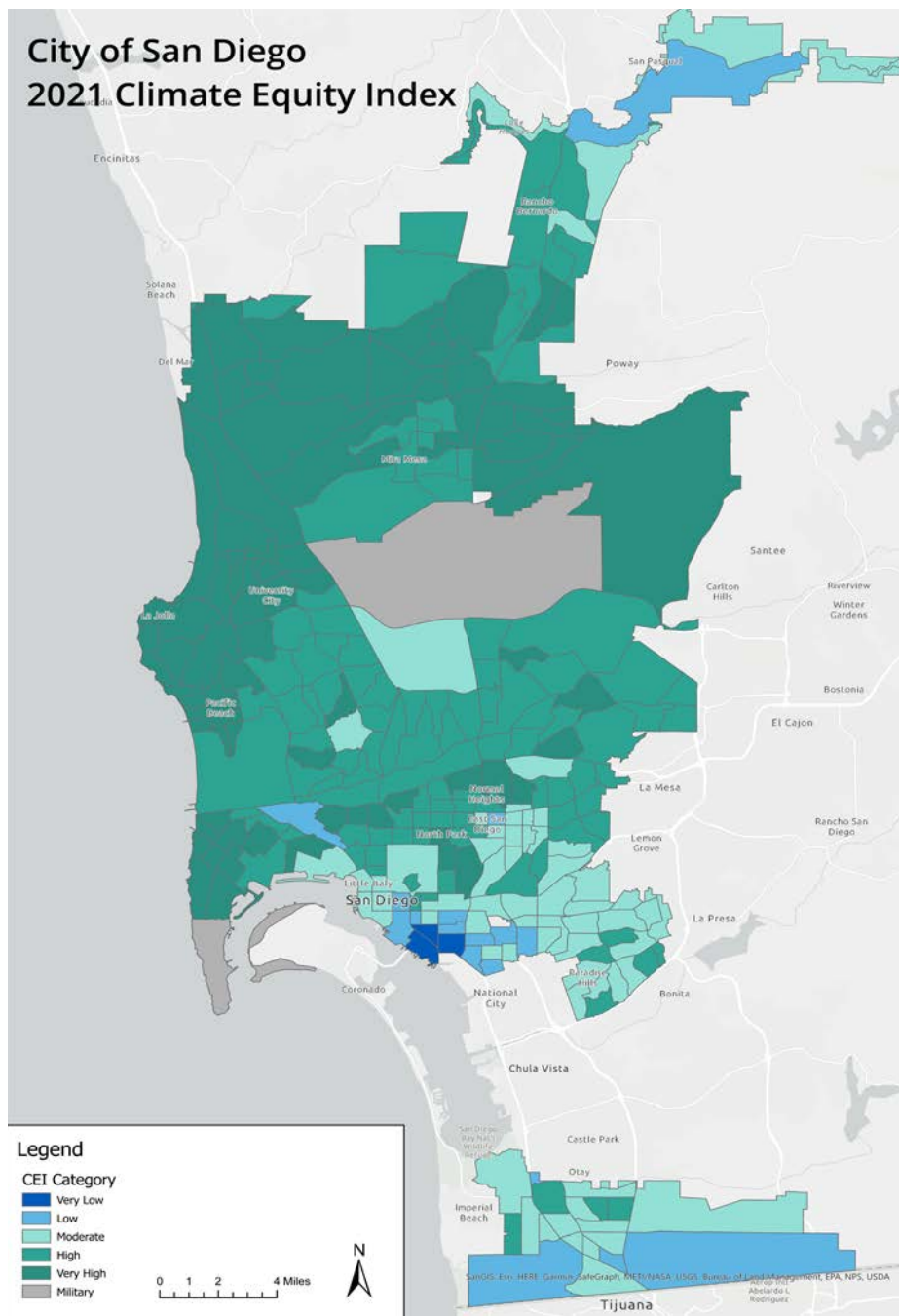
PRIORITIZING COMMUNITIES OF CONCERN

The effects of climate change, such as poor air quality, extreme heat and infrastructure degradation, disproportionately impact communities of color which are predominantly concentrated within the City's Communities of Concern. Therefore, we must prioritize Communities of Concern to ensure our most vulnerable are not left behind.

A map of San Diego's Communities of Concern and a map of redlined communities from 1939 share striking similarities. Redlining refers to the process of refusing a loan or insurance to someone because they live in an area deemed to be of poor financial risk, most often poorer, communities of color. Designated Communities of Concern largely match the concentration of communities of color and neighborhoods with low incomes in the early 1900s. Policies since this era have continued to perpetuate disparities across communities which can be seen in our schools, parks and recreational centers, and infrastructure like roads and sidewalks. As noted in the City's 2021 Parks Master Plan[2], post-World War II, the City's parks system has concentrated new park development primarily in the City's northern communities, where access to opportunity is generally considered to be high to very high. This is one example of barriers faced by residents in Communities of Concern who lack equal access to parks, pedestrian-friendly infrastructure, greenspace, or fast, reliable, and convenient transit. Prioritizing our Communities of Concern is the only way to ensure historical inequities are addressed and the City provides equal access to a high quality of life for all San Diegans.

Funding mechanisms like a climate equity fund assist in prioritizing investments into Communities of Concern. In 2021, the Mayor and City Council established the Climate Equity Fund to supplement funding for infrastructure projects within Communities of Concern. This dedicated funding source allows projects in these communities to have additional funding for implementation of infrastructure projects, addressing the historical lack of investment in these communities due, in part, to the effects of redlining. Funding is important to prioritize Communities of Concern, but community engagement and empowerment are also key.

[2] https://www.sandiego.gov/sites/default/files/parks-master-plan-adopted-2021.pdf
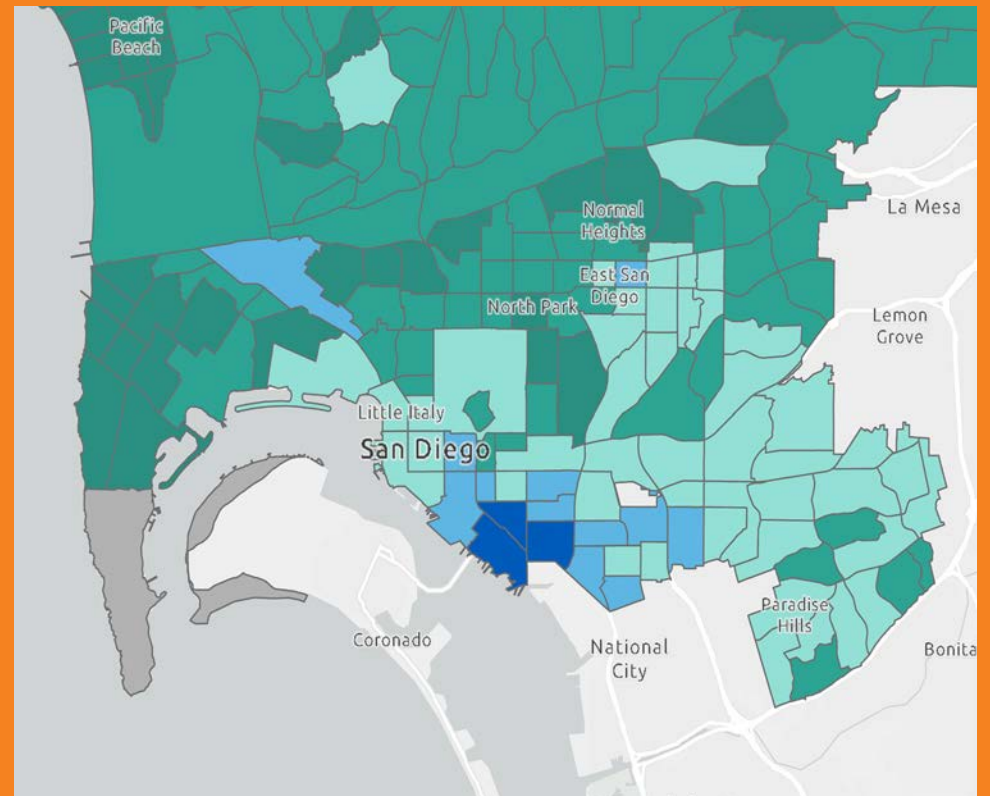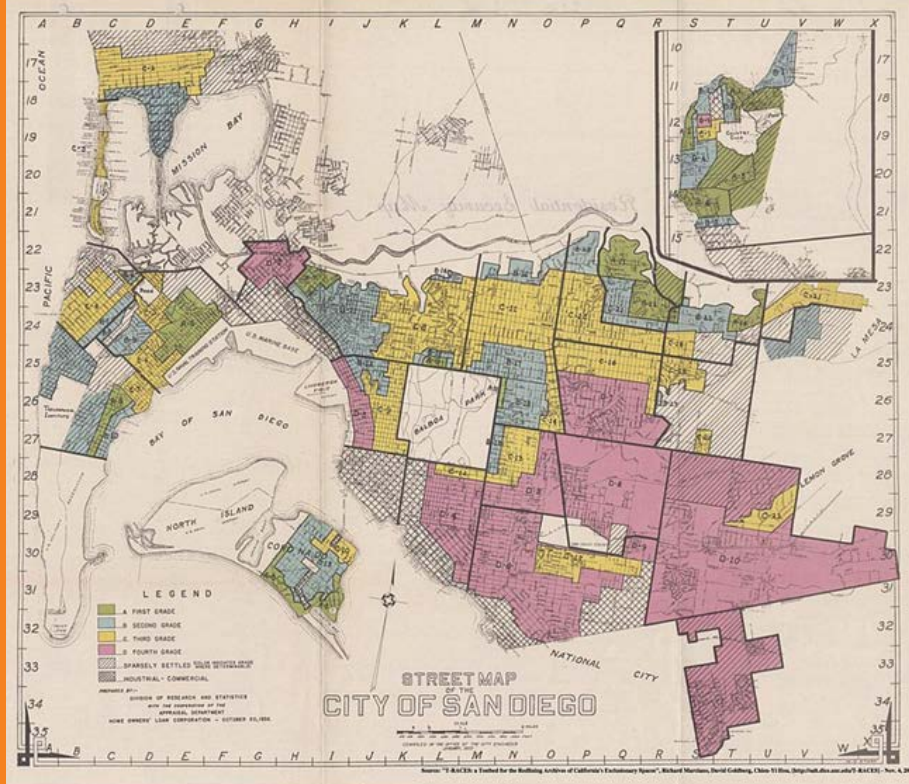
Southeastern San Diego has the largest concentration of Black San Diegans in the City. The Federal Home Owners' Loan Corporation (HOLC) assigned investment risk grades (from A: Best to D: Hazardous) to each area in San Diego based on several factors, including race and/or ethnicity. In the mid 1930s, Southeastern was predominantly graded a D for having undesirable populations.[3] This drove down property values in the community and is still evident in the real estate market today. The City's 2021 Climate Equity Index highlights this disparity. Since the City relies on Development Impact Fees (DIF) to invest in infrastructure per neighborhood, as more development goes into a neighborhood, more funds are made available in areas for parks, roadway improvements, etc. The racist policy of redlining decreased the value of property in communities like Southeast San Diego, discouraging development and therefore community investment from the City.

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[3] Mapping Inequality: Redlining in New Deal America - San Diego, LISC. 2020

COMMUNITY EMPOWERMENT

As the climate changes, so too will the makeup of our communities. Should the U.S Census Bureau population data trends continue, San Diego communities will grow and become more diverse. Residents must be empowered and supported to fully access the opportunities and benefits from climate actions and related environmental and quality of life improvements. However, doing so will require the removal or mitigation of barriers some communities face, such as a lack of access to quality and efficient transit systems or reducing costs for the adoption of clean energy technologies. Outreach and engagement are key to understanding and identifying those barriers, but going a step further toward community empowerment is necessary to ensure every community can thrive.

Through racist policies like redlining, Communities of Concern were denied political power and influence often enjoyed by more affluent communities. While explicitly racist policies like redlining no longer exist, the effects can still be seen and felt. Cities are changing how decisions are made by developing a shared decision-making approach. Building on the work conducted with the Equity Stakeholder Working Group on the CEI, the City looked to our community liaisons and resident representatives to listen and bring forward the voices of residents to shape the priorities of the CAP and tackle the real concerns and challenges our residents face daily. These personal and important stories informed this Climate Action Plan, helping it to be an equity-reflective policy for our City.

Shared decision-making means intentionally seeking external voices during the time when decisions are being made and ensuring this input can influence the outcome of the process. Throughout the draft development of this CAP, the City has engaged early with stakeholders and residents to shape the contents of this document as well as the details surrounding each of the strategies. The Equity Stakeholder Working Group participated in informal conversations on the overall engagement process, the methodologies used to rank measures and the outline of strategies within this document.

Moving forward, the City will continue to refine what it means to have a shared decision-making process, including exploration of programs such as Sustainability Ambassadors that would serve as community champions and neighborhood educators, continued operation of the Equity Stakeholder Working Group and other mechanisms as identified by community stakeholders. Throughout the implementation of the CAP, it will be essential to have direct connections in Communities of Concern to ensure their voices are centered in the development of future planning efforts, program development and budgetary decisions.

COVID-19 AND MOVING FORWARD

This CAP update occurred during unprecedented times for our City and residents. It occurred during the global novel coronavirus (COVID-19) pandemic, massive economic downturn, incidents of severe impacts due to climate change including wildfires and storm events and racial justice protests. The COVID-19 pandemic alone highlighted and exacerbated the vulnerabilities and inequities in our critical support systems for food, education, public health and housing. However, we also learned dramatic shifts in the status quo are both possible and necessary. We saw we can create streets and neighborhoods that encourage walking and bicycling over individual vehicle use. Our government, private companies and organizations can implement teleworking to give workers more flexibility and reduce GHG emissions from commuting. We have also altered our neighborhoods to connect our residents to local businesses and goods, repurposing our outdoor spaces for people. These direct experiences of San Diegans during the pandemic were important as we built this plan. The timing of this document creates an opportunity for the City to utilize our climate work to open new opportunities for San Diego's businesses and communities to build a more resilient and equitable City.

A Pathway to Zero

As we are faced with a rapidly worsening climate crisis, it has never been more important for the City to set an ambitious, science-based goal that encompasses our fair share of GHG emissions. Achieving a goal of net zero GHG emissions by 2035 requires accelerated, bold action that goes beyond former commitments, such as the Paris Climate Agreement, and serves as an example to the rest of the world the level of the response necessary to ensure a sustainable future for communities.

To ensure we are leveraging global expertise and research to set a path forward, we utilized the best available data and globally accepted methodologies to develop the goal. The City utilized the International Council for Local Environmental Initiatives (ICLEI) Community Protocol to develop science-based targets for 2030 and 2035 and used a starting year of 2019 as detailed in Appendix C for projections. These targets also account for the City's "fair share" of GHG emission reduction potential by accounting for gross domestic product (GDP), which allows more accountability for historic responsibility and current capacity to address the climate crisis relative to cities across the world. Historically, the United States has been the second largest source of GHG emissions globally.[4]

California's AB32 legislation set a state GHG avoidance goal of returning to 1990 emissions levels by 2020 and required the California Air Resources Board (CARB) to develop a Scoping Plan which lays out California's strategy for meeting the goals. The State has committed to carbon neutrality by 2045 through carbon sinks, carbon capture or carbon storage. The California Air Resources Board (CARB) recognizes in its Climate Change Scoping Plan that city-level data does not exist to determine what 1990 levels were, so it is assumed that GHG emissions in 2020 are representative of 1990 levels. The City acknowledges that

2020 emissions data may have impacts from the COVID-19 pandemic, so the 2019 GHG emissions inventory is likely the most representative under normal circumstances in achieving the 2020 goal of AB32.

After accounting for all strategies, the City has identified within this CAP there will be residual GHG emissions, or those emissions that will remain after all actions have been implemented. Strategy 6 has been developed for this CAP to better understand where opportunities exist to pursue those additional actions that will be necessary to achieve the GHG goal and prioritize core benefits such as improving air quality.

On March 25, 2020, the San Diego City Council passed Resolution Number 312891: Declaring a Climate Emergency and the Need for Accelerated Action to Address the Climate Crisis. The resolution acknowledges the need for accelerated local action to address the climate crisis.

Below is a representation of GHG emissions avoided over time as a result of federal, state and regional actions, as well as by the City at the strategy level.

Greenhouse Gas Emissions - City of San Diego
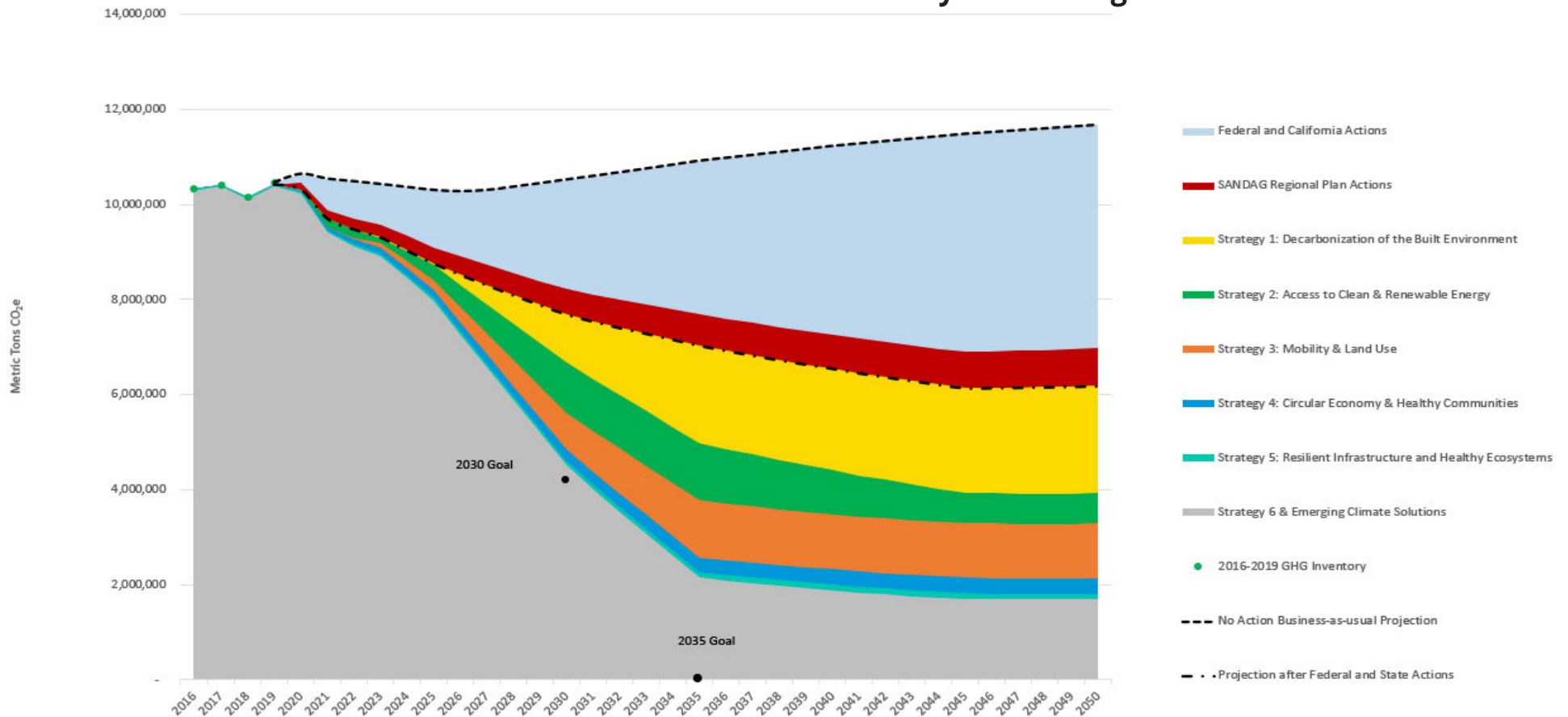
Energy Policy Initiatives Center, University of San Diego, 2021

To modernize the City's approach to monitoring progress toward achieving a net zero goal, moving forward we will measure progress towards "0" rather than measuring against a historic baseline. This will ensure the monitoring results are more transparent and consistent with the most current available information.

Net zero means sources can either eliminate emissions or continue to release GHGs as long as those emissions are reduced elsewhere.

City of San Diego Greenhouse Gas Emission Projections and Reductions

Year	Business-as-usual Emissions Projection (MT CO2e)	Target Emission Levels (MT CO2e)	Emissions Reduction from CAP Implementation** (MT CO2e)	Emission Levels after CAP Implementation (MT CO2e)	Additional Emissions Reduction or Removal Needed(MT CO2e
2019 (Starting Year)	10,462,000				
2030	10,522,000	4,194,000*	5,688,000	4,834,000	640,000)
2035	10,922,000	Net Zero Emissions	8,411,000	2,511,000	2,511,000

*Science-Based, fair share target for 2030 (63.3% reduction from 2019 per capita emissions)
**CAP implementation includes the impact of Federal and State regulations and programs, SANDAG regional actions and CAP Strategies
Emissions projections and reductions are rounded.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) STREAMLINING

Pursuant to CEQA Guidelines Section 15183.5, a CAP should:

- Quantify GHG emissions, both existing and projected, over a specified period of time within a defined geographic area.

- Establish a level below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerabl.

- Identify and analyze the GHG emissions resulting from specific actions, or categories of actions anticipated within the geographic area.

- Specify measures or a group of measures, including performance standards, if implemented on a project-by-project basis, would collectively achieve the specified emissions level.

- Set up a method to monitor the plan's progress toward achieving that level, and to require amendment if the plan is not achieving specified levels.

- Be adopted in a public process following environmental review.

A CAP that meets the above criteria may be used for streamlining the analysis of GHG emissions.

A CAP that meets the CEQA criteria under CEQA Guidelines section 15183.5 for a *Qualified Greenhouse Gas Emissions Reduction Plan* demonstrates specific quantifiable actions that a jurisdiction will need to implement to reduce GHG emissions in a manner consistent with State reduction targets.

CLIMATE ACTION PLAN CONSISTENCY

The CAP Consistency Checklist, adopted in 2016, is being revised and is proposed to be codified as an amendment to the Land Development Code to ensure that all new development is consistent with the updated CAP (CAP Consistency Regulations). In addition to ensuring new development projects are consistent with the City's GHG emissions reductions goals under this Climate Action Plan, analysis of GHG emissions impacts is also required under the CEQA.

The CAP is a plan for the reduction of GHG emissions in accordance with CEQA Guidelines Section 15183.5. Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d) and 15183, a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of the CAP. The regulations anticipated to be set forth in the Land Development Code, which will be incorporated into this Climate Action Plan by reference, contain measures that are required to be implemented on a project-by-project basis to ensure the specified emissions targets identified in this CAP are achieved. Implementation of these measures would ensure that new development is consistent with the CAP's assumptions for relevant CAP strategies toward achieving the identified GHG reduction targets. Projects that are consistent with the CAP, as determined through the CAP Consistency Regulations, may rely on the CAP for the cumulative impacts analysis of GHG emissions. Projects that are not consistent with the CAP must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in the CAP Consistency Regulations to the extent feasible. Cumulative GHG impacts would be significant for any project that is not consistent with the CAP. The CAP Consistency Regulations may be updated to incorporate new GHG reduction techniques or to comply with later amendments to the CAP or local, state or federal law.

SAN DIEGO'S RESPONSE TO THE CLIMATE EMERGENCY

This is the first update to the City's groundbreaking 2015 Climate Action Plan, which committed the City to a goal of 50% GHG avoided by 2035 based on a point in time of a 2010 baseline. Five strategies were developed to target the reduction of energy consumption, increase renewable energy efficiency and implement more equitable climate investments in underserved communities. Many of the goals under each strategy have been met in the years since the plan passed.

San Diego received national recognition as one of the first cities to have a comprehensive roadmap to quantifiable, accountable GHG reduction targets. Beyond GHG emissions reductions, the original plan prioritized maximizing the co-benefits of climate action, including enhancing San Diego's natural and urban environments, improvements to public health and air quality, building a more resilient economy, water conservation, taxpayer savings and improving overall quality of life.

The City of San Diego's adoption of the 2015 CAP created a pathway for a more sustainable San Diego, building on policies and plans passed in the earlier decade.

Public Tree Protection Policy

General Plan

Construction & Demolition (C&D) Recycling Ordinance

Climate Action Plan

Zero Waste Plan

Urban Forestry Program Plan

Initiating Phase 1 of Pure Water Program

2005 • **2007** • **2008** • **2013** • **2015** • **2017** • **2018**

Environmentally Preferable Purchasing Program (EP³)

Recycling Ordinance

Bicycle Master Plan

Pedestrian Master Plan

Urban Agriculture Incentive Zone

Formation of the Sustainability Department

Climate Emergency
Resolution

Complete Communities:
Housing Solutions

Complete Communities:
Mobility Choices

Climate Equity Index

Established Climate
Equity Fund

Parks Master Plan

Joined the United
Nations Race to Zero
Initiative

2019   **2020**   **2021**

San Diego Community
Power formed

Equity Stakeholder
Working Group

Building Energy Benchmarking Ordinance

Regulations for Shared
Mobility Devices

Zero Minimum Parking
Requirements

Slow Streets Program

Municipal Energy Strategy

SANDAG's DRAFT San
Diego Forward: Regional
Plan

Draft Climate
Resilient SD plan

APCD's Community
Emission Reduction
Plan Adopted

The Update Process

Updating the 2015 Climate Action Plan gives the City an opportunity to incorporate more knowledge from the lived experience of our residents, new technologies and scientific advancements and more recent data sources, to responsibly set our climate action goals on the aggressive timeline the best scientific research indicates is needed. It also allows the City to expand on climate equity in the plan and incorporate additional core benefits of climate action into the analysis of individual measures that can improve prioritization, budgeting and implementation.

Centering climate equity started with a robust engagement campaign enabling all members of our community to participate in the planning process. Extensive community input underpinned the development of the CAP update, including community workshops, digital resources and methods for feedback and youth engagement.

In summer and fall of 2020, during the COVID-19 pandemic, San Diego hosted a virtual citywide forum, as well as nine virtual community forums in each council district. Through these forums, more than 448 participants learned about the previous CAP and the update process, and shared what climate actions they prioritize, what climate equity means to them and how climate change has already impacted them. An online survey captured more than 1,800 responses, giving more opportunity to share what actions San Diegans prioritized and the specific barriers they face in implementing climate action in their own life. In partnership with San Diego libraries, the City distributed 10,000 climate action activity books for youth to learn about conservation and share their own thoughts on the future of San Diego.

While the City's initial engagement in 2020 provided extensive feedback from San Diego residents, there was an underrepresentation of our communities of color and residents in Communities of Concern. To address this gap in our engagement, and to lift up the voices of our residents that are most directly impacted by the effects of climate change, the City partnered with the Institute for Local Government (ILG) and several local nonprofits and community-based organizations within Communities of Concern. This engagement campaign supported the capacity of organizations and residents in many Communities

Act
Implement adaptation actions in the City of San Diego

Observe & Learn
Monitor action effectiveness

Plan
- Set Scope
- Define planning purpose
- Assess climate impacts and vulnerabilities
- Set, review, and/or revise adaptation goals, strategies, and actions

2

1 **Update** **3**
Adjust actions as needed

City of San Diego
Climate Action Planning
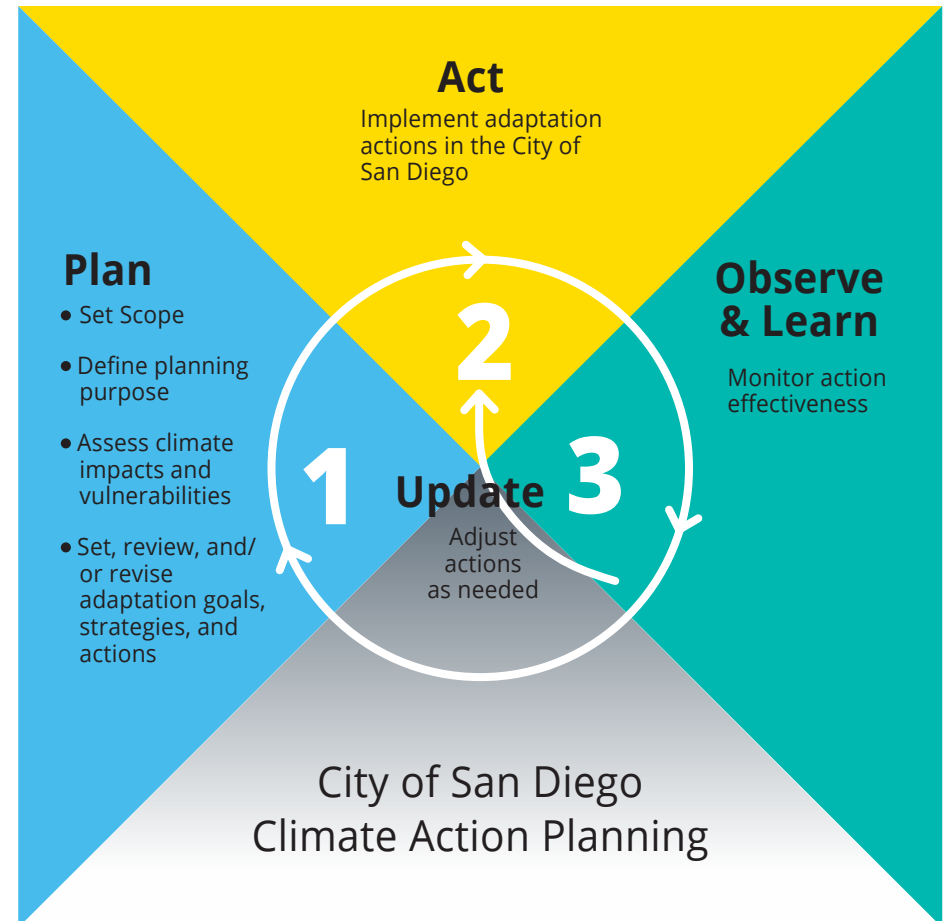
of Concern, including Barrio Logan, City Heights, Linda Vista, San Ysidro, Southeastern San Diego, Encanto, Skyline-Paradise Hills, Otay Mesa and Otay Mesa-Nestor, to participate in the update process and inform decisions affecting their communities for generations to come.

ILG was tasked with providing the logistical support and coordination of four community-based organizations and two non-profits on behalf of the City. These partners were empowered to engage residents in their respective communities in ways that ensured proper representation of their areas. A report by ILG, Appendix D, was drafted to detail the unique engagement approach of each

partner, the outcomes of the engagement and a best practices and lessons learned report to showcase the City's investment in this equitable engagement approach and how to potentially implement the practice in future citywide projects. Appendix B is a detailed table that outlines the outcomes of the community input and identifies the actions included in the CAP as a result. The City also compiled a community engagement report as Appendix E to summarize the engagement and results used to shape the actions identified within this CAP.

Core Benefits of Climate Action

While reducing GHG emissions is the main objective of this Climate Action Plan, related challenges and benefits experienced by our residents each day should be considered for prioritization during implementation. Maximizing core benefits, especially those that address severe existing conditions like air quality, can be accomplished in tandem with implementation of the CAP. Core benefits may not have a direct or indirect impact on reducing the effects of climate change, but they warrant consideration in the interest of public health and safety, economic resiliency and overall quality of life.

The first step to empowering communities to achieve greater access to opportunity is to understand the core benefits most important to them and use this information to directly influence the development and implementation of the CAP. The following core benefits were identified from the extensive engagement process that took place during the development of the draft, utilizing online surveys, phone banking and community forums.

Air Quality
- Indoor air quality
- Outdoor air quality

Public Health
- Reduce pollution and litter
- Increase access to healthy and affordable food
- Increase walkability
- Increase access to parks, green space, and recreation
- Increase safety (e.g., pedestrian, bike)

Jobs & Economy
- Local investment generated
- Potential for local jobs
- Increase affordability of transportation

Resiliency
- Reduce heat island effect
- Increase natural habitat
- Improve biological resources (i.e. trees, green spaces)
- Improve water quality
- Increased independence for local resources (i.e. energy, water)

CLIMATE ACTION SELECTION METHODOLOGY

Addressing climate equity in this update to the CAP required the City to not only listen and seek out input from our residents, but to ensure this information directly influenced the strategies, measures and outcomes, while also assessing operational feasibility and equity in implementation.

One method used toward that goal was the Climate Action Prioritization (CLIMACT Prio) Tool, created and distributed by researchers at the Institute for Housing and Urban Development Studies at Erasmus University Rotterdam. This tool guided city planners through the collection of necessary data, and then it allowed technical staff to conduct a quantitative analysis in which they ranked climate actions by operational feasibility, community priorities collected through engagement activities and opportunities for equitable implementation.

The City modified CLIMACT Prio to better understand how each action could feasibly prioritize communities of concern, empower communities and address historical disparities. Actions identified during outreach and engagement were all analyzed using CLIMACT Prio to directly incorporate that input into the ranking process, and to illustrate how feedback can shape the City's approach to climate action.

The CLIMACT Prio Tool analyzed the following inputs:

■ A complete list of potential actions as identified by outreach and engagement with residents and stakeholders, as well as through peer city reviews and discussions with City department leadership and staff that implement CAP actions.

■ A list of the core benefits important to residents, such as improved air quality, local job generation or pedestrian/cyclist safety as determined by outreach and engagement with the City's residents.

■ An evaluation of the feasibility of each action completed by engaging City department leadership and staff that implement CAP actions.

■ An evaluation of an action's potential for equitable outcomes including investments and benefits being concentrated in Communities of Concern, community empowerment and redressing historical disparities.

■ An evaluation of the impact each action would have on core benefits.

■ A weighting of the core benefits as we heard them from residents.

The tool utilizes this information to provide a ranking for each CAP action, which is shown as a total value for each measure. This ranking is an indicator of which measures should be prioritized, the feasibility of a measure and the potential for equitable outcomes.

Source of suggested actions

Best practices research and subject matter experts

CoSD departments' current and proposed work plans

Community engagement

Initial list of actions to evaluate
- Action 1
- Action 2
- ...

City department leadership and staff score each action for feasibility and equitable implementation

Subject matter experts score each action for impact on **core benefits identified through community outreach**

Scores are combined to determine action ratings

Community outreach and engagement, conducted multiple times during this process, provided additional **actions** for consideration, a list of important **core benefits**, and **feedback** on the Climate Action Plan as a whole

Climate Action Plan

Strategy-specific measures, with key and supporting actions, are structured with community benefits, feasibility, and potential for equitable implementation in mind

Review and revise

Governance and Leadership

A Whole-of-Government Approach to Climate Action

Local governments, particularly cities, are central to addressing the ongoing climate crisis. Most of the world's population resides within cities, which means that cities bear the largest burden in responding to and avoiding impacts from climate change. Cities also play an intermediary role with direct connection to their communities and residents and advocating up to larger state and federal agencies.

A whole-of-government approach includes active coordination efforts between all levels of government and strong partnerships with community-based organizations, the private sector and our workforce. This approach starts with establishing a unified vision for addressing climate change that the entire City of San Diego organization is aligned to achieve and a strong governance structure to ensure it delivers. For the City of San Diego, the CAP is that shared vision and the City continues to build a governance structure around the implementation of the CAP goals that increases accountability, transparency and coordination, and better informs budget and resource decisions.

CLIMATE ACTION PLAN AUDIT

In 2021, an audit of the City's implementation of the 2015 Climate Action Plan was released by City Council. The City Auditor found that "... the City needs to address several issues to improve its CAP implementation, including improving coordination, transparency and budgetary planning." In consultation with City departments, the Auditor's report provided several recommendations for improving CAP implementation:

Recommendation 1 - To formally establish responsibility and authority for oversight and accountability of CAP implementation, through annual department work plans and department CAP liaisons to assist the Council with budgetary considerations.

Recommendation 2 - In conjunction with the update to the Climate Action Plan, the City should conduct a staffing analysis to determine additional resources to support the City's CAP implementation within the Sustainability and Mobility Department.

Recommendation 3 - To strengthen opportunities for collaboration among City departments, the City should have citywide Sustainability Roundtable meetings at least quarterly, with time dedicated for departments to share the implementation status of CAP workplans and to discuss challenges and potential areas for collaboration and coordination.

Recommendation 4 - To better inform the public and ensure the City Council is aware of how the items they are voting on help to implement or support the CAP, the Staff Report template should be revised to include a section to identify how an item helps to implement or support the CAP.

Recommendation 5 - As part of the City's CAP 2.0 update and to facilitate the prioritization of the City's limited resources for CAP implementation, an assessment and rating system should be developed for the CAP measures, using factors such as cost estimates, staff resources, feasibility, GHG reductions, climate equity and other benefits to help inform prioritization.

Recommendation 6 - Once CAP 2.0 is developed, the City should develop an implementation plan, including an estimate of associated costs, information on funding sources and identification of funding gaps.

Green Economy and Just Workforce Transition

Successful climate change policy must incorporate strategies to open new economic opportunities and support a smooth transition of business activities and workers to more sustainable practices. A strong economy brings many benefits such as quality jobs, vital funding for public education and infrastructure, better health outcomes, and financial and physical security. Poorly targeted and unregulated economic forces have driven the current climate crisis and its self-defeating impacts will increasingly harm our shared prosperity and quality of life if left unchecked. Inversely, a climate-focused economy will spur growth and opportunity while simultaneously providing solutions to remediate the climate crisis. Ambitious climate action can only be achieved with a strong workforce and high-quality job opportunities to support it. The City can lead the way by investing in job training, programs to make impacted workers whole, and innovative partnerships and pilot programs that create local opportunities. The City's Municipal Energy Strategy prioritizes workforce education and training. Anticipated municipal clean energy projects necessary to achieve the goals in Strategy 1 have the potential to add an average of 70 to 90 new jobs per year over the next 13 years. The City is committed to working with labor and workforce partners to leverage our municipal retrofits to provide on the job training for local trainees in the clean energy market to realize the benefits outlined above.

The policies and associated investments proposed in this CAP will create an influx of new jobs and provide many community and economic benefits in San Diego. However, some actions may also impact our skilled workers associated with fossil-fuel dependent industries. A highly skilled and well compensated workforce is necessary to decarbonize our built environment and electrify our transportation sector. An equitable and just distribution of new job opportunities and economic benefits will not occur automatically. The City recognizes that as we shift towards net zero GHG emissions, we must pair emission-reduction policies with investments in other technologies, building practices or workforce programs to provide for a just transition and to ensure that newer fields offer good, living wage jobs that provide the security necessary to support San Diego families.

City officials concur with these recommendations and are moving to implement them as the CAP is updated and we recommit to full implementation. These recommendations were incorporated into the CAP update process to the fullest extent possible. All the recommendations will be implemented by the City to ensure successful achievement of the CAP goals. For example, preparation of a staffing analysis and CAP Implementation Plan are beginning in parallel to this update and will feed into more focused work plans for each city Department with a role in CAP implementation. Implementation plans will provide staff and partners with more detailed and actionable information on the specific steps and resources that will be required to meet our goals to help guide budgeting and staffing decisions. Implementation planning will also provide another opportunity for prioritizing resident input and investments in Communities of Concern. A new City Staff Report template has been established to better inform City Council and the public on how every action before City Council relates to CAP implementation. And of the last recommendation, as discussed in the previous section, a prioritization and rating system was utilized in the development of CAP measures for this update. It is with all of the actions moving forward in unison that a true comprehensive solution can be applied.

The complexity and interdependency of the various 'just transition' elements cannot be understated, requiring extensive collaboration and long-term planning at all levels of government. Wage guarantees for transitioning workers, pension security for impacted unions, job placement prioritization for displaced workers and salary bridges to retirement for those workers close to the end of their careers are all elements that must be thoughtfully considered to ensure no workers are left behind during this shift. Strong partnerships throughout the workforce ecosystem are critical for a successful and equitable transition away from fossil fuels in San Diego. This economy-wide transition will require commitments from across the labor market, including employers, workers, unions and our own public agencies. The City can be a catalyst for this 'just transition' by leading initial and long-term planning, facilitating regional coordination and engaging with the state and federal agencies that are responsible for labor policy and funding provision.

Partnerships and Advocacy

The City cannot solve the global climate crisis in isolation. Developing strong partnerships and capitalizing on opportunities to advocate for San Diego's priorities is necessary for transformational change. The City does not always have direct control however, there are many spaces where the City has the ability to advocate for the reform necessary to protect San Diego's environment and bring about air quality improvements, economic resiliency and public health outcomes that are of significant importance to our communities.

COUNTY OF SAN DIEGO

The County of San Diego is updating their Climate Action Plan concurrently with the update of the City's Climate Action Plan. In 2021, the County of San Diego Board of Supervisors approved the development of a framework for a regional zero-carbon sustainability plan in partnership with the UC San Diego School of Global Policy and Strategy and the University of San Diego (USD) Energy Policy Initiatives Center. The framework will provide science-based pathways to achieve zero carbon in the region. In addition, the framework will foster regional collaboration between public agencies, universities, schools, business, labor, communities and tribes, as well as leverage resources at the state and federal levels.

SAN DIEGO ASSOCIATION OF GOVERNMENTS

The San Diego Association of Governments (SANDAG) is the San Diego region's Metropolitan Planning Organization (MPO). Core functions of SANDAG include planning for the region's future growth by identifying areas for smart growth supported by a long-range transportation plan through the Regional Plan (RP), which is updated every 4 years, and development of a Regional Transportation Improvement Program (RTIP) that allocates funding to near-term projects that implement the Regional Plan. SANDAG provides the public forum for regional policy decisions about growth, transportation planning and transit construction, environmental management, housing, open space, energy, public safety and binational topics. During the development of this update to the CAP, SANDAG has led a broad-based community effort to develop San Diego Forward: The 2021 Regional Plan. SANDAG's 2021 Regional Plan will make meaningful progress toward making it easier to get around San Diego without using a car, but it will not be enough for the aggressive targets detailed in this CAP. Reaching our goals will also require significant City-led investment.

Mayor Todd Gloria serves as the SANDAG's Board of Directors First Vice Chair and is joined on the board by City Council President Jennifer Campbell. Seven other City Councilmembers also represent the City of San Diego on various SANDAG policy committees, subcommittees and working groups. Dozens of City staff are also members of other SANDAG working groups, committees, councils and project study teams, collaborating with and advising SANDAG on a regular basis to help develop regional policy, plans and projects that ultimately go to the Board of Directors for approval. For example, the City is a founding member of the SANDAG-led Accelerate to Zero Emissions Collaboration (A2Z). The purpose of A2Z is to develop a vision and implement a San Diego Regional Electric Vehicle (EV) Strategy that will accelerate investment in zero-emission vehicles and EV infrastructure that reduces air pollution and GHG emissions to combat climate change. City staff regularly coordinate with SANDAG on transportation modeling, planning, active transportation and engineering for all community plan updates, multimodal corridor, active transportation and specific plans. The City has a SANDAG/MTS Liaison who helps facilitate coordination on SANDAG and MTS projects. This includes administration of the Memorandum-of-Understanding (MOU) between SANDAG and the City for streamlined City-permitting processes to construct improvements and the transferring improvements to the City's asset owning departments once construction is complete.

SAN DIEGO AIR POLLUTION CONTROL DISTRICT

The San Diego Air Pollution Control District (APCD) works to improve the health and well-being of San Diegans through air quality improvements by ensuring commercial, industrial, transportation and agricultural businesses are permitted and comply with air pollution control laws; incentivizing cleaner technologies through grant opportunities; and monitoring, sampling and recording air quality using a network of equipment stationed around the county and alerting the region of air quality conditions. These efforts often have an additional benefit of improving GHG emissions while lowering the level of criteria pollutants. The passage of California Assembly Bill 423 restructured the APCD board to better align with other regional agencies and now allows the City of San Diego to have a maximum of two members, from either the Mayor or Council. Currently, two City Councilmembers are seated on the APCD board.

The City works closely with APCD on a number of regional plans and regulations, including the Regional Air Quality Strategy and the Portside Environmental Justice Neighborhood's Community Emission Reduction Plan (CERP). The CERP was developed in a community-driven process to detail actions and strategies APCD will utilize to reduce air pollution and improve public health in the City's neighborhoods of Barrio Logan, Sherman Heights and Logan Heights. The City continues to serve as a steering committee member to support the implementation of the CERP.

SAN DIEGO COUNTY WATER AUTHORITY

The San Diego County Water Authority (SDCWA) is the regional wholesale provider of imported water that supplements local water supplies for 24 retail water purveyors in San Diego County, including the City's Public Utilities Department. This makes SDCWA a vital partner in ensuring water supply reliability for the City's water customers and identifying opportunities to improve the emissions impact of the energy-water nexus. The City currently holds 10 seats on the board.

SAN DIEGO METROPOLITAN TRANSIT SYSTEM

The San Diego Metropolitan Transit System (MTS) is one of the two agencies that provide public transit for the City of San Diego. MTS serves all communities south of State Route 56 (SR 56), which includes most of the City's residents. MTS maintains and operates the light rail (trolley) and bus transit network. Additionally, it licenses and regulates taxicabs, jitneys and other private for-hire passenger transportation services. Mayor Todd Gloria and three City Councilmembers sit on the board of directors for MTS. In 2020, the agency launched a plan to get the bus fleet to all zero-emissions vehicles by 2040. MTS has also launched a pilot program to provide youth opportunity passes, making transit more accessible and paving the way for future generations to use transit as their first choice to get around.

Partnership with MTS is necessary to ensure that transit operations can support the increases in density and ridership and achieve a level of efficiency to provide for an alternative to driving. Currently, the City has a dedicated SANDAG/MTS staff liaison that facilitates coordination and work on new Bus Rapid Transit (BRT) lanes and improved signal coordination for increased efficiency and on-time performance.

NORTH COUNTY TRANSIT DISTRICT

The North County Transit District (NCTD) provides public transit for the North County region, including City of San Diego communities north of SR-56. NCTD operates bus services in the North County Region as well as the Coaster and Sprinter commuter rail that connects Downtown San Diego to the North County cities. A City Councilmember sits on NCTD's Board of Directors as a non-voting advisory member.

SAN DIEGO COMMUNITY POWER

San Diego Community Power (SDCP) is a Community Choice Aggregation (CCA) program which purchases electricity on behalf of its customers and partners with San Diego Gas and Electric (SDG&E) to deliver electricity to homes, businesses and municipalities. The 2015 CAP was integral to the establishment and success of the region's Community Choice Aggregation program. SDCP prioritizes clean and renewable energy and supports San Diego in achieving its 100% renewable energy goal. The Cities of San Diego, Chula Vista, Encinitas, La Mesa and Imperial Beach are the founding members of SDCP. The County of San Diego and National City joined SDCP in 2021.

SDCP has recently started to develop its own programs aimed at increasing local clean energy generation and will continue to develop programs that engage residents, businesses and communities on the 100% renewable electricity transition. City facilities are served by SDCP's Power100 program, which promises to deliver power from 100% renewable and carbon-free sources. The City has one seat on SDCP's board, currently represented by a City Councilmember. The City is committed to partnering with SDCP for future partnerships on programming and local energy projects, especially to meet the needs of our Communities of Concern.

SAN DIEGO REGIONAL CLIMATE COLLABORATIVE

The San Diego Regional Climate Collaborative (SDRCC) was established in 2011, as a network for public agencies to advance climate change solutions that mitigate GHG emissions and adapt to the effects of climate change. Partnering with academia, non-profit organizations and business and community leaders, the Collaborative raises the profile of regional leadership, shares expertise and leverages resources for shared benefits. The City of San Diego is a founding member of the SDRCC.

PORT OF SAN DIEGO

The Port of San Diego (Port) serves as a specially created district along 34 miles of the San Diego Bay, spanning five cities. Many of the larger tenants, including the maritime industry, operate within the City of San Diego boundary of the Port. In their efforts to address air quality, the Port has adopted the Maritime Clean Air Strategy to achieve health equity for all, while setting a goal to have 100% zero-emission trucks and cargo-handling equipment by 2030. The City seeks to be a stronger partner with the Port to help achieve its clean air goals and improve the health and well-being of San Diegans in our portside communities as well as the GHG reduction benefits of better air quality. The City appoints three Port Commissioners to the Board with City Council approval of Mayoral nominations.

SAN DIEGO GAS & ELECTRIC

In 2021, the City entered into an Energy Cooperation Agreement with SDG&E as part of the Electrical and Gas Franchises. Under this Agreement, SDG&E commits to collaborate with the City to attain the principles and policies of the Climate Action Plan by providing clean, safe, reliable and equitable energy to San Diego residents and to support the City's clean energy goals with respect to the reduction of GHG emissions. This will include identifying energy efficiency and demand response programs, improving the urban tree canopy and support for clean transportation programs. Additionally, SDG&E and the City will work together on resiliency and reliability goals such as wildfire safety, microgrids and support for the City's Emergency Operations Center. Other endeavors include equity-focused solar expansion, affordable housing utility design and encouraging diversity in the local clean energy workforce. Under the Energy Cooperation Agreement, SDG&E and the City will meet regularly during each year to assess their progress and set new goals. The Climate Equity Fund (CEF) is funded partially by fees collected from the Energy Franchise agreement with SDG&E.

Climate Action by the State of California

The City of San Diego coordinates with the State on legislative and regulatory proposals that advance on sustainability and climate action to reduce GHGs and pollutants and advance the local implementation of environmental targets. The City has advanced funding and policy priorities through legislative action on issues as varied as waste diversion, vehicle electrification, clean energy and community choice aggregators, active transportation and transit and resiliency. This includes acting on policies that promote the City's goals of focused infill development near transit and high resource areas, and prioritizing equity and communities of concern. In working with state legislators and regulators, the City attempts to balance local control and available funding with the shared goal of reducing GHG emissions, and its harmful impacts related to air quality and public health, in the fields of transportation, energy, waste, municipal fleets and buildings, and resiliency, among many others.

AB 32
The passage of AB 32, also known as the California Global Warming Solutions Act of 2006, required California to reduce its GHG emissions to 1990 levels by 2020 — a reduction of approximately 15% below emissions expected under a "business as usual" scenario.

SB 32 / AB 197
This bill builds upon AB 32 and requires California to reduce statewide GHG emissions to 40% below the 1990 level by 2030. SB 32 became effective once AB 197 was passed on Sept. 8, 2016. AB 197 increases legislative oversight over the California Air Resources Board to not only the Governor but to the Legislature as well.

EXECUTIVE ORDER B-55-18/GOVERNOR NEWSOM DIRECTIVE
This executive order was issued by Governor Brown in 2018 and sets a statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. In addition to this goal, Governor Newsom announced in 2021 that the California Public Utilities Commission will establish a more ambitious electricity procurement target by 2030 and the California Air Resources Board will accelerate progress and evaluate pathways for achieving carbon neutrality by 2035.[5]

EXECUTIVE ORDER N-79-20
This executive order was issued by Governor Newsom in January 2021 and calls for the phasing out of new internal combustion passenger vehicles by 2035 in the State of California.

CARB SCOPING PLAN
AB32 directs CARB to develop a scoping plan that details how the State of California will achieve the established GHG reduction goals. Since 2008, CARB has published three scoping plans and are currently working on an update that would set the path for achieving carbon neutrality by 2045 and develop an analysis of achieving carbon neutrality by 2035.[6]

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[5] https://www.gov.ca.gov/2021/07/09/governor-newsom-holds-virtual-discussion-with-leading-climate-scientists-on-states-progress-toward-carbon-neutrality/
[6] https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan

Global Initiatives

Cities are key contributors to both national and global climate action. San Diego is working to align our efforts with the broader perspective on sustainability. By linking the City's local efforts with global efforts, we localize the universal call to achieve a better and more sustainable future for all.

RACE TO ZERO INITIATIVE

The City of San Diego joined the Race to Zero initiative in August 2021. This is a global campaign to rally leadership and support from businesses, cities, regions and investors for a healthy, resilient, zero-carbon recovery that prevents future threats, creates well-paying jobs and unlocks inclusive, sustainable growth.

In joining the Race to Zero initiative the City committed to a number of actions included in this CAP and developed a "fair share" emissions reduction goal which accounts for Citywide gross domestic product (GDP). The methodology for establishing a fair share CAP goal sets the standard of $15,000 per capita as high for GDP. The ICLEI Community-wide Protocol[7] methodology was utilized for determining the City's science-based fair share CAP goal for this program which is described in more detail in Appendix C. By joining the Race to Zero, cities gain formal recognition of their efforts by the United Nations Framework Convention on Climate Change (UNFCCC), access to events leading up to and at COP26, and access to resources, tools and in some cases technical assistance offered by the Cities Race to Zero partners.

AMERICA'S PLEDGE AND THE PARIS CLIMATE AGREEMENT

In 2017, the City of San Diego became a signatory to the "We Are Still In" declaration, joining 290 U.S. cities and counties in the commitment to delivering on the promise of the Paris Agreement, specifically a U.S. emission reduction target of cutting GHG emissions by 26 to 28% below 2005 levels by 2025.

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[7] https://sciencebasedtargetsnetwork.org/wp-content/uploads/2021/04/SBTs-for-cities-guide.pdf

The 2015 Paris Agreement is a landmark environmental accord that was adopted by 191 countries to address climate change and its impacts. The agreement aims to substantially reduce global GHG emissions in an effort to limit the global temperature increase in this century to 2 degrees Celsius above pre-industrial levels. The U.S. rejoined the Paris Agreement in February 2021 after briefly withdrawing in November 2020.

This CAP exceeds the commitments national governments around the world have made under the Paris Climate Agreement and ensures the City is contributing to its fair share of GHG emissions avoided.

UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

Recognizing the important role cities play in global climate action, the City of San Diego is working to align sustainability efforts and other City goals with the United Nations' 17 Sustainable Development Goals (SDG). These goals address the connections between climate action and economic opportunity, education, public health and equality. The SDGs were adopted by 193 world leaders in September 2015 as a path to ending extreme poverty and hunger, fighting inequality and injustice and tackling climate change by 2030.

This document uses the iconology of the SDG's when describing actions to demonstrate the connection this CAP has to global efforts on sustainability.

THE GLOBAL COVENANT OF MAYORS FOR CLIMATE & ENERGY

The Global Covenant of Mayors for Climate & Energy (GCoM) enables cities, local governments and the networks that support them to bridge the gap from climate ambition to delivery. Uniquely positioned at the nexus of cities, city networks, national and supranational governments and philanthropy, the GCoM alliance elevates city climate leadership and enables strategic and innovative partnerships that are at the crossroads of research, data, finance and communications. The City of San Diego has been a committed member of GCoM since 2015.

CARBON DISCLOSURE PROJECT

The Carbon Disclosure Project (CDP) is a non-profit running the world's largest environmental reporting platform. They are focused on helping investors, companies, cities and states understand and manage their environmental impact with an emphasis on data standardization. CDP is also the designated reporting platform for the Race to Zero and the Global Covenant of Mayors. The data CDP hosts is made publicly available to promote transparency and accountability. The City of San Diego is one of 165 U.S. cities reporting to CDP and has done so consistently for 11 years.

The Intersections of Climate Action

Air Quality and Public Health

Human actions that accelerate climate change also degrade air quality and have damaging impacts on human health and welfare. These effects have a disproportionately negative impact on communities with high numbers of residents of color and those living at or below the poverty level. These effects are a direct result of land use and policy decisions stretching back over many years.

Many of our communities identified by our Climate Equity Index as Communities of Concern are severely impacted by poor air quality. For example, there are levels of a pollutant called particulate matter greater than 10 microns in diameter (PM10) at levels above the national ambient air quality standards (NAAQS) as reported through APCD's 2020 annual monitoring report. To achieve a more sustainable and equitable future, a purposeful attempt to rectify the negative impacts to our Communities of Concern and the health of our communities is critical. The City has included a Clean Air section of the CAP dedicated to air quality and public health of our residents. It outlines the strategies, measures and actions that, while reducing and avoiding GHG emissions, will also be necessary to improve air quality in communities that have suffered for decades and improve the health of some of our most vulnerable residents.

Food Insecurity

According to research done by the San Diego Hunger Coalition, it is estimated that one in three people in San Diego County are nutrition insecure or are unable to provide three nutritious meals a day for themselves and/or their families. Furthermore, we see that nutrition insecurity overwhelmingly affects communities of color. In 2019, 25% of County residents faced nutrition insecurity. Of those, 44% identified as Black, 37% indigenous and 44% Hispanic or Latinx. In 2020, the percentage of those facing nutrition insecurity went up to 31%.[9]

The City recognizes we cannot move forward in achieving a sustainable future if we cannot ensure our most vulnerable residents have access to necessities such as affordable and healthy food. Another byproduct of redlining is illustrated in the City's land use patterns in several of our Communities of Concern, where there is a lack of nearby grocery stores. This creates a significant barrier to accessing healthy, fresh foods, especially for lower income residents who are less likely to own a car and currently lack high quality transit and active transportation facilities. We must ensure all residents have access to healthy foods, through the promotion of localized resources like community gardens and land use policy that facilitates access to healthy foods at local businesses in every neighborhood.

At the global scale, industrial food system activities are major drivers of climate change and are particularly vulnerable to weather-related events. These global food system activities, including deforestation for industrial agricultural use, food production, transportation, processing and packaging, freezing and retail and waste accounts for 37% of the total global GHGs. The GHG reduction potential of community food system strategies including minimizing food waste and localizing food systems are significant.

[8] https://www.sandiegocounty.gov/content/dam/sdc/apcd/monitoring/2020_Network_Plan.pdf
[9] https://www.sandiegohungercoalition.org/research

Active and Healthy Lifestyles

The transportation system has a direct impact on the health and lifestyles of our residents. Since the rise of the automobile, transportation policies have focused on making driving easy – often at the cost of walking, biking or taking transit. The focus on cars has led to sprawling land-use patterns, a lack of walkable infrastructure, compartmentalized built environments, less-active lifestyles and greater incidence of chronic obesity and disease. How and how far people are travelling around the City accounts for greater than 50% of all local GHG emissions. The transportation sector has the greatest potential to contribute to the net zero GHG emission goal by employing economic and technological improvements that work in mutually supportive ways.

Planning for safe and enjoyable active transportation and high-quality public spaces for people of all abilities are complementary initiatives. Parks, trails, pedestrian and bicycle infrastructure and shared-use paths provide opportunities for people to safely get around. "Universal design is an approach to the development of products and environments that can be used effectively by all people, to the greatest extent possible, without the need for adaptation or specialized design" (North Carolina State University, 1997). Universal design goes beyond the narrow, mandated focus of 'Accessibility' to address the needs of all people to benefit the entire population. It integrates usability with other concerns, including aesthetics, sustainable design and urbanism.

Housing

Housing policy is climate policy. These intersecting issues must be considered together to ensure a more equitable and sustainable future for all San Diegans.

Housing and climate action are inextricably linked. The location and type of homes, workplaces and amenities plays a major role in the City's GHG emissions as well as the convenience and quality of life of our residents. Like many cities throughout California and the country, San Diego is facing a housing affordability crisis. This is in large part because production of housing has not kept pace with the City's and the region's growing population.

Strategically planning for new housing in the right places in our City is critical to achieving the City's climate goals. Housing should be located so that residents

can safely and enjoyable access work, school, services, shopping, public spaces and friends and family by walking, biking or taking transit. Not only can these intentional investments in additional housing provide much needed housing for all of us, but it can also lead to more healthy, active and enjoyable experiences for our residents.

The City is consistently ranked as one of the most sustainable cities in the country.[10] Planning for a growing population, rather than losing our talented residents to other regions, supports a strong economy and aids in the global effort against climate change.

The impacts of climate change can have devastating effects on housing supply and housing affordability. The actions to achieve the goals of this CAP should avoid inadvertently displacing current residents. To ensure investments in a more sustainable City are beneficial to current and future community residents, the General Plan Housing Element has several goals. This includes improving the existing housing stock to preserve existing affordable housing, providing new affordable housing and enhancing quality of life to develop equitable communities and prevent displacement of residents.

Environmental Justice Element

The City is developing a General Plan Environmental Justice Element. The Environmental Justice Element will develop goals, objectives, policies and actions to address the following issues for neighborhoods disproportionately experiencing pollution and other health burdens:

- Pollution exposure and air quality.
- Healthy food access.
- Physical activity.
- Health-supporting public facilities, parks, and infrastructure.
- Safe and healthy homes.
- Other unique or compound health risks.
- Civic engagement in the public decision-making process.

The General Plan Environmental Justice Element will more closely focus on many of the issue areas addressed in this CAP and will build upon this work in partnership with residents that live in Communities of Concern.

[10] https://wallethub.com/edu/most-least-green-cities/16246

Climate Resilient SD

Climate Resilient SD is the City's comprehensive plan to prepare for, adapt to and recover from the impacts of a changing climate. At its core, Climate Resilient SD is a plan for the people of San Diego to not only adapt, but to also thrive in the face of extreme heat, wildfires, sea level rise, flooding and drought. Climate Resilient SD focuses on how we can protect those most vulnerable to climate change and improve the lives of the people in our city while preparing for a changing climate.

Climate Resilient SD aims to not only reduce exposure or sensitivity to climate change hazards, but also to protect our natural environment, connect our communities, address existing inequities and work in step with the CAP to reduce GHG emissions. Climate Resilient SD will implement the City's social equity goals by prioritizing Communities of Concern to ensure investments and resources are prioritized for those with the greatest needs and fewest available resources to adapt. The plan includes a suite of adaptation strategies that reduce climate change-related risk to the City and work towards building more resilient, more sustainable and more equitable communities. Like the CAP, Climate Resilient SD strategies are prioritized based on "core benefits," or additional services and benefits associated with the strategy's implementation. As Climate Resilient SD and the CAP move forward into implementation, the aligned strategies will serve to both mitigate and adapt to climate change and provide a more sustainable and equitable future for San Diegans. The goals, strategies and actions of both plans were completed in coordination to best serve the needs of San Diego's residents in a changing climate.

MITIGATION VS. ADAPTATION: Climate change mitigation aims to reduce GHG emissions, slow down global warming and avoid the worst potential impacts of climate change. This is the major goal of the City's Climate Action Plan. The objective of climate change adaptation, on the other hand, is to reduce impacts from climate change-related hazards including extreme heat, extreme rainfall, drought, wildfires and sea level rise. Climate Resilient SD is the City's comprehensive adaptation and resilience plan that focuses on increasing local capacity to adapt, recover and thrive in changing climate.

[11] https://www.sandag.org/uploads/projectid/projectid_614_29513.pdf
[12] https://www.sandiego.gov/sdaccess

The Digital Divide

The digital divide refers to the growing gap between the members of society who do and do not have reliable access to broadband service and a suitable device for connecting to the internet. This divide creates a barrier for some residents to access opportunities such as civic engagement, remote work, distance learning or health care visits that reduce transportation impacts or receiving information from their energy meter to conserve. During the COVID-19 pandemic, the impact of the digital divide on our residents of Communities of Concern was highlighted as an urgent equity issue.

The City of San Diego is taking action to close the digital divide that leaves tens of thousands of San Diegans without internet access. Through the SD Access 4 All program, the City is now offering open public Wi-Fi at more than 300 public locations and purchased hundreds of laptops and mobile hotspots that can be checked out at libraries at no cost.
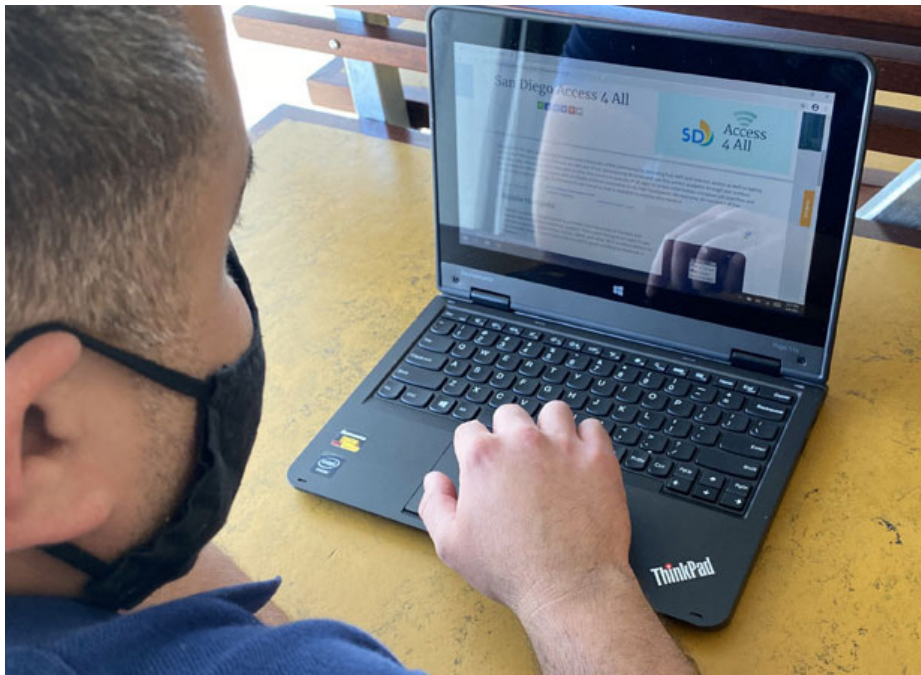
Arts and Culture

Creativity is an essential tool for the City in generating innovative climate action and environmental engagement, while supporting efforts around cultural planning, social cohesion, health and inclusive economic growth. The creative life of San Diego connects people to one another, offering an important platform for guiding engagement, developing creative solutions and building social capital; the City can ensure its sustainable future by leveraging its arts, cultural and creative sectors.

These sectors are distinct in their capacity to tackle complex challenges in ways that are provocative and experimental, often stimulating dialogue with and about new contexts, and using ideation and creative forms of investigation compared to pursuing or offering mechanical fixes. Arts and culture can also be an important conduit through which people can engage with climate change, including impacts, mitigation and adaptation.

Strategies to Reduce Greenhouse Gas Emissions

The City has identified six equity-focused strategies to support our residents to reduce and avoid GHG emissions and for all of us to achieve a goal of net zero emissions by 2035:

- **Strategy 1: Decarbonization of the Built Environment**
- **Strategy 2: Access to Clean & Renewable Energy**
- **Strategy 3: Mobility & Land Use**
- **Strategy 4: Circular Economy & Clean Communities**
- **Strategy 5: Resilient Infrastructure and Healthy Ecosystems**
- **Strategy 6: Emerging Climate Actions**

These strategies are comprised of associated targets, measures, actions (quantified) and supporting actions (qualitative; not yet quantifiable) that the City can use to avoid future GHG emissions. The City recognizes the need for an equitable approach, people-centered resource allocation, long-term budgeting and aligning City staffing to ensure the success of each strategy. The City is committed to meeting the emissions reduction goal in this plan. Modifications to the strategies and their components may become necessary over time as circumstances change or as new information becomes available. This could include adding new actions or refining existing actions to be more equitable, implementable or to ensure that the CAP remains effective and that targets are being met. As implementation progresses, strategies and their components will be regularly assessed and monitored. While the City is committed to meeting the 2030 Race to Zero Fair Share target and 2035 net zero goal, there are multiple ways to achieve success. As strategies evolve, flexibility in implementation is necessary to achieve the most effective path to carbon neutrality. The City may amend or update the CAP as circumstances change. These circumstances could include, but are not limited to, new available data and resources, state and federal legislation or regulations, new technology, new regional plans or new standards in GHG emission reduction calculations becomes available. For identified local ordinance, policy or program actions to achieve CAP targets, the City may expand on or substitute equivalent GHG reductions through other local actions.

Following the adoption of the CAP update, the City will develop a comprehensive implementation plan that will detail the milestones, responsible entities and City Departments, associated costs and possible funding sources and planned timing for implementation. This implementation plan will inform Department-level work plans that will be developed on an annual basis and used to inform the City's budgetary process.

How to Read this Section

As noted in the Update Process section, six variables were weighted in the CLIMACT Prio Analysis tool: air quality, public health, jobs and economy, resiliency, equitable implementation and feasibility. The full list of considerations to assess these elements are listed below.

Strategy

Targets

Measures

Actions & Supporting Actions

| Feasibility & Equity Analysis | | Core Benefits from Engagement |
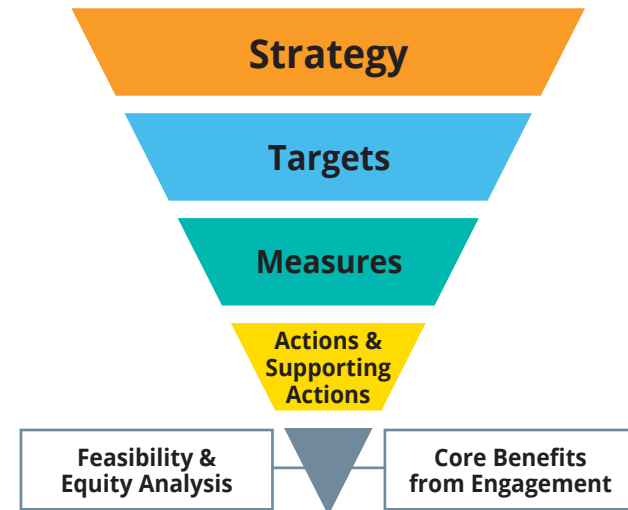
Strategies: The City has identified six bold strategies to reduce emissions to achieve our 2030 and 2035 targets: Decarbonization of the Built Environment; Clean & Renewable Energy; Land Use & Mobility; Circular Economy; Resilient Infrastructure & Ecosystems; and Emerging Climate Action.

Targets: Each strategy has one or more quantified targets to show how that strategy helps the City achieve its overall emission reduction goals.

Measures: Each target has quantifiable measures that includes actions, policies, or programs that the CIty will take to achieve the goals of this plan.

Actions & Supporting Actions: The actions and supporting actions within each measure are working steps that the City will take to advance the progress of the CAP goals.

CORE BENEFITS

The below list identifies the core benefits associated with the implementation of each action. These core benefits were identified from resident engagement and outreach activities, with a focus in Communities of Concern.

Air Quality
- Indoor air quality
- Outdoor air quality

Public Health
- Reduce pollution and litter
- Increase access to healthy and affordable food
- Increase walkability
- Increase access to parks, green space, and recreation
- Increase safety (e.g., pedestrian, bike)

Jobs & Economy
- Local investment generated
- Potential for local jobs
- Increase affordability of transportation

Resiliency
- Reduce heat island effect
- Increase natural habitat
- Improve biological resources (i.e. trees, green spaces)
- Improve water quality
- Increased independence for local resources (i.e. energy, water)

FEASIBILITY AND PROCESSES FOR EQUITABLE IMPLEMENTATION

To rank the actions for their level of potential feasibility or their potential to positively impact Communities of Concern specifically, City staff across relevant departments considered the following components for each action:

Equitable Implementation

Community benefits & burdens: Can it be implemented in a way that distributes benefits and burdens equitably?

Community empowerment: Can it be implemented in a way to increase community capacity or level of engagement?

Addresses historical disparity: Can it address historical disparities in Communities of Concern, i.e., lack of sidewalks or low air quality?

Feasibility

Stakeholder acceptability: Would stakeholders, e.g. local residents, business owners, or others impacted support it?

Technical feasibility: Will necessary design, implementation, and maintenance support be available for the option?

Ease of implementation: Can it be implemented at the local government level, or does it depend upon state, county or national support?

Financial viability: Is it a financially realistic option? Does the City have funding or potential access to funding to cover the costs?

Mainstreaming potential: Could it be integrated with existing City government planning and policy development?

= High   = Medium   = Low

Strategy 1: Decarbonization of the Built Environment

Metric Tons CO_2e

Strategy 1: Decarbonization of the Built Environment

------- Full Impact of CAP 5 Strategies

Energy Policy Initiatives Center, University of San Diego, 2021
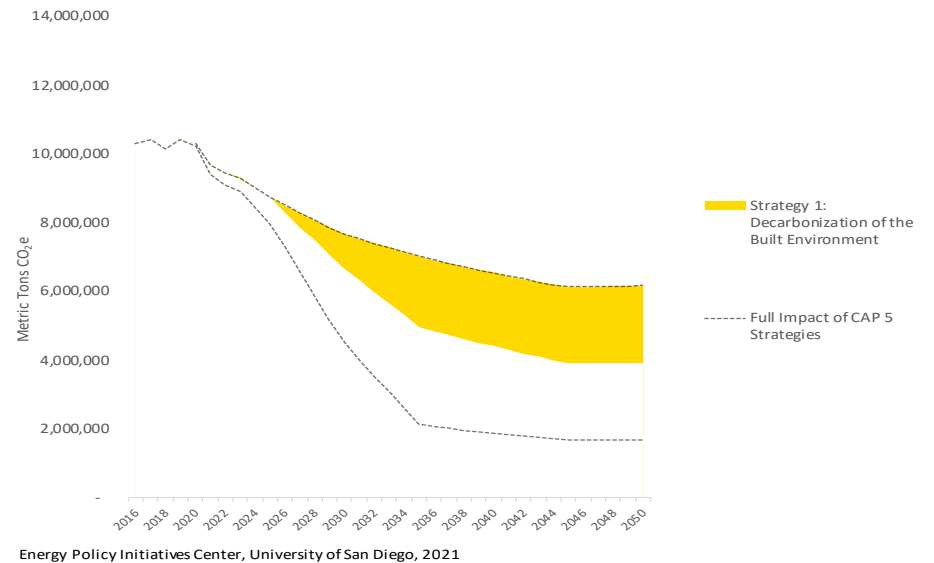
In San Diego, GHG emissions from buildings are second only to transportation when accounting for the electricity and natural gas consumed in our homes and businesses. Burning natural gas is used to heat our homes, offices and our water, and makes up 20% of local GHG emissions. In this strategy, decarbonization means to remove carbon from a system, with a focus on the source with the greatest potential for reduction: natural gas or methane.

In the case of homes, the use of natural gas also has significant effects on indoor air quality and health. Research has shown that homes with gas stoves have 50 to 400% higher levels of nitrogen dioxide which can cause serious health damage in humans, including respiratory diseases.[13] Within Communities of Concern, this is in addition to the poor outdoor air quality that impacts residents of all ages. Residents can also benefit from improved air quality and opportunity to improve health for vulnerable children and adults due to City policies to reduce the use of natural gas and other fossil fuel combustion.

The first step to decarbonize buildings will focus on removing fossil fuels in new building construction. The City's partnership with San Diego Community Power means electricity will continue to get cleaner as more renewable energy sources are brought on-line. Methane used for various activities, such as cooking food or heating homes, produces indoor and outdoor air pollution that harms the planet and the health of our residents. The City is transitioning away from burning methane and other fossil fuels, and transitioning buildings to cleaner, zero emissions sources or technologies. When done equitably, building decarbonization presents an opportunity to reduce the City's GHG emissions and improve resident health and economic well-being.

> **Decarbonization means to remove carbon from a system, with a focus on the source with the greatest potential for reduction: natural gas or methane.**

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[13] Presentation by South Coast Air Quality Management District, "Flipping the Switch: Why Building Decarbonization Matters to CARB," May 6, 2021. https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/2022-aqmp-residential-and-commercial-buildings-working-group/carb_bldg_decarbonization_5_6_21_final.pdf?sfvrsn=6

SAN DIEGO'S PATH FOR BUILDING DECARBONIZATION

More than 40 cities across California have taken up building decarbonization as a cost-effective strategy to significantly reduce GHG emissions. While we know the goal for reducing GHG emissions in this sector, the specific path to achieve the goal will take a commitment by the City and our partners to directly engage our residents to better understand concerns, needs and support to implement this equitably. The following provides a high-level overview of the areas of building decarbonization that the City will be focusing on through engagement, programs and implementation.

New Buildings

In 2018, the state of California adopted an ambitious goal of achieving carbon neutrality throughout the whole economy by 2045. To support this transition, in August 2021, the California Energy Commission unanimously passed amendments to the state building code which take a significant step toward removing natural gas in new construction.[14] As of August 2021, more than 45 cities in California have adopted local reach codes. A reach code is a city-level building energy code that details requirements for new buildings being constructed. Reach codes allow cities to exceed the state-level minimum requirements for building energy use and design, providing the opportunity for cities to boldly move ahead of the state in the transition away from fossil fuels.

The City is engaging with stakeholders to develop a Building Code Amendment that will ensure that most new building types do not have natural gas heaters and appliances. The City has committed to engaging residents and community stakeholders, labor and trades groups and affordable housing developers in this process to develop code amendments and complementary policies that will ensure equitable outcomes, particularly for our Communities of Concern and our impacted workforce. By working together towards a clean energy future, all San Diegans can enjoy lower energy costs, improved indoor and outdoor air quality and good-paying green jobs in their neighborhoods.

Existing Buildings

Since the effort to decarbonize existing buildings touches all homes and businesses, it requires a thoughtful policy-making process and far-reaching community engagement. Cities and communities across the country have begun brainstorming and piloting an array of strategies to remove fossil fuels from existing buildings. This includes initiating pilot programs, developing long-term regulatory roadmaps and seeking funding to perform building retrofits without passing down costs to property owners and renters.

For existing buildings, programs that support zero emissions technologies such as energy retrofits, new high-efficiency electrical appliance and

[14] https://www.energy.ca.gov/sites/default/files/2021-08/CEC_2022_EnergyCodeUpdateSummary_ADA.pdf

heating systems should be paired with building efficiency policies and financing solutions for residents. Some of these new high efficiency electric appliances include air-source, water-source, or ground-source heat pumps to provide buildings with space heating, cooling, and water heating, as well as induction cooktops and electric ovens for cooking. These opportunities can be paired with complementary solutions for commercial and industrial uses such as district energy systems, water reuse policies, and emerging technologies in the future.

Municipal Buildings

The City is committed to leading by example in the building decarbonization effort. The City has adopted a goal to achieve zero emissions municipal buildings and operations by 2035 and is working on a policy to ensure all new construction projects and major retrofits of City-owned and operated facilities achieve zero emissions. This means the buildings are very energy efficient, all-electric and powered by 100% renewable energy, either from onsite generation like solar panels or purchase of 100% renewable electricity from SDCP. The City has committed to sourcing all municipal energy from SDCP's 100% renewable option. As municipal facilities like libraries and recreation centers are improved and rebuilt, the City will include new technologies to eliminate the use of fossil fuels.

Market Transformation

Decarbonization of the building sector, specifically via electrification, requires significant market transformation. According to the Northwest Energy Efficiency Alliance, Call out: Market transformation is the strategic process of intervening in a market to create lasting change in market behavior by removing identified barriers or exploiting opportunities to accelerate the adoption of all cost-effective energy efficiency as a matter of standard practice. Transforming the market around electric appliances and building systems requires applying resources to all market participants. This includes incentives and rebates for electric equipment manufacturers, distributors and suppliers to ensure the desired technologies are affordable and readily available for purchase at scale. Additionally, incentives and rebates must be made available to purchasers to help offset or eliminate the

According to the Northwest Energy Efficiency Alliance, market transformation is the strategic process of intervening in a market to create lasting change in market behavior by removing identified barriers or exploiting opportunities to accelerate the adoption of all cost-effective energy efficiency as a matter of standard practice.

costs of electrification and avoid passing down costs to property owners and renters.

The City plays an important role in ensuring the market for electric building technologies transforms in adequate time to achieve the GHG emission reductions identified in Strategy 1. It is critical for the City to advocate for and promote direct incentives and economies of scale for resources up and down the supply chain, from manufacturers and distributors to building owners and renters.

A recent study, California Building Decarbonization: Workforce Needs and Recommendations, shows that electrifying 100% of California's existing and new buildings by 2045 would create the equivalent of more than 100,000 net full-time jobs, even after accounting for job loss in the fossil fuel industry. However, the City recognizes that building decarbonization may have concentrated impacts on certain labor sectors. The City is committed to identifying high-road job opportunities for local workers in partnership with impacted labor sectors. This commitment includes working with technical experts and building trade union representatives to project job impacts resulting from building decarbonization using local data, and explore policy and program options to avoid or mitigate negative impacts to trades that install gas infrastructure and piping in new buildings.

The City is committed to identifying high-road job opportunities for local workers in partnership with impacted labor sectors.

ZEROING OUT EMISSIONS AT HOME

Cut pollution and carbon emissions to zero by switching to high efficiency
electric heating, cooking, hot water, appliances, and car powered by renewable electricity

1. Solar Panels

2. Insulated Walls, Floors and Attic

3. Energy Efficient Windows & Doors

4. Electric Car

5. Heat Pump Water Heater

6. Heat Pump Dryer

7. Induction Stove

8. Smart Thermostat

9. Heat Pump Heating and Cooling

2030 Target	2030 GHG Reduction	2035 Target	2035 GHG Reduction
Phase out 45% of natural gas from existing buildings	(MT CO2e) 931,661	Phase out 90% of natural gas from existing buildings	(MT CO2e) 1,915,290

Measure 1.1: Decarbonize Existing Buildings

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃	🍃🍃🍃	🍃🍃🍃	🍃🍃🍃	🍃🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃	🍃🍃🍃	🍃

Core Benefits:

Jobs & Economy Resiliency Air Quality Public Health

Actions

■ Develop a comprehensive roadmap to achieve decarbonization of the existing building stock including, programs, regulatory and incentive tools that includes extensive engagement and utilization of a shared-decision making model with Communities of Concern.

Supporting Actions

■ Identify funding sources, including SDCP and SDGE, for advancing residential weatherization projects, appliance exchanges and broad building retrofits in Communities of Concern.

■ Expand residential Photo Voltaic deployment incentives/programs.

■ Update the Building Energy Benchmarking Ordinance to expand enforcement and compliance.

2030 Target	2030 GHG Reduction	2035 Target	2035 GHG Reduction
All-electric reach code starting 2023 at new residential and commercial development	(MT CO2e) 65,329	Ongoing implementation of all-electric new residential and commercial development	(MT CO2e) 108,559

Measure 1.2: Decarbonize New Building Development

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃	🍃🍃🍃	🍃🍃🍃	🍃🍃🍃	🍃🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃🍃	🍃🍃🍃	🍃

Core Benefits:

Jobs & Economy   Resiliency   Air Quality   Public Health

Actions

- Develop and adopt a Building Electrification policy, through code update or other mechanism, requiring new residential and commercial buildings to eliminate the use of natural gas, increase distributed energy generation and storage and increase EV charging stations, engaging with residents of Communities of Concern, workers in the field and builders.

Supporting Actions

- Incentivize renewable generation at non-residential developments.
- Require renewable generation at non-residential developments.
- Require cool roofs to implement Climate Resilient SD in energy efficiency building code update.
- Establish policies that incentivize developers to use less GHG intensive materials and practices (EVs, Low-Carbon concrete, recycled materials, etc).

2030 Target	2030 GHG Reduction	2035 Target	2035 GHG Reduction
Phase out natural gas 50% in municipal facilities	(MT CO2e) 15,148	Phase out natural gas 100% in municipal facilities	(MT CO2e) 32,638

Measure 1.3: Decarbonize City Facilities

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃🍃	🍃🍃	🍃🍃🍃	🍃🍃🍃	🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃🍃	🍃🍃	🍃🍃

Core Benefits:

Resiliency

Actions

- Implement energy efficiency projects at City facilities to meet zero emissions goals for municipal buildings established in the Municipal Energy Strategy & Implementation Plan, prioritizing projects within the City's Communities of Concern.
- Implement technologies such as renewable electricity generation, energy storage, and microgrids at City facilities to meet the zero emissions goals for municipal buildings established in the Municipal Energy Strategy & Implementation Plan.
- Develop and adopt a municipal zero carbon emissions buildings and operations policy.

Supporting Actions

- Identify and prioritize City facilities for near-term energy efficiency and clean energy projects that increase community resiliency.
- Identify and prioritize energy projects at City facilities that increase resiliency for the surrounding communities and City operations.
- Convert all streetlights to LED lights and explore auto-dimming technology.
- Convert all traffic signals to LED lights.
- Place a higher prioritization for City facilities and infrastructure in Communities of Concern.

Strategy 1 Supporting Actions:

- Remove high-Global Warming Potential refrigerants - develop a refrigerant management program that establishes a phaseout timeline for high-Global Warming Potential refrigerants.
- Advance workforce development programs for energy efficiency and renewable energy projects.

Strategy 2: Access to Clean & Renewable Energy

Transitioning our energy system away from fossil fuels and toward clean and renewable sources is key to reducing the City's GHG emissions and supporting a more sustainable future. Energy consumed in the City of San Diego that is derived from renewable resources will improve the health and safety of our residents while potentially providing long-term cost savings to residents and businesses. With deliberate policy design, these benefits can be especially focused in Communities of Concern.

The City has taken bold steps to accelerate the transition away from fossil fuels. In 2019, the City established San Diego Community Power (SDCP) with the goal of providing 100% renewable electricity by 2035 to City residents and businesses. SDCP provides electricity with a 50% renewable generation content as its base product, with the ability for customers to "opt up" to 100% renewable generation for a small fee. The City provided substantial leadership in formulating the Joint Powers Authority to establish SDCP along with the cities of Chula Vista, Encinitas, Imperial Beach and La Mesa. The County of San Diego and National City both voted to join SDCP in 2021. SDCP has received certification from the California Public Utilities Commission and, in March 2021, SDCP began serving the City of San Diego at 100% renewable energy, as well as the other member cities and some large commercial and industrial customers such as the San Diego International Airport. In 2022, SDCP will begin to serve residential customers in San Diego.

San Diego Community Power's 100% renewable electricity offering is essential to transitioning the transportation sector away from fossil fuels. Inherent in Strategy 3's ambitious goals to change how people move around the City is the recognition that many trips will still be conducted by passenger vehicles even when we meet those ambitious mode shift goals. Much like mode shift, "fuel shifting" supports changing the types of fuel used for transportation, primarily with 100% renewable electricity.

Supporting residents as they transition to electric vehicles (EV) starts with the development of a citywide electric mobility or zero emission vehicle (ZEV) strategy. The ZEV strategy will include a suite of programs and policies to help achieve the electric vehicle adoption goals envisioned by the CAP. Central to the success of the ZEV strategy will be the partnership, collaboration and coordination with local, regional and state entities already working to electrify transportation and to address equity needs of residents who do not have access to an EV or at-home vehicle charging. The City of San Diego can play a significant role in passing EV-friendly policies related to charging station installation permitting, building code updates requiring pre-wiring for EV charging, and leveraging public property to expand public charging access.

Increasing access to EVs can have significant benefits to all San Diegans and especially to low- and moderate-income residents. Electricity prices are less volatile than gasoline and generally EVs can be fueled at a fraction of the cost compared to a gasoline counterpart, especially when taking advantage of low-cost time-of-use electricity rates.[15] A multitude of purchase incentives are available from federal and state agencies to reduce the relatively high up-front cost of EVs. Even without factoring in purchase incentives and lower operating costs, the total cost of owning an EV can be significantly lower than a gas-powered equivalent.[16] These savings are increased when considering the variety of existing incentives and programs designed explicitly to increase access to EVs for residents of disadvantaged and/or low-to-moderate income communities.

Legend: Strategy 2: Clean & Renewable Energy; ------- Full Impact of CAP 5 Strategies

Energy Policy Initiatives Center, University of San Diego, 2021

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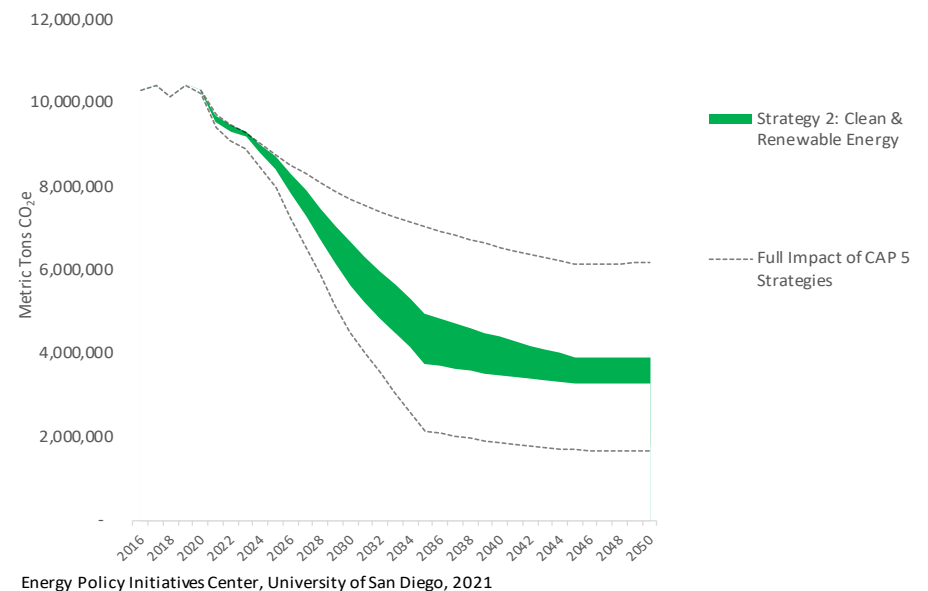
[15] Borlaug et al., Joule 4, 1470–1485 July 15, 2020. Levelized Cost of Charging Electric Vehicles in the United States, United States. https://doi.org/10.1016/j.joule.2020.05.013.

[16] Burnham, Andrew, Gohlke, David, Rush, Luke, Stephens, Thomas, Zhou, Yan, Delucchi, Mark A., Birky, Alicia, Hunter, Chad, Lin, Zhenhong, Ou, Shiqi, Xie, Fei, Proctor, Camron, Wiryadinata, Steven, Liu, Nawei, & Boloor, Madhur. Comprehensive Total Cost of Ownership Quantification for Vehicles with Different Size Classes and Powertrains. United States. https://doi.org/10.2172/1780970

The City has also initiated the transition to low or zero-emission vehicles in our own municipal fleet. As of the end of 2020, approximately 20 of the City's fleet vehicles are all-electric on-road vehicles. Relatively high upfront vehicle cost and a lack of variety in vehicle models have limited fleet adoption to date, though the largest barrier is the cost and complexity of installing the refueling stations for all-electric vehicles across the City for public service needs. The City is exploring creative options to address the complexity of installing charging infrastructure

to support fleet electrification. Notably, in late 2020, the City launched a pilot project with locally based Beam Global to evaluate how a completely off-grid, solar-powered EV charging station could meet the City's operational needs. Additional areas for fleet electrification pilot projects include vehicle-to-grid integration which could bring potential economic and grid resiliency benefits as highlighted in the City's Climate Resilient SD plan.

2030 Target 100% renewable or GHG-free power provided by SDCP	2030 GHG Reduction (MT CO2e) 595,275	2035 Target 100% renewable or GHG-free provided by SDCP	2035 GHG Reduction (MT CO2e) 454,243

Measure 2.1: Citywide Renewable Energy Generation

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃🍃	🍃🍃	🍃	🍃🍃	🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃🍃	🍃	🍃🍃

Core Benefits:

Jobs & Economy

Resiliency

Actions

- Develop financial support programs to incentivize solar on multifamily buildings, providing financial benefits to tenants and families within communities of concern.
- Develop financial support programs to incentivize deployment of building-scale renewables and mandate the use of renewables through building codes, while engaging residents and other stakeholders in the process.
- Partner with SDCP to incentivize local generation of utility scale renewables.

Supporting Actions

- Deploy advanced renewable energy technologies (e.g. battery energy storage systems, microgrids, etc.) at municipal facilities to demonstrate feasibility.
- Leverage municipal facilities to establish community solar and microgrid solutions when tariffs allow.

2030 Target Percent of all municipal fleet vehicles to be ZEVs: Cars: 75% LDV: 50% MDV: 50% HDV: 50%	2030 GHG Reduction (MT CO2e) 11,042	2035 Target Percent of all municipal fleet vehicles to be ZEVs: Cars and LDV: 100% MDV: 75% HDV: 75%	2035 GHG Reduction (MT CO2e) 15,990

Measure 2.2: Increase Municipal Zero Emission Vehicles

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃🍃	🍃🍃	🍃	🍃	🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃🍃	🍃🍃	🍃🍃

Core Benefits:

Resiliency   Air Quality   Public Health

Actions

- Develop a City Fleet Vehicle Replacement and Electrification strategy.

Supporting Actions

- Conduct City fleet electrification study to determine best siting, funding needs, and strategies including specific strategies for the Chollas operations yard.
- Update municipal parking yard electric infrastructure to support electric vehicle charging needs.
- Create standards for the City's purchase of fuel for fleet vehicles that contains the lowest levels of lifecycle GHG emissions available.
- Explore pilot projects for a variety of grid resilience services (demand response, emergency back-up, demand charge reduction, etc.) through three modes of EV integration (grid-to-vehicle, vehicle-to-building, vehicle-to-grid).

2030 Target	2030 GHG Reduction	2035 Target	2035 GHG Reduction
16% e-VMT out of all Light-duty VMT	(MT CO2e) 366,481	25% e-VMT out of all Light-duty VMT	(MT CO2e) 667,458

Measure 2.3: Increase Electric Vehicle Adoption

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃🍃	🍃	🍃🍃🍃	🍃🍃	🍃🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃🍃	🍃🍃	🍃🍃🍃

Core Benefits:

Jobs & Economy   Resiliency   Air Quality   Public Health

Actions

- Develop a city-wide electric vehicle strategy to accelerate EV adoption, including flexible fleets, circulators, and electric bicycles, focusing on the barriers to ownership and charging for residents within the Communities of Concern.

Supporting Actions

- Amend the building code update to require EV charging stations (part of reach code).
- Amend the building code to require charging stations for electric bicycles.
- Work with the Air Pollution Control District (APCD), San Diego Unified School District and other school districts serving the City to support the conversion of the school bus fleet to zero emissions vehicles.
- Work with SANDAG, APCD and MTS to procure a fully zero emissions bus fleet, where technologically feasible.
- Consider setting goal for installation of public EV charging stations on city property to support EV adoption in Communities of Concern. Initialize process with publication of a Request for Information (RFI) to solicit public charging solutions.
- Continue to work with SANDAG, APCD, US Navy, the Port of San Diego and other partners on medium and heavy duty (MD/HD) ZEV infrastructure planning. Consider future policies to advance MD/HD ZEV adoption and utilization in the Portside Communities.

Strategy 3: Mobility & Land Use

Vehicles are the single largest source of GHG emissions in San Diego and more than two-thirds of smog-forming emissions in San Diego County are generated from mobile sources. Air pollutants emitted from cars, diesel-powered trucks, buses and other heavy-duty equipment include oxides of nitrogen (NOx) as well as diesel particulate matter (PM). These mobile sources of emissions from residents, passenger and freight transportation, employees and visitors account for greater than 50% of all local GHG emissions as shown in the Greenhouse Gas Emission Projection and Goals figure above in this document. The City's historic land use patterns have resulted in traffic congestion, causing more air emissions that contribute to climate change and impact the health of our most vulnerable residents. These patterns have also resulted in a decreased quality of life with longer time spent in cars and fewer opportunities to safely and enjoyably travel to work, school, shopping, services, to visit friends and family. Previous land use decisions included suburban development that resulted in longer commutes and less efficient delivery of infrastructure, neighborhoods without fresh and healthy food access or safe and enjoyable public spaces, the bisection of walkable communities with freeways, limited space for efficient transit service, and a lack of local and regional pedestrian and cycling infrastructure. Therefore, changing the City's approach to land use planning and infrastructure is one of the most important and exciting ways the City can address climate change.

Energy Policy Initiatives Center, University of San Diego, 2021

MOBILITY

The City plays an important role in providing San Diegans with viable travel choices and incentivizing modes that are healthier and more efficient for San Diegans of all ages and abilities. Plans and investments have not adequately responded to the City's mobility needs, particularly in Communities of Concern, reinforcing inequitable land use patterns and contributing to disparate health and economic impacts. In the San Diego region, only 7% of low-income residents have access to fast and frequent transit service[17] due to a car-centric transportation system.

Shifting away from a car-centric transportation system starts with a loading priority for our roadways, prioritizing and protecting the most vulnerable modes such as walking and biking, and enhancing public transit for improved efficiency and performance. The loading priority concludes with shared and personal electric vehicles, underscoring a commitment to the full transition of all vehicles from combustion engines and fossil fuels. The City will reduce vehicle miles traveled (VMT) for trips through transportation infrastructure and technology improvements, transportation demand management programs, and land use changes.

The City is improving internal processes to prioritize infrastructure projects that support sustainable mode choices such as walking, bicycling and transit use. The Safe and Sustainable Transportation for All Ages and Abilities Team (STAT) will be responsible for the design and installation of approximately nine miles of new or upgraded bicycle facilities throughout the City per year. This work includes quick-build projects, detectors and other signal enhancements, and layout and installation of bicycle and pedestrian facilities.

The General Plan Mobility Element, along with the Bicycle Master Plan (2013), Pedestrian Master Plan (2013) and community plans, all provide a vision and guidance for planning and enhancing neighborhood quality and mobility options

[17] SANDAG Transportation, Regional Planning, and Borders Committees Joint Meeting August 7, 2020
https://sandag.org/uploads/meetingid/meetingid_5302_27875.pdf

with bicycle and pedestrian improvements. The master plans as well as the community plans identify projects, policies and programs that improve active transportation and recreational opportunities for pedestrians and cyclists. The Bicycle Master Plan envisions a comprehensive bikeway network, locally and regionally, ensuring bicycling is a safe and viable travel choice, particularly for trips shorter than five miles. Pedestrian mobility is largely an outcome of urban design, land use and connectivity. Pedestrian safety, ADA accessibility and connectivity are the guiding principles of the Pedestrian Master Plan. In 2015, with funding provided by the County of San Diego Health and Human Services Agency, the City updated the Pedestrian Priority Model and Bicycle Demand Models and developed new multimodal mobility analysis methods, all of which have been used for subsequent community plan updates.

In 2019, the Mobility Action Plan (MAP) summarized mobility policies and programs currently in place and outlined priorities for the future. The MAP set out associated goals, some of which have since been initiated, such as creating a City of San Diego Mobility Department (now paired with Sustainability) to work across departments and with other agencies to facilitate the delivery of safe and convenient mobility options, and to be the champion for mobility innovation and implementation in the City.

Also moving forward is the City's first Mobility Master Plan, prioritized to support the implementation of the CAP mobility measures and create action where needed to repurpose existing public rights of way for more sustainable and safe mobility options. The Mobility Master Plan will not only create new processes and tools — using input from our residents and existing data on regional connectivity, priorities, and infrastructure — but will also create actionable steps for the City to take. These steps include installing infrastructure needed to increase efficiency and connections to transit, establishing a regional bike network for commuters and families, and completing accessible sidewalks and crossings to get residents where they need to go, all in an effort to reduce our need for cars. The Mobility Master Plan will ensure that citywide mobility initiatives support implementation of the CAP, prioritize investments for residents in Communities of Concern and reduce barriers for pedestrians, cyclists and transit riders.

As a first step to developing the Mobility Master Plan, staff created a draft order of priority for how people move around the city to support the CAP. Staff are seeking input on this order during the draft review of the CAP and will continue to refine as the Mobility Master Plan is developed. This framework is a general understanding of those types of transportation that can both reduce GHG emissions and meet the travel needs of families across the city. We will develop a process inclusive of community voices, shared decision making and thoughtful data analysis to ensure the Mobility Master Plan is responsive and supportive of the neighborhoods across San Diego.

LAND USE AND COMMUNITY PLANNING

Strategic land use planning is critical to reducing Citywide vehicle emissions that result from vehicular travel. When people live near where they work and play, with safe, convenient, and enjoyable options for reaching their destination as pedestrians or by biking, or using transit, there is less overall travel by car in the City. This not only lets our residents get back time otherwise spent behind the wheel while providing investments that make our communities safer and more enjoyable, but also reduces Citywide GHG emissions.

On an ongoing basis, the City pursues updates to community plans, zoning codes and policies aimed at improving our neighborhoods, increasing affordable housing and reducing our reliance on costly personal vehicles. These updates are designed to bring a better jobs-housing balance and convenient access to amenities through smart land use planning supported by balanced transportation networks with greater emphasis on pedestrians, cyclists and transit.

WALKING & ROLLING

BIKING & MICROMOBILITY

PUBLIC TRANSIT

SHARED VEHICLES

ELECTRIC VEHICLES
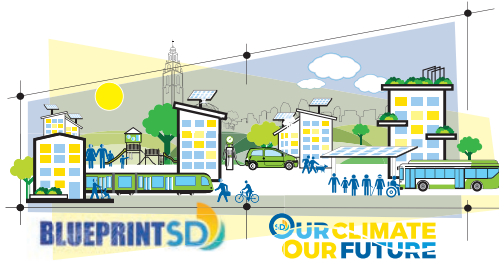
The City is developing [Blueprint SD](#) which is a new approach for the City's General Plan and community planning efforts that will center climate and housing goals and promote sustainable growth. Specifically, it is anticipated that Blueprint SD will provide a comprehensive framework for strategic land use planning to achieve the City's housing, climate, equity and conservation goals. It is anticipated that this framework will guide future community planning so the City achieves these important goals while ensuring equitable engagement from the community.

Several focused, corridor-specific plans and studies have been proposed to improve land use and zoning for better integration with active transportation and increased access to transit, and to create more complete street networks in specific areas of the City. These include:

- University Avenue Mobility Plan (2011).
- Commercial and Imperial Corridor Master Plan (2013).
- SR-15 Mid-City Station Area Planning Study (2013).
- Euclid Avenue Gateway Master Plan (2014).
- Euclid and Market Land Use and Mobility Plan (2014).
- National Avenue Master Plan (2014).
- San Ysidro Intermodal Transportation Center Study (2014).
- Linda Vista Comprehensive Active Transportation Study (2016).
- El Cajon Complete Boulevard Planning Study (2016).
- Palm Avenue Revitalization Plan (2016).
- Downtown Mobility Plan (2016).
- Grantville Trolley Station/Alvarado Creek Revitalization Study (2017).
- Morena Corridor Specific Plan (2019).
- Balboa Avenue Station Area Specific Plan (2019).

The improvements identified through these plans and studies support progress on achieving the goal of the CAP.

In 2020, the City Council adopted Complete Communities: Housing Solutions and Mobility Choices. These initiatives are intended to increase housing production in areas located closest to transit, and to provide more pedestrian, cyclist and transit investments, particularly in areas with the greatest needs, and where such investments would serve the most people. These investments in the areas that would serve the most people also result in the greatest potential to increase the amount of people that are able to safely and enjoyably walk, roll, bike or use transit, resulting in critical GHG emissions reductions. The City also amended parking requirements in Transit Priority Areas (TPAs) in 2019, with the following goals in mind: increasing housing affordability and supply, creating communities as places to live and work, and reducing individuals' reliance on cars, which not only reduces the vehicle generated GHG emissions, but also further reduces vehicular congestion on the surrounding roadway for all residents. The amendments to the Municipal Code not only resulted in zero parking minimums and unbundled parking requirements citywide within Transit Priority Areas (TPAs), but it also required transportation amenities, such as on-site bicycle or micro-mobility fleets, secure storage for grocery deliveries, on-site shuttle services, or other amenities to support a reduced reliance on cars.

2030 Target	2030 GHG Reduction	2035 Target	2035 GHG Reduction
19% walking and 7% cycling mode share of all San Diego residents trips	(MT CO2e) 79,722	25% walking and 10% cycling mode share of all San Diego residents' trips	(MT CO2e) 115,315

Measure 3.1: Safe and Enjoyable Routes for Pedestrians and Cyclists

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃🍃	🍃🍃🍃	🍃🍃🍃	🍃🍃	🍃🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃🍃	🍃🍃	🍃🍃

Core Benefits:

Air Quality   Public Health

Actions

- Develop Safe Routes to Schools safety plans; start a San Diego Safe Routes to Schools program focusing on Communities of Concern and underperforming schools.
- Implement safe routes to school projects/programs where pedestrian and accessibility needs are identified to be the greatest for school attendance.
- Implement the City's Bicycle Master Plan and community plan bicycle networks with an emphasis on separated bikeways.
- Review and improve micro-mobility policies/shared use mobility programs, especially focused in Communities of Concern and first mile/last mile applications.
- Partner with microbility operators to optimize the number of scooters available in mobility hubs and/or near transit.
- Update Bicycle Master Plan with current best practices for facility designation, reflecting recent community plan updates and proposed regional connections. Also describing existing constraints, opportunities, and implementation strategies.
- Develop a Mobility Master Plan to reduce mobile sources emissions and further a shift in mode.

Supporting Actions

- Update street planning and design process with a focus on community input from communities of Concern to prioritize pedestrians, bicyclists, and transit.
- Engage communities during the community plan updates and other multimodal corridors and active transportation planning processes to better accommodate all users of the right-of-way with an emphasis on improving safety for vulnerable users.
- Amend Council Policy 800-14 to prioritize CAP implementation with a greater investment in Communities of Concern, repurposing of the public right of way to include Class IV bikeways, and improved accessibility for pedestriansp of all ages and abilities.
- Incorporate trees and additional cooling features such as innovative shade designs, and cooling centers at parks, with a concentration in Communities of Concern.
- Installation of pedestrian orientated streetlights for increased safety and comfort in Communities of Concern.
- Amend the code and street design manual to include standards for pedestrian orientated street lighting in neighborhoods and alleyways.
- Partner with public safety to review and reform education programs and enforcement policies related to pedestrian and traffic safety.
- Update City special events permits to to prioritize transit, walking, and bicycling.
- Complete and implement the Mobility Master Plan to ensure City infrastructure can adequately support the goals of the Climate Action Plan.
- Increase number of trash and recycling receptacles in pedestrian corridors/Transit Prior Areas
- Explore fee structure/incentive program to increase cost savings for shared transportation network company (TNC) trips relative to private TNC trips.
- Ensure that Capital Improvement Projects comply with all applicable landscape requirements in the Land Development Code.
- Include as a condition of new development that shade structures be included on building frontages in pedestrian thoroughfares, with preference given to natural shade up to five feet.
- Include audible pedestrian signals at all signal-controlled crosswalks
- Install audible wayfinding beacons at complicated intersections and sign locations

2030 Target	2030 GHG Reduction	2035 Target	2035 GHG Reduction
10% transit mode share of all San Diego residents trips	(MT CO2e) 181,205	15% transit mode share of all San Diego residents trips	(MT CO2e) 242,177

Measure 3.2: Increase Safe, Convenient, and Enjoyable Transit Use

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🌿🌿	🌿🌿	🌿🌿	🌿	🌿🌿

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🌿🌿🌿	🌿🌿	🌿🌿

Core Benefits:

Jobs & Economy   Resiliency   Air Quality   Public Health

Actions

- Work with SANDAG and MTS to develop dedicated bus lanes or shared bus and bike lanes as part of Community Plan Updates to increase transit efficiency and on-time performance, focusing on routes supporting residents within underserved communities and high-frequency connections for riders going to schools, universities, and jobs.

- Strategize and Implement a street furniture program that reduces heat exposure, provides cool transit stops, and improves access to restrooms in high transit use areas/pedestrian corridors prioritizing Communities of Concern.

- Transit shelters: Ensure every high-volume transit stop has access to shade structures and benches; establish standard for bus shelters in the city (minimum accommodations) with a priority on Communities of Concern.

- Expand free youth transit pass program to more residents, prioritizing students of all ages and residents in Communities of Concern.

Supporting Actions

- Prioritize and assist MTS with siting and design of complete transit stops in Communities of Concern, including shade trees, lighting, trash bins.

- Create programs and incentives for transit passes bundled with all new major developments within one mile of a major transit stop.

- Partner with MTS for priority right of way for buses and trolley.

- Support MTS, SANDAG, and Caltrans in the creation of transit right-of-way for regional transit connections.

2030 Target	2030 GHG Reduction	2035 Target	2035 GHG Reduction
Achieve 4% citywide VMT reduction through telecommute	(MT CO2e) 181,205	Achieve 6% citywide VMT reduction through telecommute	(MT CO2e) 242,177

Measure 3.3: Increase Telecommuting

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃	🍃🍃🍃	🍃🍃	🍃🍃	🍃🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃🍃	🍃	🍃🍃

Core Benefits:

Air Quality

Public Health

Actions

- Amend the Land Development Code to include mandatory transportation demand management (TDM) regulations - Citywide.
- Develop a City employee TDM policy.
- Establish a team and roadmap to support actions that require connectivity and close the digital divide.

Supporting Actions

- Stand up public WiFi access at City libraries, recreation facilities and various public areas in Low-to-Moderate Income (LMI) areas.
- Formalize a regional device refurbishment and distribution program.
- Build a program to loan mobile hotspots and personal computers to residents.
- Create a Digital Navigator support line to assist with basic technology issues and provide guidance on low income technology options.
- Create a Digital Literacy program to educate residents, particularly in low-to-moderate income (LMI) areas.
- Work with local organizations to distribute refurbished devices previously used by the City to residents at low or no costs.
- Improve data gathering and outreach to understand which residents need the most assistance and why and advertise to them technology options.

2030 Target Complete 13 new roundabouts	2030 GHG Reduction (MT CO2e) 1,519	2035 Target Complete 20 new roundabouts	2035 GHG Reduction (MT CO2e) 2,037

Measure 3.4: Reduce Traffic Congestion to Improve Air Quality and Trip Length

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🌿🌿🌿	🌿🌿	🌿🌿🌿	🌿🌿	🌿🌿🌿

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🌿	🌿	🌿

Core Benefits:

Air Quality   Public Health

Actions

- Deploy dynamic speed management efforts such as signal retiming on City streets.
- Install traffic circles and roundabouts.
- Retime traffic signals to reduce vehicle fuel consumption through improving the flow of traffic.

Supporting Actions

- Work with the Port District, SANDAG, and Caltrans to prepare a feasibility study to identify the best truck route to Tenth Avenue Marine Terminal and diversion, traffic calming and appropriate signage as included in the APCD's Community Emission Reduction Plan (CERP).

2030 Target	2030 GHG Reduction (MT CO2e)	2035 Target	2035 GHG Reduction (MT CO2e)
8% VMT (commuter and non-commuter) reduction per capita	341,724	15% VMT (commuter and non-commuter) reduction per capita	605,185

Measure 3.5: Climate-Focused Land Use

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃🍃	🍃🍃	🍃🍃🍃	🍃🍃🍃	🍃🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃🍃	🍃	🍃🍃🍃

Core Benefits:

Air Quality   Public Health

Actions

- Focus new development in areas that will allow residents, employees, and visitors to safely, conveniently, and enjoyable travel as a pedestrian,or by biking, or transit, such as in Transit Priority Areas (TPAs), and areas of the City with the lowest amount of vehicular travel.

- Plan for land uses that will allow existing residents, employees and visitors to more safely, conveniently and enjoyably travel as a pedestrian, by biking or transit.

Supporting Actions

- Focus on delivering new mixed-use development on sites, including vacant and underutilized lots, located near transit, such as in TPAs and areas of the City with the lowest amount of vehicular travel.

- Implement active transportation in lieu fees to fund pedestrian, cyclist, and transit investments where the greatest GHG emissions reductions will result, in accordance with Complete Communities: Mobility Choices.

- Amend local regulations and policies to allow for wider sidewalks and the use of setbacks for public spaces and place making.

- Implement temporary and permanent car-free zones/zero emission zones.

- Maximize new development in areas located with safe, convenient, and enjoyable access to transit.

- Support urban greening along streets to encourage outdoor activity, walking, and increase pedestrian access to park in Communities of Concern.

- Amend the General Plan Mobility Element to include a Complete Streets policy to enable safe, attractive and comfortable access so that pedestrians, bicyclists, motorists and transit users of all ages and abilities can safely travel within the public right-of-way.

- Amend land development code regulations to require more efficient pedestrian access between existing and new development (e.g., between adjacent lots).

Measure 3.6: Vehicle Management

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🌿🌿	🌿🌿🌿	🌿🌿🌿	🌿🌿🌿	🌿🌿🌿

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🌿	🌿	🌿

Core Benefits:

Air Quality   Public Health   Jobs & Economy

Actions

- Optimize use of curb space including management of on-street parking in TPAs.
- Amend the land development code to eliminate parking minimum requirements.
- Amend the land development code to establish parking maximum requirements for use types and locations where appropriate.
- Amend the land development code to prohibit new auto-oriented land uses that would create conflicts with walking and bicycling within TPAs.

Strategy 4: Circular Economy & Clean Communities

Strategy 4: Circular Economy

Full Impact of CAP 5 Strategies

Energy Policy Initiatives Center, University of San Diego, 2021

Achieving zero waste and a truly circular economy means eliminating all discharges to land, water or air that threaten public and environmental health. Recycling, while a necessary component of any zero waste strategy, must be matched with other waste diversion methods such as composting, reduction and reuse. Supporting development of the local circular economy, where waste is used as an input for new production, is key.

Most residential and commercial waste ends up in landfills, left to decompose over decades, producing landfill gas that contains carbon dioxide and methane, a GHG 28 times more potent than carbon dioxide. The model of linear production and disposal of food and goods have negative consequences for both people and the planet. In this strategy, we target the emissions created by the way we dispose of construction materials, industrial waste, goods and food.
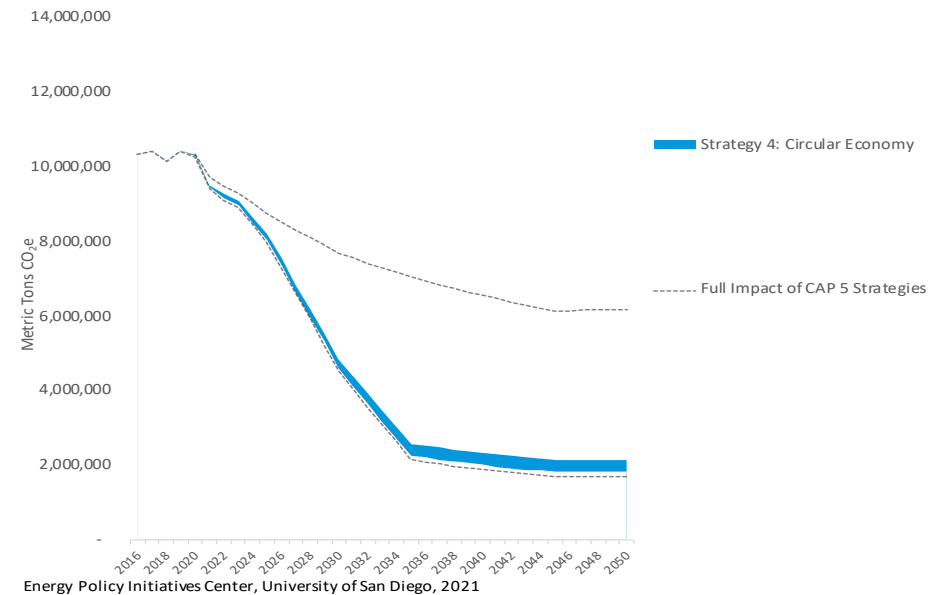
Food systems, including deforestation for industrial agricultural use, food production, transportation, processing and packaging, freezing and retail, and waste account for 37%[18] of total global GHGs. Eliminating food waste will require structural changes throughout the private sector, which the City will influence through both policy and advocacy. Fighting food insecurity through edible food recovery is one important strategy. Edible food that would otherwise be wasted will be recovered and distributed to residents with the least access to affordable, healthy food.

San Diego has made significant strides in reducing the flow of waste to the landfill. The adoption and implementation of the City Recycling Ordinance (CRO) and Construction and Demolition (C&D) Debris Deposit Ordinance (C&D Ordinance) and a variety of other waste diversion programs have been crucial in positioning the City on the road to zero waste.

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[18] IPCC, 2019: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, et al]. In press.)

The City is currently planning how to expand its efforts to increase composting and prevent food waste in response to California State Senate Bill 1383. SB 1383 requires the reduction of organic waste disposed of in landfills. Organic waste includes, but is not limited to, food scraps and food-soiled paper from kitchens and food operations and yard waste such as garden and landscape waste, organic textiles and carpets and wood waste. SB 1383 will require extensive procedural changes and significant coordination amongst different stakeholders. The City is in the process of developing collection operations, adopting purchasing policies, amending the City's Municipal Recycling Code, enacting building requirements, preparing enforcement responsibilities, and strategizing public education and outreach efforts.

Methane gas is a byproduct from the decomposition of organic material and is a GHG with 20 times the warming impact as carbon dioxide. For this reason, landfills and wastewater treatment plants were among the first facilities required to report emissions under California's AB 32 legislation. Technologies such as methane gas capture systems are currently used to decrease the amount of GHG gases released into the atmosphere. Ultimately, limiting the amount of waste that enters the landfills is the best way to reduce or eliminate GHG emissions from waste.

2030 Target	2030 GHG Reduction	2035 Target	2035 GHG Reduction
82% Waste Diversion Rate and 85% Landfill Gas Capture	(MT CO2e) 215,268	90% Waste Diversion Rate and 90% Landfill Gas Capture	(MT CO2e) 277,305

Measure 4.1: Changes to the Waste Stream

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃🍃	🍃🍃	🍃🍃	🍃🍃🍃	🍃🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃🍃	🍃	🍃

Actions

- Approve and implement the Polystyrene Foam and Single Use Plastics Ordinance, pending Environmental Impact Report.
- Expand the Polystyrene Foam and Single Use Plastics Ordinance to phase-out Single-Use materials and prioritize reuse rather than disposable goods.

Core Benefits:

Resiliency

Public Health

Measure 4.2: Municipal Waste Reduction

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃	🍃🍃🍃	🍃🍃🍃	🍃🍃🍃	🍃🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃🍃	🍃	🍃

Core Benefits:

Resiliency

Public Health

Actions

- Through an update to the City's administrative regulations include purchasing requirements for sustainable products and food whenever option is available.
    1) Reduce GHG emissions and water use of total beef, pork, chicken, turkey and dairy purchases by 20%.
    2) Increase local, healthy, and sustainable foods to 20% of total food purchases.

- Include procurement targets, with a focus on the maintenance of street easements, parks, and other green spaces, for purchasing compost through the Miramar Greenery or other local composting facilities to expand the demand and production of high quality compost in the City.

Measure 4.3: Local Food Systems & Food Recovery

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃🍃	🍃🍃	🍃🍃	🍃🍃	🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃🍃	🍃🍃	🍃🍃

Core Benefits:

Resiliency

Public Health

Actions

- Create a food council or advisory board with local stakeholders.
- Create food waste prevention network - expand infrastructure & partnerships for edible food recovery.
- Require food waste prevention, donation and recycling plans for all city food service operations and large events on city managed, leased or owned lands.
- Establish a multidisciplinary team of subject matter experts across City departments with a focus on land use, economic growth, neighborhood vitality and healthy food access   to work with community members to expand urban agricultural programs and develop policies to encourage community-based farms, including demonstration projects.

Supporting Actions

- Invest in a network of local food sourcing, aggregation, distribution and processing infrastructure including regional food hubs, neighborhood scale commercial kitchens or shared kitchens, and other food businesses, particularly in low-income communities.
- Regulate or activate programs for food businesses to minimize food related carbon emissions - Require food waste prevention, donation and recycling plans for businesses/ institutions (for Tier 1 and Tier 2 generators outlined in SB1383) and provide technical assistance and resources - Include checklist and outreach as part of business licensing process.
- Incentivize incorporation of urban agriculture features into development plans, including indoor agriculture, edible forestry, community gardens, etc.
- Increase community participation with Urban Agriculture Incentive Zone (UAIZ) program.

Measure 4.4: Zero Waste to Landfill

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃🍃	🍃🍃	🍃🍃	🍃🍃	🍃🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃🍃	🍃🍃	🍃

Core Benefits:

Resiliency   Public Health

Actions

- Update, adopt and implement the Zero Waste Plan.
- Create a community reuse and repair program to increase waste diversion, reduce material consumption and develop training and learning opportunities.
- Update the Citywide Recycling Ordinance to ban divertible materials (yard waste, food) from residential and commercial trash containers, in compliance with SB 1383.
- Develop a marketing plan for compost and mulch developed within the City. Identify and target compost and mulch markets in urban areas as well as urban agriculture. Partner with industries to increase compost and mulch use including landscaping, stormwater and water conservation.

Supporting Actions

- Partner with franchise waste haulers to address barriers to increasing diversion rates.
- Continue and enhance public outreach programming that provides residents with strategies for household waste reduction, including from food waste and shipping and packaging (e.g., on-demand deliveries), including outreach in languages that reflect the diverse needs of San Diego.
- Amend the Construction & Demolition regulations to establish a deconstruction requirement to reduce demolition waste from construction and renovation, facilitate material reuse and create jobs.

Strategy 5: Resilient Infrastructure and Healthy Ecosystems

The original CAP's Climate Resiliency Strategy has evolved into Resilient Infrastructure and Ecosystems in order to encompass new actions related to both our natural and built environments. Climate resiliency and the actions within this strategy will allow San Diego to prepare for the impacts of climate change and minimize its negative effects. Climate resilient systems are proposed and mentioned throughout this document, but the actions within this strategy refer specifically to those with associated GHG emission reductions. As opposed to this plan, which is focused on reducing emissions, the City's Climate Resilient SD plan is designed to prepare for and adopt to the four primary climate change hazards that pose a risk to the City: sea level rise, flooding and drought, extreme heat and wildfires.

In the 2015 Climate Action Plan, the Resiliency Strategy included measures for climate resilience in developing a regional Urban Tree Canopy Assessment in collaboration with other regional jurisdictions and SANDAG, developing a Parks Master Plan prioritizing underserved communities, issuing an Urban Forest

Energy Policy Initiatives Center, University of San Diego, 2021
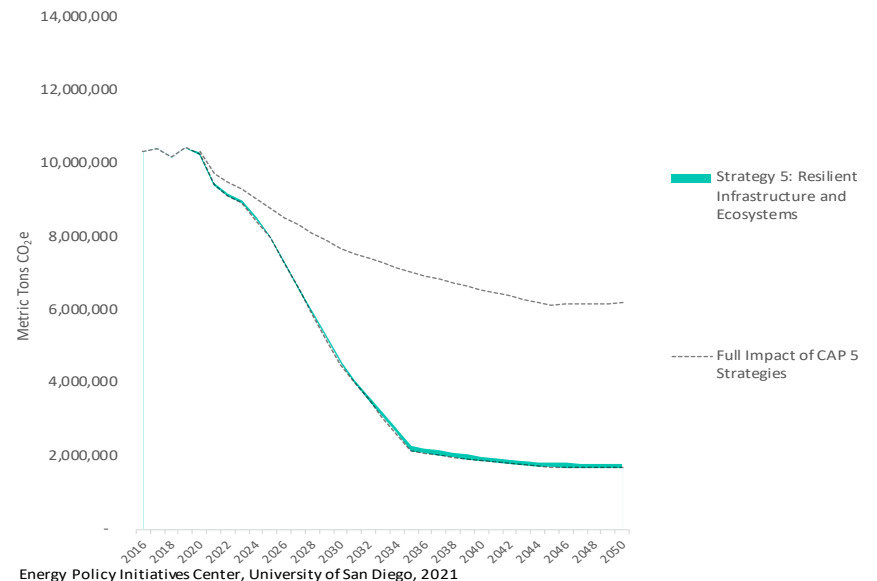
Management Plan and planning for the long-term maintenance of additional trees with sufficient staff resources. The City has implemented each of these measures and seeks to expand the list of actions based on community input to enhance this strategy.

The City of San Diego Parks and Recreation Department in partnership with the Balboa Park Conservancy, CAL-FIRE, Urban Corps San Diego and Tree San Diego has planted more than 600 trees in San Diego's crown jewel, Balboa Park. The City launched an annual Arbor Day event where members of the community plant trees and learn about their importance in our communities. Trees for Treasure, in partnership with Friends of Balboa Park, takes downed timber and dead trees and uses the wood to create unique products for sale. Profits are then used to plant new trees in Balboa Park. The City of San Diego Transportation Department launched Free Tree SD, a program where residents can request a new street tree with the commitment of watering it for three years during the establishment period. San Diegans can access the Urban Tree Canopy Assessment with support from SanGIS to view the tree canopy across the city and in their community. Throughout the engagement process for the draft 2015 CAP, every Community of Concern expressed a strong desire for more trees and green spaces. Trees and green spaces improve air quality, create a buffer between freeways and homes, create cooler sidewalks improving walkability/ bikeability, beautify neighborhoods, and provide public areas to congregate.

A semiarid climate with cycles of multi-year droughts, San Diego's historical average rainfall amounts do not provide adequate local water supplies. Water demands currently require that most of the City's water be imported from outside of the region. For more than 100 years, the City has continually and proactively invested in its water supply system to maintain a reliable water supply for residents and businesses. The Public Utilities Department (PUD) is working to improve the energy efficiency of their operations and upgrading many of facilities. In 2019, PUD consumed about 56% of its energy from onsite renewable generation directly and indirectly, from both privatized and City-owned facilities. PUD is working on upgrading existing renewable energy generation facilities, as well as adding new facilities.

The Climate Resilient SD plan includes adaptation strategies and associated core benefits which include GHG reductions. These strategies include coordination with local transit agencies, collaboration with experts on climate science to inform policy decisions and developing a cultural plan to connect the arts to sustainability and resiliency, among others. As both Climate Resilient SD and the CAP move forward into implementation, their aligned strategies will serve to both mitigate and adapt to climate change and provide a more sustainable future for San Diegans.

| High Temperature | Extended Periods of Drought | Increasing Risk of Wildfires | Intense Rainfall Events |

2030 Target	2030 GHG Reduction (MT CO2e)	2035 Target	2035 GHG Reduction (MT CO2e)
Restore 347 acres of salt marsh land	406	Restore 693 acres of salt marsh land	812

Measure 5.1: Sequestration

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🌿🌿🌿	🌿	🌿🌿	🌿	🌿🌿🌿

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🌿🌿	🌿🌿	🌿🌿

Core Benefits:

Resiliency   Air Quality   Public Health

Actions

- Protect, restore, and enhance urban canyons. Support habitat restoration of urban canyons, inclusion of environmental education and recreation opportunities, and continued preservation.
- Develop an area specific management plan to protect, restore, and preserve wetland and upland areas on City managed lands, prioritizing Communities of Concern.
- Develop Natural Resource Management Plans on all managed preserved lands.

Supporting Actions

- Acquire Open Space Conservation Land.
- Create a pilot carbon farming program on vacant public land.

2030 Target	2030 GHG Reduction	2035 Target	2035 GHG Reduction
28% urban canopy cover	(MT CO2e) 82,806	35% urban canopy cover	(MT CO2e) 102,290

Measure 5.2: Tree Canopy

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃🍃	🍃🍃	🍃🍃🍃	🍃🍃	🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃🍃	🍃🍃	🍃🍃

Core Benefits:

Resiliency Air Quality Public Health

Actions

- Conduct a new Urban Tree Canopy assessment utilizing light detection and ranging (LiDAR) technology to identify areas in need of additional tree canopy.
- Create a Street Tree Master Plan with a target of planting 100,000 trees by 2035 capturing all community plan street tree lists to facilitate selection of species (in relation to the No Fee Permit). Within the Street Tree Master Plan, identify City lands and spaces that need trees and identify ways to increase permeable areas for new trees, focused in Communities of Concern.
- Increase tree planting in Communities of Concern by identifying City lands/spaces that need trees.
- Develop a plan to increase permeable areas for new trees and restore pervious spaces that have been paved, focused in Communities of Concern.
- Support expansion of urban tree canopy in parks and along active transportation network. Prioritize implementation in Communities of Concern.

- Develop policies that encourage and incentivize developers, homeowners associations, and other organizations to preserve, maintain, and plant trees.
- Reform and expand the free tree program.
- Protect and maintain existing trees.

Supporting Actions

- Amend the Land Development Code to increase landscape and parking lot tree planting requirements.
- Revise No Fee Street Tree Permit Application to help improve process for obtaining street trees.
- Streamline permitting for tree planting, dedicate resources to planting in non-traditional street tree locations, and provide reduced fees or fee waivers for concrete cutting in Communities of Concern.
- Revise Council Policies and Municipal Codes to strengthen tree protection and enhance tree planting efforts.
- Increase irrigation for trees in Parks and in Street rights-of-way.
- Implement a Citywide protocol for tracking planted, removed, and maintained street trees.
- Explore allocating revenue from tree removal fines, including from the placement of utility equipment located in the right-of-way, and fees to fund the planting of new trees.
- Expand volunteer programs and partnerships with community organizations to plant and maintain trees.
- Support the creation of new urban green space along freeways and City rights-of-way.
- Diversification of tree species, including diversifying tree species that are adapted to higher temperatures and diversifying tree species for those that require less water.
- As established in the Energy Cooperation Agreement with the City and SDG&E, implement the Right Tree, Right Place program (or successor programs), identify additional tree planting locations, assist with tree species ideas, and provide technical support through SDG&E's arborists.
- Monitor and report on SDG&E's plans to supplant the City's efforts with direct in-community charitable support for planting up to 2,500 trees in the City over ten years.

2030 Target	2030 GHG Reduction	2035 Target	2035 GHG Reduction
Provide 33,000 acre-feet local water supply from PureWater	(MT CO2e) 9,910	Provide 93,000 acre-feet local water supply from PureWater	(MT CO2e 18,507

Measure 5.3: Local Water Supply

Feasibility of Actions				
Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential
🍃🍃🍃	🍃🍃🍃	🍃🍃	🍃🍃🍃	🍃🍃🍃

Potential for Equitable Implementation of Actions		
Community benefits & burdens	Community empowerment	Addresses historical disparity
🍃	🍃	🍃

Core Benefits:

Jobs & Economy

Resiliency

Actions

- Develop local water supply and reduce dependence on imported water.
- Support ongoing gallon per capita water use (GPCD) targets.

Strategy 5 Supporting Actions

- Advance undergrounding of utilities to provide a means to reduce energy use, increase green space preservation, sustainably process and store water and wastes, securely and efficiently site critical infrastructure, prevent and reverse degradation of the urban environment, and enhance quality of life.
- Maximize planning and implementation of green infrastructure at watershed scale and site specific with extensive engagement efforts in Communities of Concern.
- Implement Waterways Restoration program.
- Implement storm water harvesting (capture/reuse).
- Amend building code regulations to require a percentage of all non-roof (e.g., hardscape) surfaces around new buildings meet certain criteria to reduce urban heat island effect.
- Install cool pavement material on City streets, prioritizing Communities of Concern, to increase building energy efficiency and reduce urban heat island effect.

Strategy 6: Emerging Climate Action

2030 Residual Emissions	2035 Residual Emissions
640,000 additional reduction needed to reach fair-share target	2,511,000 additional reduction/removal needed to reach carbon neutrality

Measure 6.1: Explore further opportunities to achieve net zero GHG emissions

Supporting Actions

- Investigate advanced air quality control systems, including GHG removal technologies and criteria pollutant control technologies.
- Exploring the use of GHG emission offsets which can include techniques such as increasing carbon sequestration in soils, forests and farmland, purchasing clean electricity credits from neighboring states, or through emerging technological approaches such as the direct capture and removal of carbon from the atmosphere.
- Participate in research around regional and/or local benefitting offset programs that ensure the benefits of investments are prioritized in the City's Communities of Concern.
- Continue to engage on the development of research and data around the sequestration potential of various types of natural spaces including blue carbon sequestration, more specifically develop a Citywide sequestration standard for wetlands restoration.
- Support partners such as tribal governments and universities to restore salt marshes and wetlands ecosystems for sequestration.
- As it pertains to GHG avoidance, the City's CAP Implementation Plan will focus and prioritize the core benefit of air quality to support the shared regional efforts to address nonattainment and improve air quality equitably.
- Advocate for APCD to develop CERP-like plans in all communities
- Support the regional efforts to address nonattainment, toxic air contaminants in Communities of Concern.

While implementing the strategies listed above will be transformational, they will not eliminate all the emissions that will be required to reach the City's net zero goal. These residual emissions will need to be addressed to achieve the goal of net zero. Without additional actions or emissions avoided elsewhere, we project 2,511,000 MT CO2e will remain. Further action, new policies, technological innovation, partnerships and research are all necessary components of emerging climate actions that are beyond our current ability to quantify and assess.

This strategy is broad by design and will require monitoring and reporting during implementation. Areas of focus within Strategy 6 include developing more effective partnerships with regional partners such as the Port of San Diego, SANDAG and the County of San Diego; advancements to ensure energy resilience and exploration of alternative fuel sources; further research to understand potential land and water carbon sequestration opportunities; and developing pilot projects that catalyze new techniques and technologies from all sectors. This is not an exhaustive list, but a starting point for the City to actively pursue new ideas, listening to best available data and practices, and adapting as needed to achieve the greatest amount of GHG avoided while maximizing the impact on core benefits to our residents and businesses.

Summary Table of Strategies and Actions

Strategy	2030 Target	2035 Target	Measure
Strategy 1: Decarbonization of the Built Environment	Phase out **45%** of natural gas from existing buildings	Phase out **90%** of natural gas from existing buildings	Measure 1.1: **Decarbonize Existing Buildings**
	All-electric reach code starting 2023 at new residential and commercial development		Measure 1.2: **Decarbonize New Development**
	Phase out natural gas **50%** in municipal facilities	Phase out natural gas **100%** in municipal facilities	Measure 1.3: **Decarbonize City Facilities**
Strategy 2: Access to Clean & Renewable Energy	**100%** renewable or GHG-free power provided by SDCP		Measure 2.1: **Citywide Renewable Energy Generation**
	Percent of all municipal fleet vehicles to be **ZEVs: LDV: 50% MDV: 50% HDV: 50%**	Percent of all municipal fleet vehicles to be **ZEVs: LDV: 100% MDV: 75% HDV: 75%**	Measure 2.2: **Increase Municipal Zero Emission Vehicles**
	16% e-VMT out of all Light-duty VMT	**25% e-VMT** out of all Light-duty VMT	Measure 2.3: **Increase Electric Vehicle Adoption**
Strategy 3: Mobility & Land Use	**19% walking** and **7% cycling** mode share of all San Diego residents' trips	**25% % walking** and **10% cycling** mode share of all San Diego residents' trips	Measure 3.1: **Safe and Enjoyable Routes for Pedestrians and Cyclists**
	10% transit mode share of all San Diego residents trips	**15% transit** mode share of all San Diego residents trips	Measure 3.2: **Increase Safe, Convenient, and Enjoyable Transit Use**
	Achieve **4%** citywide VMT reduction through telecommute by 2030	Achieve **6%** citywide VMT reduction through telecommute by 2035	Measure 3.3: **Increase Telecommuting**
	Complete **13** new roundabouts	Complete **20** new roundabouts	Measure 3.4: **Reduce Traffic Congestion to Improve Air Quality and Trip Length**
	8% VMT (commuter and non-commuter) reduction per capita	15% VMT (commuter and non-commuter) reduction per capita	Measure 3.5: **Climate-Focused Land Use**
			Measure 3.6: **Vehicle Management**
Strategy 4: Circular Economy & Clean Communities	**82%** Waste Diversion Rate and 85% Landfill Gas Capture	**90%** Waste Diversion Rate and 90% Landfill Gas Capture	Measure 4.1: **Changes to the Waste Stream**
			Measure 4.2: **Municipal Waste Reduction**
			Measure 4.3: **Local Food Systems & Food Recovery**
			Measure 4.4: **Zero Waste to Landfill**
Strategy 5: Resilient Infrastructure and Healthy Ecosystems	Restore **347 acres** of salt marsh land	Restore **693 acres** of salt marsh land	Measure 5.1: **Sequestration**
	28% urban canopy cover	**35%** urban canopy cover	Measure 5.2: **Tree Canopy**
	Provide **33,000 acre-feet** local water supply from PureWater	Provide **93,000 acre-feet** local water supply from PureWater	Measure 5.3: **Local Water Supply**
Strategy 6: Emerging Climate Action	**640,000 additional reduction/removal needed**	**2,511,000 additional reduction/removal needed**	Measure 6.1: **Explore further opportunities to achieve net zero GHG emissions**

Greetings from the future!
We want to see your ideas for a sustainable San Diego.
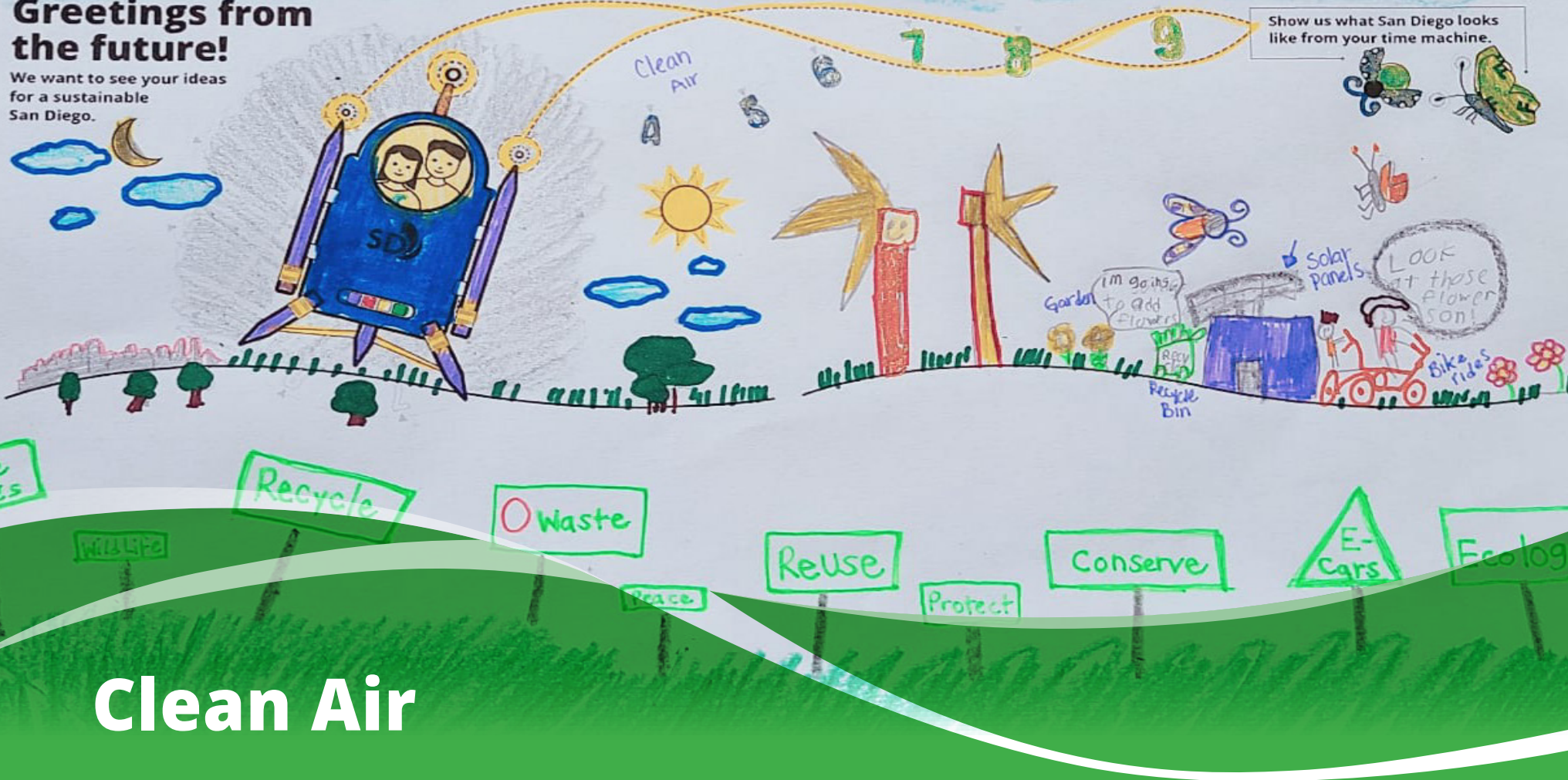
Clean Air

Show us what San Diego looks like from your time machine.

Clean Air

Clean Air

Centering the CAP around equity has provided the opportunity for the City of San Diego to elevate the voices of residents in those communities that have had less access to opportunity or who have been faced with conditions that actively impede their health, wellbeing and prosperity. The lived experiences and advocacy of residents and organizations in Communities of Concern reinforced the need for the City to prioritize the severe and longstanding health disparities related to poor air quality and be a committed partner to achieving cleaner air. Although it has is not traditionally been a focus or delegated responsibility under municipal jurisdiction, the City still has an important role to play and a responsibility to improve the health of our residents. As mentioned in this CAP, the Climate Equity Index developed with the Equity Stakeholder Working Group members clearly illustrates where the disparity has deeply affected the lives of our residents who face poor air quality.

An area is designated as in attainment when it complies with the National and/or California Ambient Air Quality Standards. These standards are set by the federal Environmental Protection Agency (EPA) or the California Air Resources Board (CARB) for the maximum level of a given air pollutant which can exist in the outdoor air without unacceptable effects on human health or the public welfare.[19] Regionally, San Diego is in nonattainment for Ozone, PM10 and PM2.5 standards. These elevated levels of pollutants in the air result in adverse health outcomes and environmental impacts.

The San Diego APCD has developed State Implementation Plans (SIPs) to detail the control measures and associated emission reductions that will be taken to achieve the national ambient air quality standard for Ozone.[20] The City supports these efforts to better control sources that contribute to the development of Ozone and the APCD's goal of achieving attainment for this standard as soon as feasible, no later than 2032.

 Many sources of GHG emissions are simultaneously responsible for a variety of other pollutants such as particulate matter PM10 and PM2.5, nitrous oxides and Ozone. Some pollutants impact both climate and human health. Historic land use and infrastructure decisions have concentrated these pollutants from stationary industrial sources, mobile sources like combustion engines and brake pads in cars and trucks, and indoor sources like natural gas appliances found within our businesses and homes. These policy decisions and ongoing emissions have resulted in generations of people diagnosed with elevated levels of respiratory issues and diseases like asthma and cancer. Communities of Concern have been disproportionately impacted, with neighborhoods like Barrio Logan and San Ysidro facing some of the worst air quality in California.

Criteria Pollutant Designations for San Diego County

Criteria Pollutant	Federal Designation	State Designation
Ozone (8-Hour)	Nonattainment	Nonattainment
Ozone (1-Hour)	Attainment *	Nonattainment
Carbon Monoxide	Attainment	Attainment
PM10	Unclassifiable **	Nonattainment
PM2.5	Attainment	Nonattainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility	No Federal Standard	Unclassified

The federal 1-hour standard of 12 pphm was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in State Implementation Plans.

** *At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.*

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[19] https://www.sdapcd.org/content/sdc/apcd/en/air-quality-planning/attainment-status.html
[20] https://ww2.arb.ca.gov/our-work/programs/california-state-implementation-plans/nonattainment-area-plans/san-diego-county

The cycle of concentrated air pollution in Communities of Concern needs to be broken. We can do so, in part, through the actions outlined in this CAP. The strategies around removing indoor use of natural gas; reduction of vehicle combustion engines; increase in efficiency and safety of alternative mobility options; waste reduction and litter abatement; land use plans to separate incompatible uses, and investments in trees for sequestration and cooling all reduce the impacts of harmful air pollutants. To more clearly show how the City is committed to air quality and eliminating toxic climate pollutants, the table below gathers all strategies, measures and actions that will directly impact air quality, particularly in Communities of Concern.

Strategy 1: Decarbonization of the Built Environment

1.1 Decarbonize Existing Buildings
- Develop a comprehensive roadmap to achieve decarbonization of the existing building stock, including programs, regulatory and incentive tools that includes extensive engagement and utilization of a shared-decision making model with Communities of Concern.

1.2 Decarbonize New Development
- Develop and adopt a Building Electrification policy, through code update or other mechanism, requiring new residential and commercial buildings to eliminate the use of natural gas, utilizing extensive engagement and a shared-decision making model with Communities of Concern and affordable housing developers.

Strategy 2: Clean & Renewable Energy

2.2 Increase Municipal Zero Emission Vehicles
- Develop a City Fleet Vehicle Replacement and Electrification strategy.

2.3 Increase Electric Vehicle Adoption
- Develop a city-wide electric vehicle strategy to accelerate EV adoption, including flexible fleets, circulators, and electric bicycles, focusing on the barriers to ownership and charging for residents within the communities of concern.

Strategy 3: Mobility & Land Use

3.1 Safe and Enjoyable Routes for Pedestrians and Cyclists
- Develop Safe Routes to Schools safety plans; start a San Diego Safe Routes to Schools program focusing on our underserved communities and underperforming schools.
- Implement safe routes to school projects/programs where pedestrian and accessibility needs are identified to be the greatest for school attendance.
- Implement the City's Bicycle Master Plan and community plan bicycle networks with an emphasis on separated bikeways.
- Partner with Microbility Operators to optimize the number of scooters available in mobility hubs and/or near transit.
- Update the Bike Master Plan to reflect existing as-built infrastructure, recent community-involved plan updates, and planned regional connections.
- Develop a Mobility Master Plan to reduce mobile sources emissions and further a shift in mode consistent with the CAP.
- Reviewing and improving micro-mobility policies/shared use mobility programs, especially focused in communities of concern and first mile/last mile applications.

3.2 Increase Safe, Convenient, and Enjoyable Transit Use
- Work with MTS to develop dedicated bus lanes or shared Bus and bike lanes to increase transit efficiency and on-time performance, focusing on routes supporting residents within underserved communities and high-frequency connections for riders going to schools, universities, and jobs
- Strategize & Implement a Street Furniture program that reduces heat exposure, provides cool transit stops, and improves access to restrooms in high transit use areas/pedestrian corridors prioritizing the City's Communities of Concern.
- Transit shelters: Ensure every high-volume transit stop has access to shade structures and benches; establish standard for bus shelters in the city (minimum accommodations).
- Expand free youth transit pass program to more residents, prioritizing students of all ages and residents in Communities of Concern.

3.3 Increase Telecommuting
- Amend the LDC to include mandatory TDM regulations citywide.

- Develop a City employee TDM policy.
- Establish a team and roadmap to support actions that require connectivity and close the digital divide.

3.4 Reduce Traffic Congestion to Improve Air Quality and Trip Length

- Deploy dynamic speed management on City streets.
- Continue to install traffic circles and roundabouts.
- Continue to retime traffic signals to reduce vehicle fuel consumption through improving the flow of traffic.

3.5 Climate-Focused Land Use

- Focus new development in areas that will allow residents, employees and visitors to safely, conveniently and enjoyably travel as a pedestrian, or by biking or transit, such as in Transit Priority Areas (TPAs), and areas of the City with the lowest amount of vehicular travel.

3.6 Vehicle Management

- Optimize use of curb space including management of on-street parking in TPAs.

Strategy 5: Resilient Infrastructure and Ecosystems

5.1 Sequestration

- Protect, restore, and enhance urban canyons. Support habitat restoration of urban canyons, inclusion of environmental education and recreation opportunities, and continued preservation.
- Develop an area specific plan to include wetland and upland areas on City managed lands in Communities of Concern.
- Develop NRMP on all managed preserved lands.

5.2 Tree Canopy

- Conduct a new UTC assessment (LiDAR) to identify potential areas/areas lacking.
- Increase tree planting in Communities of Concern by identifying City lands/ spaces that need trees.

- Develop a plan to increase permeable areas for new trees, focused in Communities of Concern.
- Create a Street Tree Master Plan capturing all community plan street tree lists to facilitate selection of species (in relation to the No Fee Permit).
- Support expansion of urban tree canopy in parks and along active transportation network. Prioritize implementation in Communities of Concern.
- Develop policies that encourage and incentivize developers, homeowners' associations, and other organizations to preserve, maintain, and plant trees.
- Reform and expand the free tree program.
- Protect and maintain existing trees.

Legislative and rulemaking authority for air quality is expressly delegated to the Environmental Protection Agency (EPA), California Air Resources Board (CARB) and San Diego APCD., The passage of California Assembly Bill 423 reformed San Diego APCD's board structure and provided the City with two seats. The APCD works to identify where communities and residents are put at risk due to air quality emissions and works to improve air quality through processes such as planning, regulation and enforcement. Under state legislation known as AB 617, the APCD worked on the development of the Community Emission Reduction Plan (CERP) to establish strategies that reduce air pollution and exposure in the Portside Environmental Justice Communities in San Diego and National City. These strategies span across the jurisdictional entities of the City, National City, the County, the Port and the Department of the Navy. The City participated in the overall development of the CERP through the steering committee and continued partnership with APCD.

The City of San Diego is committed to working closely with the APCD, and all other agencies associated with the CERP to achieve the shared goal of improved air quality for our residents within the Portside Environmental Justice Communities and all our impacted Communities of Concern. By working together and sharing resources, these agencies will be more effective at addressing all the variables that impact air quality.

While the CERP is specific to Barrio Logan, Sherman Heights and Logan Heights, the process to develop the plan and the strategies within it would result in improved air quality throughout the City if implemented regionally.

The City supports APCD in any future efforts to expand or replicate this process throughout our jurisdiction.

In addition to the CAP actions highlighted above, the City will work to achieve improved air quality, prioritizing those communities most overburdened by unhealthy conditions, by committing to the following efforts:

■ Prioritize the CAP actions listed above within communities most impacted by poor air quality.

■ Invest in air quality improvements through ongoing Climate Equity Fund allocations.

■ Partner with APCD to meet the Attainment Standard for State and Federal regulations, such as reaching 70 ppb 8-hour ozone standard by 2032 through implementation of the SIP and updates to the Regional Air Quality Strategy. implementation of incentive programs to support the transition to electric or low emitting engines and residential air quality monitoring for indoor pollutants.

■ Support APCD on actions taken to implement all the strategies within the CERP. More specifically, the following quantified targets within the CERP have been identified as priorities for the City:

o Reduce levels of Diesel Particulate Matter (PM) by 80% from 2016 levels by 2030 with priority in most impacted communities as identified by draft CalEnvironScreen (CES) 4.0.

o Reduce cancer risk below 10 per million from current risk of 100 per million for each stationary source of toxic air pollution, including portable equipment, in Environmental Justice Communities.

o Work with the Port of San Diego to implement its Maritime Clean Air Strategy as quickly as possible.

o Advocate for and support investments to reduce idling and pollution prioritizing efforts at the San Ysidro international border crossing.

o Analyze and mitigate impacts of incompatible land uses in future community plan updates.

o Work closely with the APCD board to advocate at regional and statewide agencies like SANDAG and CARB to prioritize air quality improvement investments in our communities.

o Update the municipal code to incorporate electric vehicle charging as a land use type.

o Advocate and invest in the transition to zero emission medium and heavy-duty vehicles, especially in diesel applications that most directly impact Communities of Concern.

o Support additional air quality monitoring in Communities of Concern.

o Incorporate progress on air quality through data provided by APCD into ongoing CAP monitoring and reporting, as feasible.

Implementation and Monitoring

The CAP identifies a comprehensive set of goals, targets, measures, and actions that the City can use to reduce GHG emissions. These actions include a combination of ordinances, City Council policies, resolutions, programs and incentives, as well as outreach and education activities.

To implement and monitor of these activities, the City will follow the recommendations from the 2019 Performance Audit of the Climate Action Plan. Specifically, the City will:

- Develop a CAP implementation plan in 2022, including funding, staffing, GHG, performance metrics, core benefits, equity, feasibility, time frame, implementation pathways and barriers, status, and lead department.

- Require CAP-related City departments to annually provide CAP work plans to the Sustainability department for review and approval which will help determine annual budgetary needs for the implementation of the CAP.

- As part of the annual reporting process, inform the public and City Council on CAP workplans and progress.

Over the next five years of implementation for this CAP, City staff will report on progress to the City Council and the public. The City commits to conducting comprehensive GHG emissions inventories approximately every two years, with an annual progress report. The report will use data from the inventories and tracking from City departments and external partners to demonstrate the process of implementation and the outcomes of action to date. It is anticipated that an update to the CAP would commence in 2027. The City will use the most reliable data available to accurately and comprehensively report implementation progress, particularly as it relates to the City's efforts to increase climate equity.

A central tenet to this CAP is the city's commitment to equity and improving the quality of life for residents in Communities of Concern. To ensure that the City is responding appropriately to the needs of these communities and using the best available data, the City commits to updating the Climate Equity Index in 2024 or when new data (e.g. updated Census information or CalEnviroScreen updates) necessitates an update.

Appendices

- **Appendix A CLIMACT Prio Methodology and Results**

- **Appendix B Climate Equity Index**

- **Appendix C Greenhouse Gas Calculations and Methodologies**

- **Appendix D Institute for Local Government report**

- **Appendix E City-led Analysis of Outreach and Engagement**

- **Appendix F Climate Equity Engagement Results**

SD sustain**ability**

**Our vision is to be a sustainable
and resilient city with opportunity
in every community.**

City of San Diego Sustainability | Department Vision Statement

This information is available in alternative formats upon request.

Appendix A - CLIMACT Prio Methodology

The Climate Action Prioritization (CLIMACT Prio) tool, created by researchers at the Institute for Housing and Urban Development Studies at Erasmus University Rotterdam, guides city planners through the collection of necessary data and then performs an analysis to rank potential climate actions according to both GHG impact and stakeholder priorities[20]. This tool uses a multi-criteria decision analysis (MCDA) approach in order to rank order the list of actions. MCDA has been proposed as an alternative to more traditional cost-benefit analysis approaches because it can integrate qualitative and quantitative information at the same level of analysis, and by incorporating stakeholder perspectives, "promotes a more democratic decision-making in the search of a compromised solution."[21]

A modified version of the Climate Action Prioritization (CLIMACT Prio) Tool was used to assign priority scores to a list of potential climate actions. The tool required several pieces of information:

- A complete list of potential actions
- An evaluation of the feasibility of each action
  - We modified the tool to include an evaluation of the potential for equitable implementation of each action
- A list of criteria (aka co-benefits) important to CoSD residents, such as improved air quality, local job generation, or pedestrian/cyclist safety
- An evaluation of the impact each action would have on each criteria (co-benefit)
- A stakeholder weighting of the criteria (co-benefits) from most- to least-important

The process by which each piece of information was obtained is described below.

Potential actions

A list of approximately 200 potential climate actions was compiled through researching other municipalities' Climate Action Plans, internal discussions with CoSD department staff, and community outreach. CoSD actions already underway as well as new ones currently under consideration were gathered during meetings with individual departments. Additional actions to address specific resident concerns not already reflected in those provided by the internal department meetings were created following feedback from the City's various community outreach activities. For example, the new supporting action "Installation of pedestrian orientated streetlights for increased safety and comfort in Communities of Concern" (under the "Safe and Enjoyable Routes" Measure in Strategy 3) was created to address resident concerns about unsafe pedestrian/cyclist conditions due to a lack of streetlights.

Feasibility and equity analysis

The Feasibility scoring provided in the CLIMACT Prio tool was used to assess the relative ease or difficulty of implementing each action. The complete list was subdivided into groups of actions according to the City department that possessed the necessary expertise to evaluate a particular group. A small team of representatives from that department then answered five questions for each action on their list (see Table 1). For actions that would require cross-department implementation, the evaluating team consisted of members of multiple departments.

Table 1. Feasibility scoring definitions

	High (score = 3 pts)	Medium (score = 2 pts)	Low (score = 1 pt)

Stakeholder acceptability: Would stakeholders groups accept it? (e.g. local residents, business owners, other impacted by City depts)	Majority of relevant stakeholders	Limited majority	Low support
Technical feasibility: Will necessary design, implementation, and maintenance support be available for the option?	Design is already available	Resources to develop design, implement, and maintain are available	No available resources to develop, design, implement, and maintain
Ease of implementation: Can it be implemented at the local government level, or does it depend upon state, county or national support?	The City can implement this without external support	The City can implement this with some support	The City cannot implement this without external support
Financial viability: Is it a financially realistic option? Does the City have funding or potential access to funding to cover the costs?	Financially realistic with available funding	More limited funding opportunities	Expensive and limited funding opportunities
Mainstreaming potential: Could it be integrated with existing City government planning and policy development?	Yes, easily and fully through many plans and strategies	Yes, partly but with more time and through more limited plans and strategies	Relatively limited potential, would require additional activities

The evaluating team assigned a score of High, Medium, or Low to each of the five feasibility questions. Those scores were converted to numeric scores (High=3, Medium=2, Low=1); the sum of scores for all five questions for a single action was that action's total Feasibility score. The original range of scores was 5-15; all scores were then transformed to a 1-10 point scale.

The original CLIMACT Prio tool uses the Feasibility score to reduce the list of actions under consideration—actions with a low feasibility score are dropped. The Feasibility score is also used as one of the criteria in the final ranking of remaining actions. In the CoSD analysis, the Feasibility score was used as one of the multiple criteria; however, no actions were dropped from the analysis at this stage.

Because the City of San Diego's Climate Action Plan is centered on equity, an Equitable potential criterion was added. While completing the Feasibility ratings, department teams were asked to also rate each action according to whether that action could be implemented in an equitable manner. The teams answered three Equity questions in the same way that they answered the Feasibility questions. The Equity scoring definitions are shown in Table 2.

Table 2. Equity scoring definitions

	High (score = 3 pts)	Medium (score = 2 pts)	Low (score = 1 pt)
Community benefits & burdens: Can it be implemented in a way that distributes benefits and burdens equitably?	Benefits would be focused in Communities of Concern and burdens minimized in these communities	Benefits and burdens would accrue equally across communities regardless of CEI scores	Benefits would accrue mainly in communities that have higher CEI scores; any burdens would accrue primarily in Communities of Concern
Community empowerment: Can it be implemented in a way to increase community capacity or level of engagement?	Increases the level of participatory governance, capacity of CBOs, and knowledge/engagement of residents in Communities of Concern	Provides opportunities for targeted engagement in Communities of Concern for development of project, but no lasting capacity building or empowerment for Communities of Concern	Provides no additional resources/opportunities for engagement, capacity building, or participatory governance
Addresses historical disparity: Can it address historical disparities in Communities of Concern, i.e., lack of sidewalks or improve air quality?	Addresses historical disparity faced by Communities of Concern	Addresses some need in Communities of Concern, equally focuses on needs in communities with high or very high CEO scores	Does not look at historical disparities or address those disparities

The evaluating team assigned a score of High, Medium, or Low to each of the three equity questions. Those scores were converted to numeric scores (High=3, Medium=2, Low=1); the sum of scores for all

three questions for a single action was that action's total Equity score. The original range of scores was 3-9; all scores were transformed to a 1-10 point scale. This Equity score was also used as one of the multiple criteria for the final rankings.

Co-benefits list
The City of San Diego engaged in extensive outreach to its residents in 2020 and 2021 through such varied methods as an online survey, public forums, and community presentations. In partnership with the Institute for Local Government and local nonprofits and community-based organizations within San Diego's Communities of Concern, the City also received feedback through online forums, phonebanks, and in-person surveys and conversations. Throughout all of these various engagements, the City sought to learn 1) concerns residents have about climate change, 2) climate change impacts residents have experienced, 3) climate actions residents want the CoSD to take, and 4) benefits residents expect from climate action. A list of sixteen climate action co-benefits important to CoSD residents was compiled from this feedback, and can be categorized as follows:

- **Air Quality**
    - Indoor air quality
    - Outdoor air quality
- **Public Health**
    - Reduce pollution and litter
    - Increase access to healthy and affordable food
    - Increase walkability
    - Increase access to parks, green space, and recreation
    - Increase safety (e.g., pedestrian, bike)
- **Jobs & Economy**
    - Local investment generated
    - Potential for local jobs
    - Increase affordability of transportation
- **Resiliency**
    - Reduce heat island effect
    - Increase natural habitat
    - Improve biological resources (i.e. trees, green spaces)
    - Improve water quality
    - Increased independence for local resources (i.e. energy, water)

Based on the frequency of mentions of these various co-benefits, it was possible to determine an overall ranking of the major categories. San Diego residents prioritize air quality and public health the highest, and those categories were approximately equal in importance. Jobs & economy was prioritized third, and resiliency fourth.

Impact evaluation
An external consultant, EPIC, provided co-benefit impact ratings for each action. For a single action, EPIC rated that actions' potential impact on each of the sixteen co-benefits listed above, relative to the other actions on the list. Scores were: 0=not applicable, 1=possible impact, 2=low impact, 3=high impact. The final category score for an action, such as Public Health, was calculated by taking the average score of that category's co-benefits (after removing "not applicable" co-benefits) and then transforming to a 1-10 point scale. At the end of this step, each action had four co-benefit scores: air quality, public health, jobs & economy, and resiliency, each on a scale of 1-10 pts.

Criteria (co-benefit) weighting
The multi-criteria decision analysis was performed by multiplying each criteria score (i.e., Feasibility, Equity, Public Air Quality, Public Health, Jobs & Economy, and Resiliency) by a weight assigned according to stakeholders' prioritization of the various criteria. The weighting strategy gave CoSD residents' preferences the largest weight—the sum of weights for the four co-benefits (sum to 65%) is larger than the Feasibility (10%) and Equity (25%) weights. Next priority was given to the Equity score, which addresses whether an action has the potential for equitable implementation. The Feasibility score was assigned the smallest weight; it can be thought of as a score that informs the action priority list but does not drive prioritization. The weight distribution is illustrated in Figure 1 below.

Figure 1. Weights assigned to each criteria considered in the CLIMACT Prio analysis. All weights sum to 1.0
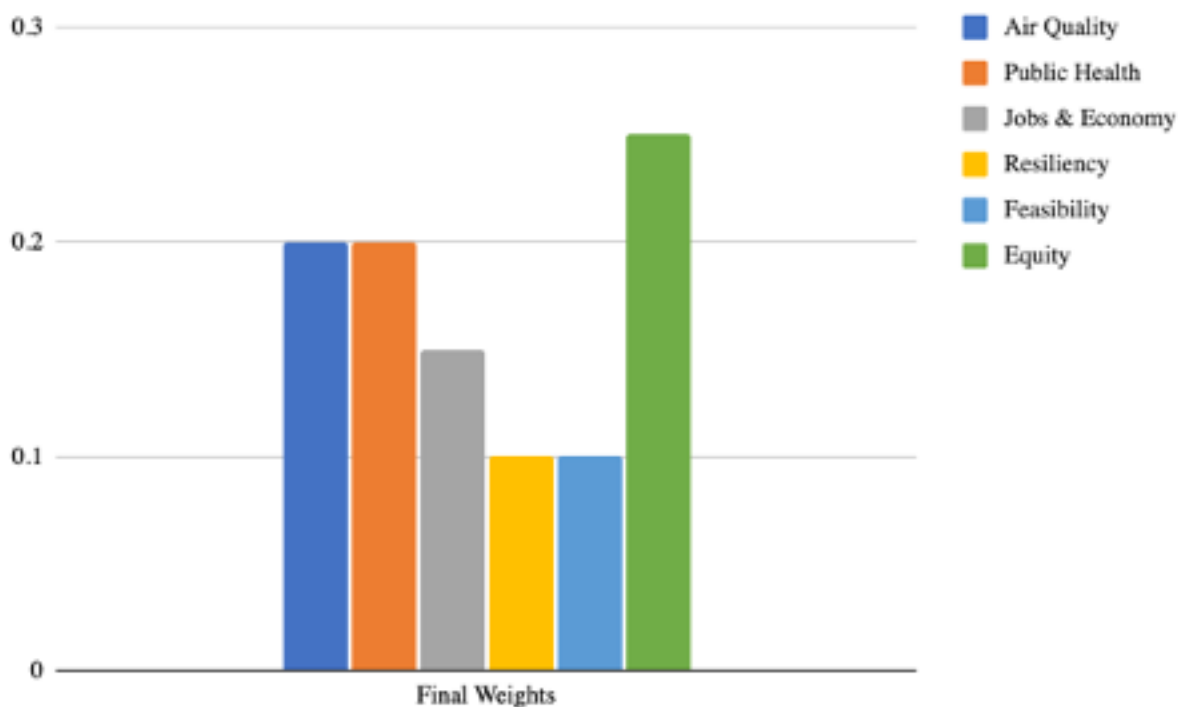
Final action scoring
Each action's final CLIMACT score was calculated by the following:

(Air Quality score x 0.20) + (Public Health score x 0.20) + (Jobs & Economy score x 0.15) + (Resiliency score x 0.10) + (Feasibility x 0.10) + (Equity x 0.25)

The possible range of scores was between 0-10, where a higher score indicated an action that had greater impact on the various co-benefits, especially those co-benefits important to San Diego residents. Sorting all actions from highest to lowest CLIMACT score can indicate which actions (those near the top) should be prioritized, and which ones (those near the bottom) might be omitted from this Climate Action Plan update.

Score aggregation within Measures
A Measure's co-benefit icons, Feasibility subscores, and Equity subscores were determined by aggregating scores across all Actions included in that Measure. Supporting Actions scores were not included in this calculation.

Co-benefit icon: average scores for each co-benefit were calculated from all actions included in a measure (after removing "not applicable" scores). If any co-benefit had an average score of 2 or higher, then an icon for that co-benefit's category appears in the Measure summary. For example, if the average "Increased Affordable Household Energy" score across all actions included in a measure was 2.0, then the "Jobs & Economy" icon would appear in that Measure's summary table, even if all other co-benefits in the "Jobs & Economy" category had lower average scores.

Feasibility subscores: the original 1-3 scores for each Feasibility question were averaged across all Actions included in a Measure to provide the score shown in that Measure's summary table.

Equity subscores: the original 1-3 scores for each Equity question were averaged across all Actions included in a Measure to provide the score shown in that Measure's summary table.

CLIMACT Prio score tables
The complete set of scores, including CLIMACT Prio scores, for each action and supporting action can be seen in the Attachment to this Appendix. Scores for each strategy are shown in separate sections, and aggregated Measure scores are shown in the final section.

Attachment 1 to Appendix A
CLIMACT Prio score tables

CLIMACT Prio score tables for Strategy 1:
Decarbonization of the Built Environment

Note: This page is a single very wide scoring matrix. Column headers (left to right):

No. | Strategy | Measure | Actions | Measure, Action, or Supporting Action | **AIR QUALITY:** Improve outdoor air quality (0-N/A, 1-Low, 2-Med, 3-High) | Improve indoor air quality | Reduce pollution & litter | **PUBLIC HEALTH:** Increase access to healthy & affordable food | Increase walkability | Increase access to parks, green space, recreation | Increase safety (e.g., pedestrian, bike) | **JOBS & ECONOMY:** Amount of local investment generated | Number of local jobs created | Increase affordability of household energy | Increase affordability of transportation | **RESILIENCY:** Reduce heat island effect | Increase natural habitat | Improve biological resources (i.e. trees, green spaces) | Improve water quality | Improve local resource independence | **CORE BENEFITS AGGREGATED:** Aggregated Air Quality (0-6) | Aggregated Public Health (0-15) | Aggregated Jobs & Economy (0-12) | Aggregated Resiliency (0-15) | **CORE BENEFIT SCORES (rescaled):** Scaled Air Quality (0-10) | Scaled Public Health (0-10) | Scaled Jobs & Economy (0-10) | Scaled Resiliency (0-10) | **FEASIBILITY CRITERIA:** Stakeholder acceptability | Technical feasibility | Ease of implementation | Financial viability | Mainstreaming potential | **EQUITY CRITERIA:** Community benefits & burdens | Community empowerment | Addresses historical disparity | **F&E SCORES:** Feasibility Scaled Score (1-10) | Equity Scaled Score (1-10) | CLIMACT Prio Score

No.	Strategy	Measure	Actions	Type	Agg Air	Agg PH	Agg Jobs	Agg Res	Scaled Air	Scaled PH	Scaled Jobs	Scaled Res	Stakeholder	Technical	Ease	Financial	Mainstream	Comm benefits	Comm empower	Hist disparity	Feas Scaled	Equity Scaled	CLIMACT
	STRATEGY 1 - Decarbonization of the Built Environment	**Decarbonize existing buildings**		Measure																			
5	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize existing buildings	Develop a comprehensive roadmap to achieve decarbonization of the existing building stock including, programs, regulatory and incentive tools that includes extensive engagement and utilization of a shared-decision making model with Communities of Concern	Action	3	3	3	6	10	10	10	10	2	2.5	2.5	3		1	3		8		8.30
141	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize existing buildings	Identify funding sources, including SDCP and SDGE, for advancing residential weatherization projects, appliance exchanges and broad building retrofits in Communities of Concern	Supporting Action	3	3	5	6	10	10	5.5	10	3	3	3	3		3	1		10		8.58
9	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize existing buildings	Expand residential Photo Voltaic deployment incentives/programs	Supporting Action	0	0	5	3	0	0	5.5	10	2.5	3	1.5	1		2.5	1		5		3.83
7	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize existing buildings	Update the Building Energy Benchmarking Ordinance to expand enforcement and compliance.	Supporting Action	2	2	3	4	5.5	5.5	10	6.4	2	2.5	3	3		1	1		9		5.49
	STRATEGY 1 - Decarbonization of the Built Environment	**Decarbonize new building development**		Measure																			
3	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize new building development	Develop and adopt a building electrification policy, through code update or other mechanism, requiring new residential and commercial buildings to eliminate the use of natural gas, increase distributed energy generation and storage and increase EV charging stations, engaging with residents of Communities of Concern, workers in the field, and builders	Action	3	2	2	3	4.6	5.5	5.5	4.6	2	2.5	2.5	3		2	3		8		5.61
11	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize new building development	Incentivize renewable generation at non-residential developments	Supporting	1	0	6	2	1	0	10	5.5	3	3	2	1		2	2		6		4.35
10	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize new building development	Require renewable generation at non-residential developments	Supporting Action	1	0	7	2	1	0	7.75	5.5	2.5	2.5	2	2.5		1	1.5		7		3.61
136	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize new building development	Require cool roofs to implement Climate Resilient SD in energy efficiency building code update	Supporting Action	0	0	2	3	0	0	5.5	10	3	3	3	2		1	1		8		2.88
1	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize new building development	Establish policies that incentivize developers to use less GHG intensive materials and practices (EVs, Low-Carbon concrete, recycled materials, etc)	Supporting Action	2	1	2	3	2.8	1	2.8	4.6	2	3	1	2		1	1		5		2.39
	STRATEGY 1 - Decarbonization of the Built Environment	**Decarbonize City Facilities**		Measure																			
2	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize City Facilities	Implement energy efficiency projects at City facilities to meet zero emissions goals for municipal buildings established in the Municipal Energy Strategy & Implementation Plan, prioritizing projects within the City's Communities of Concern	Action	2	1	4	3	2.8	1	6.4	4.6	3	2	3	3		2	2		8		4.48
31	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize City Facilities	Implement technologies such as renewable electricity generation, energy storage, and microgrids at City facilities to meet the zero emissions goals for municipal buildings established in the Municipal Energy Strategy & Implementation Plan.	Action	1	0	3	2	1	0	4.6	5.5	3	2	3	3		2	2		8		3.74
8	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize City Facilities	Develop, adopt and implement a municipal zero carbon emissions building and operations policy.	Action	3	2	2	4	4.6	5.5	2.8	6.4	3	3	3	2		2	2		9		5.48
182	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize City Facilities	Identify and prioritize City facilities for near-term energy efficiency and clean energy projects that increase community resiliency	Supporting Action	2	1	2	3	2.8	1	2.8	4.6						2	1				2.64
116	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize City Facilities	Identify and prioritize energy projects at City facilities that increase resiliency for the surrounding communities and City operations	Supporting Action	1	1	0	3	1	1	0	4.6	3	2	3	3		3	3		8	10	4.16
158	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize City Facilities	Convert all street lights to LEDs and explore auto-dimming technology	Supporting Action	0	6	0	0	0	10	0	0	2.5	2.5	3	2	2.5	3	1		8	7	4.55
192	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize City Facilities	Convert all traffic signals to LED lights	Supporting Action																			
193	STRATEGY 1 - Decarbonization of the Built Environment	Decarbonize City Facilities	Place a higher prioritization for City facilities and infrastructure in Communities of Concern	Supporting Action																			
	STRATEGY 1 - Decarbonization of the Built Environment	**Strategy 1 Supporting Actions**		Supporting Action																			
16	STRATEGY 1 - Decarbonization of the Built Environment	Strategy 1 Supporting Actions	Remove high-Global Warming Potential refrigerants - develop a refrigerant management program that establishes a phaseout timeline for high-Global Warming Potential refrigerants	Supporting Action	0	0	0	0	0	0	0	0	2	3	3	3		2	1		9		1.90
32	STRATEGY 1 - Decarbonization of the Built Environment	Strategy 1 Supporting Actions	Advance workforce development programs for energy efficiency and renewable energy projects	Supporting Action	0	0	3	0	0	0	4.6	0	3	3.00	2.5	2.5	2.5	2	2		9		3.09

CLIMACT Prio score tables for Strategy 2:
Clean & Renewable Energy

STRATEGY 2 - Clean & Renewable Energy

				AIR QUALITY			PUBLIC HEALTH				JOBS & ECONOMY				RESILIENCY					CORE BENEFITS AGGREGATED				CORE BENEFIT SCORES				FEASIBILITY CRITERIA					EQUITY CRITERIA			F&E SCORES		
No.	Strategy	Measure	Actions	Measure, Action, or Supporting Action	Improve outdoor air quality	Improve indoor air quality	Reduce pollution & litter	Increase access to healthy & affordable food	Increase walkability	Increase access to parks, green space, recreation	Increase safety (e.g., pedestrian, bike)	Amount of local investment generated	Number of local jobs created	Increase affordability of household energy	Increase affordability of transportation	Reduce heat island effect	Increase natural habitat	Improve biological resources (i.e. trees, green spaces)	Improve water quality	Improve local resource independence	Aggregated Air Quality (0-6)	Aggregated Public Health (0-15)	Aggregated Jobs & Economy (0-12, 15)	Aggregated Resiliency (0-15)	Scaled Air Quality (0-10)	Scaled Public Health (0-10)	Scaled Jobs & Economy (0-10)	Scaled Resiliency (0-10)	Stakeholder acceptability	Technical feasibility	Ease of implementation	Financial viability	Mainstreaming potential	Community benefits & burdens	Community empowerment	Addresses historical disparity	Feasibility Scaled Score (1-10)	Equity Scaled Score (1-10)	CLIMACT Prio Score
	STRATEGY 2 - Clean & Renewable Energy	**Citywide Renewable Energy Generation**		**Measure**																																		
26	STRATEGY 2 - Clean & Renewable Energy	Citywide Renewable Energy Generation	Develop financial support programs to incentivize multifamily solar, providing relief to tenants within communities of concern	Action	1	0	0	0	0	0		2	1	3		0	0	0	0	2	1	0	6	2	1	0	6.625	5.5	3	2	1	1	2	3	1	3	5	7	3.99
25	STRATEGY 2 - Clean & Renewable Energy	Citywide Renewable Energy Generation	Develop financial support programs to incentivize deployment of building-scale renewables and mandate the use of renewables through building codes, while engaging residents and other stakeholders in the process.	Action	1	0	0	0	0	0		2	2	2	2	0	0	0	0	2	1	0	6	2	1	0	6.625	5.5	3	3	2	2.7	2	2	2	2	8	6	4.04
23	STRATEGY 2 - Clean & Renewable Energy	Citywide Renewable Energy Generation	Partner with SDCP to incentivize local generation of utility scale renewables	Action	1	0	0	0	0	0		2	2	3		0	0	0	0	2	1	0	7	2	1	0	7.75	5.5	3	2	1.3	1.3	2	2	1	2	5		3.41
194	STRATEGY 2 - Clean & Renewable Energy	Citywide Renewable Energy Generation	Deploy advanced renewable energy technologies (e.g. battery energy storage systems, microgrids, etc.) at municipal facilities to demonstrate feasibility.	Supporting Action																																				
195	STRATEGY 2 - Clean & Renewable Energy	Citywide Renewable Energy Generation	Leverage municipal facilities to establish community solar and microgrid solutions when tariffs allow.	Supporting Action																																				
	STRATEGY 2 - Clean & Renewable Energy	**Increase Municipal Zero Emission Vehicles**		**Measure**																																		
22	STRATEGY 2 - Clean & Renewable Energy	Increase Municipal Zero Emission Vehicles	Develop a City Fleet Vehicle Replacement and Electrification strategy.	Action	2	0	2	0	0	0		0	0	0		0	0	0	0	2	2	2	0	2	5.5	5.5	0	5.5	3	1.5	1	1	2	1.5	1.5	1.5	4		4.15
20	STRATEGY 2 - Clean & Renewable Energy	Increase Municipal Zero Emission Vehicles	Conduct City fleet electrification feasibility study to determine best siting, funding needs, and strategies including specific strategies for Chollas Operations Yard.	Supporting Action	0	0	0	0	0	0		2	1	0		0	0	0	0	0	0	0	3	0	0	0	4.6	0	3	1	2	1	3	3	1	3	5	7	2.94
30	STRATEGY 2 - Clean & Renewable Energy	Increase Municipal Zero Emission Vehicles	Update municipal parking yard electric infrastructure to support electric vehicle charging needs	Supporting Action	2	0	2	0	0	0		1	1	0		0	0	0	0	2	2	2	2	2	5.5	5.5	2.8	5.5	3	1	2	1	3	1	1	1	5		3.92
19	STRATEGY 2 - Clean & Renewable Energy	Increase Municipal Zero Emission Vehicles	Create standards for the City's purchase of fuel for fleet vehicles that contains the lowest levels of lifecycle GHG emissions available.	Supporting Action	2	0	2	0	0	0		0	0	0		0	0	0	0	2	2	2	0	2	5.5	5.5	0	5.5	2	1	3	2	3	1	1	1	6		3.60
187	STRATEGY 2 - Clean & Renewable Energy	Increase Municipal Zero Emission Vehicles	Explore pilot projects for a variety of grid resilience services (demand response, emergency back-up, demand charge reduction, etc.) through three modes of EV integration (Grid-to-Vehicle, Vehicle-to-Building, Vehicle-to-Grid)	Supporting Action	0	0	0	0	0	0		2	1	0		0	0	0	0	2	0	0	3	2	0	0	4.6	5.5											
	STRATEGY 2 - Clean & Renewable Energy	**Increase Electric Vehicle Adoption**		**Measure**																																		
21	STRATEGY 2 - Clean & Renewable Energy	Increase Electric Vehicle Adoption	Develop a city-wide electric vehicle strategy to accelerate EV adoption, including flexible fleets, circulators, and electric bicycles, focusing on the barriers to ownership and charging for residents within the communities of concern.	Action	3	0	3	0	0	0	3	0	0	0	3	0	0	0	0	2	3	3	3	2	10	10	10	5.5	3	1.3	3	2	3	2.3	2.3	2.7	8	8	8.85
24	STRATEGY 2 - Clean & Renewable Energy	Increase Electric Vehicle Adoption	Amend the building code update to require EV charging stations	Supporting Action	3	0	3	0	0	0		1	0	0	1	0	0	0	0	2	3	3	3	2	10	10	4.6	5.5	2	2.3	2.7	3	2.7	2	2		8	6	7.54
57	STRATEGY 2 - Clean & Renewable Energy	Increase Electric Vehicle Adoption	Amend the building code to require charging amenities for electric bicycles	Supporting Action	1	0	1	0	0	0		0	0	0	1	0	0	0	0	0	1	1	1	0	1	1	1	0	2.50	2.8	2.8	3	3	2	1	1	9		2.20
53	STRATEGY 2 - Clean & Renewable Energy	Increase Electric Vehicle Adoption	Work with the Air Pollution Control District (APCD), San Diego Unified School District and other school districts serving the City to support the conversion of the school bus fleet to zero emissions vehicles	Supporting Action	2	0	2	0	0	0		0	0	0		0	0	0	0	0	2	2	0	5.5	5.5	0	2.5	1	1	1	1.5	2	1		3		3.50
59	STRATEGY 2 - Clean & Renewable Energy	Increase Electric Vehicle Adoption	Work with SANDAG, APCD and MTS to procure a fully zero emissions bus fleet, where technologically feasible	Supporting Action	3	0	3	0	0	0		0	0	0		0	0	0	0	2	3	3	0	2	10	10	0	5.5	2.5	3	1	1.5	1	2	1		5	6	6.55
183	STRATEGY 2 - Clean & Renewable Energy	Increase Electric Vehicle Adoption	Consider setting goal for installation of public EV charging stations on city property to support EV charging in Communities of Concern. Initialize process with publication of a Request for Information (RFI) to solicit public charging solutions.	Supporting Action	2	0	2	0	0	0		1	1	0		0	0	0	0	2	2	2	3	5.5	5.5	3.25	5.5						3	1	3		7	4.99
184	STRATEGY 2 - Clean & Renewable Energy	Increase Electric Vehicle Adoption	Continue to work with SANDAG, the Port of San Diego and other partners on medium and heavy duty (MD/HD) ZEV infrastructure planning. Consider future policies to advance MD/HD ZEV adoption and utilization in the Portside Communities.	Supporting Action	3	0	3	0	0	0		1	1	0		0	0	0	0	2	3	3	2	10	10	2.8	5.5						3	1	3		7	6.72

CLIMACT Prio score tables for Strategy 3:
Land Use and Community Planning

STRATEGY 3 - Land Use and Community Planning

Safe and Enjoyable Routes for Pedestrians and Cyclists (Measure)

No.	Strategy	Measure	Actions	Measure, Action, or Supporting Action	CLIMACT Prio Score
153	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Develop Safe Routes to Schools safety plans; start a San Diego Safe Routes to Schools program focusing on Communities of Concern and underperforming schools	Action	6.21
54	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Implement safe routes to school projects/programs where pedestrian and accessibility needs are identified to be the greatest for school attendance	Action	5.81
175	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Implement the City's Bicycle Master Plan and community plan bicycle networks with a emphasis on separated bikeways.	Action	3.58
71	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Review and improve micro-mobility policies/shared use mobility programs, especially focused in communities of concern and first mile/last mile applications	Action	3.93
177	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Partner with Microbility Operators to optimize the number of scooters available in mobility hubs and/or near transit	Action	4.78
178	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Update Bicycle Master Plan with current best practices for facility designation, reflecting recent community plan updates and proposed regional connections. Also describing existing constraints, opportunities, and implementation strategies.	Action	1.90
51	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Develop a Mobility Master Plan to reduce mobile sources emissions and further a shift in mode	Action	6.80
161	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Update street planning and design process with a focus on community input from Communities of Concern to prioritize pedestrians, bicyclists, and transit	Supporting Action	3.70
197	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Engage communities during the community plan updates and other multimodal corridors and active transportation planning processes to better accommodate all users of the right-of-way with an emphasis on improving safety for vulnerable users	Supporting Action	
33	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Amend Council Policy CP800-14 to prioritize CAP implementation with a greater investment in Communities of Concern, repurposing of PROW to include Class IV Bike Facilities, and improved accessibility for walking/rolling for all ages and abilities	Supporting Action	4.14
139	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Incorporate trees and additional cooling features such as innovative shade designs, water features, and cooling centers at parks, with a concentration in Communities of Concern	Supporting Action	4.51
157	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Installation of pedestrian orientated streetlights for increased safety and comfort in Communities of Concern	Supporting Action	4.60
159	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Amend the code and street design manual to include standards for pedestrian orientated street lighting in neighborhoods and alleyways	Supporting Action	3.88
66	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Partner with public safety to review and reform education programs and enforcement policies related to pedestrian and traffic safety	Supporting Action	4.12
63	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Update City special events permits to prioritize transit, walking, and bicycling	Supporting Action	5.10
69	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Complete and implement Mobility Action Plan to ensure City infrastructure can adequately support the goals of the Climate Action Plan	Supporting Action	5.13
142	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Increase number of trash and recycling receptacles in pedestrian corridors/Transit Prior Areas	Supporting Action	3.35
162	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Explore fee structure/incentive program to increase cost savings for shared transportation network company (TNC) trips relative to private TNC trips	Supporting Action	4.08
111	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Ensure that Captial Improvement Projects comply with all applicable landscape requirements in the Land Development Code	Supporting Action	3.72
155	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Include as a condition of new development that shade structures be included on building frontages in pedestrian thoroughfares, with preference given to natural shade up to five feet	Supporting Action	3.19
198	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Include audible pedestrian signals at all signal-controlled crosswalks	Supporting Action	
199	STRATEGY 3 - Land Use and Community Planning	Safe and Enjoyable Routes for Pedestrians and Cyclists	Install audible wayfinding beacons at complicated intersections and sign locations	Supporting Action	

Increase Safe, Convenient, and Enjoyable Transit Use (Measure)

No.	Strategy	Measure	Actions	Measure, Action, or Supporting Action	CLIMACT Prio Score
46	STRATEGY 3 - Land Use and Community Planning	Increase Safe, Convenient, and Enjoyable Transit Use	Work with SANDAG and MTS to develop dedicated bus lanes or shared bus and bike lanes as part of Community Plan Updates to increase transit efficiency and on-time performance, focusing on routes supporting residents within underserved communities and high-frequency connections for riders to schools and universities and jobs	Action	3.65
152	STRATEGY 3 - Land Use and Community Planning	Increase Safe, Convenient, and Enjoyable Transit Use	Strategize and implement a Street Furniture program that reduces heat exposure, provides cool transit stops, and improves access to restrooms in high transit use areas/pedestrian corridors prioritizing Communities of Concern	Action	4.17
140	STRATEGY 3 - Land Use and Community Planning	Increase Safe, Convenient, and Enjoyable Transit Use	Transit shelters: Ensure every high-volume transit stop has access to shade structures and benches; establish standard for bus shelters in the city (minimum accomodations) with a priority on Communities of Concern	Action	2.90
67	STRATEGY 3 - Land Use and Community Planning	Increase Safe, Convenient, and Enjoyable Transit Use	Expand free youth transit pass program to more residents, prioritizing students of all ages and residents in Communities of Concern	Action	8.40
200	STRATEGY 3 - Land Use and Community Planning	Increase Safe, Convenient, and Enjoyable Transit Use	Prioritize and assist MTS with siting and design on complete transit stops in CoC, including shade trees, lighting, trash bins	Supporting Action	
44	STRATEGY 3 - Land Use and Community Planning	Increase Safe, Convenient, and Enjoyable Transit Use	Create programs and incentives for transit passes bundled with all new major developments within one mile of a major transit stop	Supporting Action	4.34
60	STRATEGY 3 - Land Use and Community Planning	Increase Safe, Convenient, and Enjoyable Transit Use	Partner with MTS for priority right of way for buses and trolly	Supporting Action	4.75
45	STRATEGY 3 - Land Use and Community Planning	Increase Safe, Convenient, and Enjoyable Transit Use	Support MTS, SANDAG and Caltrans in the creation of transit right-of-way for regional transit connections	Supporting Action	3.45

Increase Telecommuting (Measure)

No.	Strategy	Measure	Actions	Measure, Action, or Supporting Action	CLIMACT Prio Score
43	STRATEGY 3 - Land Use and Community Planning	Increase Telecommuting	Amend the Land Development Code to include mandatory transportation demand management (TDM) regulations citywide	Action	4.58
42	STRATEGY 3 - Land Use and Community Planning	Increase Telecommuting	Develop a City of San Diego employee TDM policy	Action	3.55
164	STRATEGY 3 - Land Use and Community Planning	Increase Telecommuting	Establish a team and roadmap to support actions that require connectivity and close the digital divide.	Action	4.11
165	STRATEGY 3 - Land Use and Community Planning	Increase Telecommuting	Stand up Public WiFi access at City Libraries, Recreation facilities and various public areas in Low-to-Moderate Income (LMI) areas.	Supporting Action	4.01
171	STRATEGY 3 - Land Use and Community Planning	Increase Telecommuting	Formalize a regional device refurbishment and distribution program	Supporting Action	3.91
166	STRATEGY 3 - Land Use and Community Planning	Increase Telecommuting	Build a program to loan mobile hotspots and personal computers to residents.	Supporting Action	4.04
167	STRATEGY 3 - Land Use and Community Planning	Increase Telecommuting	Create a Digital Navigator support line to assist with basic technology issues and provide guidance on low income technology options	Supporting Action	3.74
169	STRATEGY 3 - Land Use and Community Planning	Increase Telecommuting	Create a Digital Literacy program to educate residents, particularly in Low-to-Moderate Income (LMI) areas.	Supporting Action	3.64
170	STRATEGY 3 - Land Use and Community Planning	Increase Telecommuting	Work with local organizations to distribute refurbished devices previously used by the City to residents at low or no costs	Supporting Action	4.14
168	STRATEGY 3 - Land Use and Community Planning	Increase Telecommuting	Improve data gathering and outreach to understand which residents need the most assistance and why and advertise to them technology options	Supporting Action	3.40

Reduce Traffic Congestion to Improve Air Quality and Trip Length (Measure)

No.	Strategy	Measure	Actions	Measure, Action, or Supporting Action	CLIMACT Prio Score
48	STRATEGY 3 - Land Use and Community Planning	Reduce Traffic Congestion to Improve Air Quality and Trip Length	Deploy dynamic speed management efforts such as signal retiming on City streets	Action	3.43
41	STRATEGY 3 - Land Use and Community Planning	Reduce Traffic Congestion to Improve Air Quality and Trip Length	Install traffic circles and roundabouts	Action	3.38
176	STRATEGY 3 - Land Use and Community Planning	Reduce Traffic Congestion to Improve Air Quality and Trip Length	Retime traffic signals to reduce vehicle fuel consumption through improving the flow of traffic	Action	3.13

#	Strategy	Category	Description	Type																																	
151	STRATEGY 3 - Land Use and Community Planning	Reduce Traffic Congestion to Improve Air Quality and Trip Length	Work with the Port of San Diego, SANDAG, and Caltrans to prepare a feasibility study to identify the best truck route to Tenth Avenue Marine Terminal and diversion, traffic calming and appropriate signage as included in the APCD's Community Emission Reduction Plan (CERP	Supporting Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2	2	2		3	1		6	7	2.35

STRATEGY 3 - Land Use and Community Planning	Climate-Focused Land Use	**Climate-Focused Land Use**		Measure																																	

188	STRATEGY 3 - Land Use and Community Planning	Climate-Focused Land Use	Focus new development in areas that will allow residents and visitors to safely, conveniently, and enjoyable travel by walking, rolling, biking, or transit, such as Transit Priority Areas (TPAs), and areas of the City with the lowest amount of vehicular travel.	Action	3.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	3.0	9.0	1.0	1.0	10.0	10.0	1.0	1.0	2.5	2	3	2.5	2.5	2	1		8	6	6.55
189	STRATEGY 3 - Land Use and Community Planning	Climate-Focused Land Use	Plan for land uses that will allow existing residents, employees and visitors to more safely, conveniently and enjoyably travel as a pedestrian, or by biking or transit	Action	3.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0	3.0	9.0	1.0	1.0	10.0	10.0	1.0	1.0	2.5	2	3	2.5	2.5	2	1		8	6	6.55
36	STRATEGY 3 - Land Use and Community Planning	Climate-Focused Land Use	Focus on delivering new mixed-use development on sites, including vacant and underutilized lots, located near transit, such as in TPAs and areas of the City of San Diego with the lowest amount of vehicular travel.	Supporting Action	1.0	0.0	1.0	0.0	2.0	0.0	1.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	4.0	3.0	0.0	1.0	4.4	4.6	0.0	2.5	2.5	3	3		2	1		9	3	3.42
49	STRATEGY 3 - Land Use and Community Planning	Climate-Focused Land Use	Implement active transportation in lieu fees to fund pedestrian, cyclist and transit investments where the greatest GHG emissions reductions will result, in accordance with Complete Communities: Mobility Choices	Supporting Action	3.0	0.0	3.0	0.0	3.0	0.0	2.0	1.0	1.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	3.0	8.0	4.0	0.0	10.0	8.9	4.4	0.0	3	3	3	3		2.5	2.5	2.5	10	8	7.43
37	STRATEGY 3 - Land Use and Community Planning	Climate-Focused Land Use	Amend local regulations and policies to allow for wider sidewalks and the use of setbacks for public spaces and place making	Supporting Action	1.0	0.0	1.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.0	0.0	0.0	1.0	5.5	0.0	0.0	2.3	2.7	3	2.5	2.7	2	1		8	4	3.10
55	STRATEGY 3 - Land Use and Community Planning	Climate-Focused Land Use	Implement temporary and permanent car-free zones/zero emission zones	Supporting Action	3.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	9.0	0.0	0.0	10.0	10.0	0.0	0.0	2	2	3	3	2.5	2	1		8	4	5.80
156	STRATEGY 3 - Land Use and Community Planning	Climate-Focused Land Use	Maximize new development in areas located with safe, convenient and enjoyable access to transit	Supporting Action	3.0	0.0	3.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	3.0	7.0	1.0	0.0	10.0	7.8	1.0	0.0	2.5	3	2.5	2.5	2.5	2	1		8	2	5.50
147	STRATEGY 3 - Land Use and Community Planning	Climate-Focused Land Use	Support urban greening along streets to encourage outdoor activity, walking and increase pedestrian access to park in Communities of Concern	Supporting Action	2.0	0.0	2.0	0.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	8.0	0.0	0.0	5.5	6.7	0.0	0.0	3	2	2	2		3	3	3	6	10	5.55
70	STRATEGY 3 - Land Use and Community Planning	Climate-Focused Land Use	Amend the General Plan Mobility Element to include a Complete Streets policy to enable safe, attractive and comfortable access so that pedestrians, bicyclists, motorists and transit users of all ages and abilities can safely travel within the public right-of-way	Supporting Action	2.0	0.0	2.0	0.0	2.0	1.0	2.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	2.0	7.0	1.0	0.0	5.5	5.9	1.0	0.0	3	3	1	2		3	1		6	4	4.78
34	STRATEGY 3 - Land Use and Community Planning	Climate-Focused Land Use	Amend land development code regulations to require more efficient pedestrian access between existing and new development (e.g., between adjacent lots)	Supporting Action	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	6.0	0.0	0.0	5.5	6.6	0.0	0.0	2.7	2.7	3	3	2.7	2	1		9	4	4.33

STRATEGY 3 - Land Use and Community Planning	**Vehicle Management**			Measure																																	

64	STRATEGY 3 - Land Use and Community Planning	Vehicle Management	Optimize use of curb space including management of on-street parking in TPAs by 2030 (or different goal year	Action	3.0	0.0	3.0	0.0	2.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	8.0	0.0	0.0	10.0	8.9	0.0	0.0	1	2	2.5	2.5	2	1	1		5	1	4.53
39	STRATEGY 3 - Land Use and Community Planning	Vehicle Management	Amend the land development code to eliminate parking minimum requirements	Action	3.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0	0.0	10.0	10.0	4.6	0.0	1.7	2.7	3	3	3	1	1	1	9		5.84
39	STRATEGY 3 - Land Use and Community Planning	Vehicle Management	Amend the land development code to establish parking maximum requirements for use types and locations where appropriate	Action	3.0	0.0	3.0	0.0	0.0	0.0	0.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0	0.0	10.0	10.0	4.6	0.0	1.7	2.7	3	3	3	1	1	1	9		5.84
181	STRATEGY 3 - Land Use and Community Planning	Parking	Amend the land development code to prohibit new auto-oriented land uses that would create conflicts with walking and bicycling within TPAs	Action	1.0	0.0	1.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										2	3	3	3	3	2	1	2	9	4	

CLIMACT Prio score tables for Strategy 4:
Circular Economy & Clean Communities

STRATEGY 4 - Circular Economy & Clean Communities

Column groups:
- **AIR QUALITY:** Improve outdoor air quality; Improve indoor air quality (0-N/A, 1-Low, 2-Med, 3-High)
- **PUBLIC HEALTH:** Reduce pollution & litter; Increase access to healthy & affordable food; Increase walkability; Increase access to parks, green space, recreation; Increase safety (e.g., pedestrian, bike) (0-N/A, 1-Low, 2-Med, 3-High)
- **JOBS & ECONOMY:** Amount of local investment generated; Number of local jobs created; Increase affordability of household energy; Increase affordability of transportation (0-N/A, 1-Low, 2-Med, 3-High)
- **RESILIENCY:** Reduce heat island effect; Increase natural habitat; Improve biological resources (i.e. trees, green spaces); Improve water quality; Improve local resource independence (0-N/A, 1-Low, 2-Med, 3-High)
- **CORE BENEFITS AGGREGATED:** Aggregated Air Quality (0-6); Aggregated Public Health (0-15); Aggregated Jobs & Economy (0-12); Aggregated Resiliency (0-15)
- **CORE BENEFIT SCORES:** Scaled Air Quality (0-10); Scaled Public Health (0-10); Scaled Jobs & Economy (0-10); Scaled Resiliency (0-10)
- **FEASIBILITY CRITERIA:** Stakeholder acceptability; Technical feasibility; Ease of implementation; Financial viability; Mainstreaming potential
- **EQUITY CRITERIA:** Community benefits & burdens; Community empowerment; Addresses historical disparity
- **F&E SCORES:** Feasibility Scaled Score (1-10); Equity Scaled Score (1-10)
- **CLIMACT Prio Score**

No.	Measure	Actions	Type	AQout	AQin	Redu	Food	Walk	Park	Safe	Inv	Jobs	Enrg	Trns	Heat	Hab	Bio	Watr	Res	AggAir	AggPH	AggJE	AggRes	ScAir	ScPH	ScJE	ScRes	Stake	Tech	Ease	Fin	Main	CBen	CEmp	Hist	FeasSc	EqSc	CLIMACT
	Changes to the waste stream		Measure																																			
85	Changes to the waste stream	Approve and implement the Polystyrene Foam and Single Use Plastics Ordinance, pending Environmental Impact Report	Action	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	5.5	0.0	5.5	3.0	2.0	3.0	3.0	2.0		1.0	1.0	8	1	2.70
186	Changes to the waste stream	Expand the Polystyrene Foam and Single Use Plastics Ordinance to eliminate Single-Use plastics and prioritize reuse in food preparation, distribution, and sale.	Action	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	5.5	0.0	5.5	2.0	2.0	1.0	2.0	3.0		2.0	1.0	5	3	2.90
	Municipal Waste Reduction		Measure																																			
83	Municipal Waste Reduction	Through an update to the City's administrative regulations, include purchasing requirements for sustainable products and food whenever option is available. 1) Reduce carbon and water footprint of total beef, pork, chicken, turkey and dairy purchases by 20% 2) Increase local, healthy, and sustainable foods to 20% of total food purchases	Action	0.0	0.0	2.0	2.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	4.0	1.0	2.0	0.0	6.4	1.0	5.5	2.0	3.0	3.0	3.0	3.0	1.0	1.0	1.0	9	1	3.13
84	Municipal Waste Reduction	Include procurement targets, with a focus on the maintenance of street easements, parks, and other green spaces, (especially for streets, parks & rec, etc) for purchasing compost through the greenery Miramar Greenery or other local composting facilities to increase market for that product expand the demand and production of high quality compost in the City	Action	0.0	0.0	2.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	1.0	2.0	0.0	5.5	1.0	6.4	2.0	2.0	3.0	2.0	3.0	2.0	1.0	1.0	7	3	3.34
	Local Food Systems & Food Recovery		Measure																																			
98	Local Food Systems & Food Recovery	Create a food council/board with local stakeholders	Action	0.0	0.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	3.0	0.0	2.0	0.0	4.6	0.0	5.5	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	9	9	4.62
76	Local Food Systems & Food Recovery	Create food waste prevention network to expand infrastructure and partnerships for edible food recovery	Action	0.0	0.0	3.0	2.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	5.0	1.0	2.0	0.0	8.2	1.0	5.5	3.0	1.0	2.0	1.0	2.0	2.0	1.0	1.0	5	3	3.59
78	Local Food Systems & Food Recovery	Require food waste prevention, donation and recycling plans for all city food service operations and large events on city managed, leased or owned lands	Action	0.0	0.0	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	5.0	0.0	2.0	0.0	8.2	0.0	5.5	3.0	1.0	2.0	1.0	2.0	2.0	1.0	1.0	5	3	3.44
100	Local Food Systems & Food Recovery	Establish a multidisciplinary team of subject matter experts across City departments with a focus on land use, economic growth, neighborhood vitality and healthy food access to work with community members to expand urban agricultural programs and develop policies to encourage community-based farms, including demonstration projects	Action	0.0	0.0	2.0	2.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	2.0	0.0	4.0	2.0	3.0	0.0	6.4	2.8	4.6	3.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0	7	9	5.11
99	Local Food Systems & Food Recovery	Invest in a network of local food sourcing, aggregation, distribution and processing infrastructure including regional food hubs, neighborhood scale commercial kitchens or shared kitchens, and other food businesses, particularly in low-income communities	Supporting Action	0.0	0.0	2.0	2.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	4.0	2.0	2.0	0.0	6.4	2.8	5.5	3.0	1.0	1.0	1.0	2.0	3.0	2.0	2.0	4	9	4.90
77	Local Food Systems & Food Recovery	Regulate or activate programs for food businesses to minimize food related carbon emissions - Require food waste prevention, donation and recycling plans for businesses/ institutions (for Tier 1 and Tier 2 generators outlined in SB1383) and provide technical assistance and resources. Include checklist and outreach as part of business licensing process	Supporting Action	0.0	0.0	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	5.0	0.0	2.0	0.0	8.2	0.0	5.5	3.0	1.0	2.0	1.0	2.0	2.0	1.0	1.0	5	3	3.44
101	Local Food Systems & Food Recovery	Incentivize the incorporation of urban agriculture features into developer plans to include indoor agriculture, edible forestry, community gardens, etc	Supporting Action	0.0	0.0	2.0	2.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	2.0	0.0	4.0	1.0	3.0	0.0	6.4	1.0	4.6	2.0	2.0	3.0	1.0	1.0	3.0	2.0	2.0	5	9	4.64
80	Local Food Systems & Food Recovery	Increase community participation with UAIZ	Supporting Action	0.0	0.0	2.0	2.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	2.0	0.0	4.0	2.0	2.0	0.0	6.4	2.8	4.4	3.0	1.0	2.0	3.0	3.0	2.0	1.0	1.0	7	3	3.59
	Zero waste to landfill		Measure																																			
88	Zero waste to landfill	Update, adopt, and implement the City's Zero Waste Plan	Action	0.0	0.0	3.0	1.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	3.0	0.0	4.0	2.0	4.0	0.0	6.4	2.8	6.4	3.0	3.0	2.0	2.0	3.0	1.0	2.0	2.0	8	3	3.89
86	Zero waste to landfill	Create a community reuse and repair program to increase waste diversion, reduce material consumption, and develop training and learning opportunities.	Action	0.0	0.0	2.0	0.0	0.0	0.0	0.0	1.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	3.0	2.0	0.0	5.5	4.6	5.5	2.0	1.0	1.0	2.0	1.0	3.0	2.0	2.0	3	7	4.39
79	Zero waste to landfill	Update the Citywide Recycling Ordinance to ban divertible materials (yard waste, food) from residential and commercial trash containers, in compliance with SB 1383	Action	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.0	0.0	2.0	0.0	1.0	0.0	5.5	0.0	1.0	3.0	3.0	3.0	3.0	3.0	1.0	1.0	1.0	10	1	2.45
185	Zero waste to landfill	Develop a marketing plan for compost and mulch developed within the City. Identify and target compost and mulch markets in urban areas as well as urban agriculture. Partner with industries to increase compost and mulch use including landscaping, stormwater, and water conservation.	Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	6.4	2.0	2.0	3.0	2.0	3.0	1.0	1.0	1.0	7	1	1.59
180	Zero waste to landfill	Partner with franchise waste haulers to address barriers to increasing diversion rates	Supporting Action	0.0	0.0	2.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0	2.0	0.0	2.0																			
87	Zero waste to landfill	Continue and enhance public outreach programming that provides residents with strategies for household waste reduction, including from food waste and shipping and packaging (e.g., on-demand deliveries), including outreach in languages that reflect the diverse needs of San Diegans	Supporting Action	0.0	0.0	3.0	2.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	5.0	1.0	2.0	0.0	8.2	1.0	5.5	3.0	3.0	2.0	1.0	3.0	2.0	1.0	1.0	7	4	4.04
82	Zero waste to landfill	Amend the Construction & Demolition regulations to establish a deconstruction requirement to reduce demolition waste from construction and renovation, facilitate material reuse and create jobs	Supporting Action	0.0	0.0	2.0	0.0	0.0	0.0	0.0	1.0	2.0	0.0	0.0	0.0	0.0	1.0	0.0	2.0	0.0	2.0	3.0	3.0	0.0	5.5	4.6	4.6	1.0	1.0	3.0	3.0	3.0	1.0	1.0	1.0	6	1	3.10

CLIMACT Prio score tables for Strategy 5:
Resilient Infrastructure and Healthy Ecosystems

All rows below belong to **STRATEGY S – Resilient Infrastructure and Healthy Ecosystems**.

Column groups (left→right): AIR QUALITY · PUBLIC HEALTH · JOBS & ECONOMY · RESILIENCY · CORE BENEFITS AGGREGATED · CORE BENEFIT SCORES · FEASIBILITY CRITERIA · EQUITY CRITERIA · F&E SCORES.

Legend for abbreviated headers:
- OutAir = Improve outdoor air quality; InAir = Improve indoor air quality; Pollut = Reduce pollution & litter; Food = Increase access to healthy & affordable food; Walk = Increase walkability; Parks = Increase access to parks, green space, recreation; Safety = Increase safety (pedestrian, bike); Invest = Amount of local investment generated; Jobs = Number of local jobs created; HHEn = Increase affordability of household energy; Trans = Increase affordability of transportation; Heat = Reduce heat island effect; Hab = Increase natural habitat; Bio = Improve biological resources (trees, green spaces); Water = Improve water quality; ResInd = Improve local resource independence.
- AggAir(0-6), AggPH(0-15), AggJob(0-12), AggRes(0-15); ScAir/ScPH/ScJob/ScRes (0-10).
- Stk = Stakeholder acceptability; Tech = Technical feasibility; Ease = Ease of implementation; Fin = Financial viability; Main = Mainstreaming potential; CB = Community benefits & burdens; CE = Community empowerment; HD = Addresses historical disparity; FeasSc = Feasibility Scaled Score (1-10); EqSc = Equity Scaled Score (1-10); PRIO = CLIMACT Prio Score.

Sequestration (Measure)

No.	Action (abbrev.)	Type	OutAir	InAir	Pollut	Food	Walk	Parks	Safety	Invest	Jobs	HHEn	Trans	Heat	Hab	Bio	Water	ResInd	AggAir	AggPH	AggJob	AggRes	ScAir	ScPH	ScJob	ScRes	Stk	Tech	Ease	Fin	Main	CB	CE	HD	FeasSc	EqSc	PRIO
92	Protect, restore, enhance urban canyons…	Action	2.0	0.0	2.0	0.0	0.0	3.0	0.0	1.0	1.0	0.0	0.0	1.0	3.0	3.0	2.0	0.0	2.0	5.0	2.0	9.0	5.5	8.2	2.8	7.5	3.0	1.0	2.0	1.0	2.0	2.0	2.0	3.0	5	7	6.16
96	Develop area-specific mgmt plan to protect, restore, preserve wetland/upland…	Action	0.0	0.0	1.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	2.0	0.0	0.0	4.0	0.0	8.0	0.0	6.4	0.0	8.9	3.0	1.0	1.0	1.0	3.0	2.0	2.0	2.0	2	6	4.17
179	Develop Natural Resource Mgmt Plans on all managed preserved lands	Action	2.0	0.0	2.0	0.0	1.0	3.0	1.0	0.0	0.0	0.0	0.0	1.0	3.0	3.0	0.0	0.0	2.0	7.0	0.0	7.0	5.5	5.9	0.0	7.8	3.0	2.0	3.0	1.0	3.0	1.0	1.0	1.0	7	1	4.01
93	Acquire Open Space Conservation Land	Supporting	2.0	0.0	2.0	0.0	1.0	3.0	1.0	0.0	0.0	0.0	0.0	1.0	3.0	3.0	0.0	0.0	2.0	7.0	0.0	7.0	5.5	5.9	0.0	7.8	3.0	2.0	2.0	2.0	3.0	2.0	2.0	3.0	7	7	5.51
103	Create a pilot carbon farming program on vacant public land	Supporting	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	4.0	0.0	6.0	5.5	6.4	0.0	6.6	2.5	2.0	2.5	1.5	2.0	2.0	2.0	2.0	6	6	5.14

Tree canopy (Measure)

No.	Action (abbrev.)	Type	OutAir	InAir	Pollut	Food	Walk	Parks	Safety	Invest	Jobs	HHEn	Trans	Heat	Hab	Bio	Water	ResInd	AggAir	AggPH	AggJob	AggRes	ScAir	ScPH	ScJob	ScRes	Stk	Tech	Ease	Fin	Main	CB	CE	HD	FeasSc	EqSc	PRIO
132	Conduct a new Urban Tree Canopy assessment (LiDAR)…	Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	10	6	2.50
134	Create a Street Tree Master Plan (100,000 trees by 2035)…	Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.0	3.0	2.0	1.0	1.0	1.0	1.0	6		0.85
120	Increase tree planting in Communities of Concern…	Action	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	6.0	5.5	5.5	0.0	6.6	3.0	2.0	3.0	2.0	3.0	3.0	3.0	3.0	8	10	6.16
174	Develop plan to increase permeable areas for new trees, restore pervious spaces…	Action	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	6.0	5.5	5.5	0.0	6.6	2.0	1.0	2.0	2.0	2.0	3.0	2.0	3.0	5	9	5.61
95	Support expansion of urban tree canopy in parks/along active transportation…	Action	2.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	2.0	4.0	0.0	6.0	5.5	6.4	0.0	6.6	3.0	2.0	3.0	2.0	3.0	3.0	2.0	3.0	8	9	6.09
129	Develop policies to encourage/incentivize developers, HOAs… to preserve trees	Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	1.0	3.0	2.0	1.0	1.0	1.0	1.0	5		0.75
106	Reform and expand tree program	Action	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	6.0	5.5	5.5	0.0	6.6	3.0	2.0	2.0	2.0	3.0	3.0	2.0	3.0	7	9	5.81
113	Protect and maintain existing trees	Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	2.0	2.0	3.0	2.0	1.0	2.0	5	4	1.50
94	Amend the Land Development Code to increase landscape/parking-lot tree planting	Supporting Action	2.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	2.0	4.0	0.0	6.0	5.5	6.4	0.0	6.6	2.0	2.0	3.0	3.0	3.0	2.0	1.0	2.0			4.84
119	Revise No Fee Street Tree Permit Application to improve process…	Supporting Action	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	6.0	5.5	5.5	0.0	6.6	3.0	3.0	3.0	3.0	3.0	2.0	1.0	2.0	10	4	4.86
173	Streamline permitting for tree planting, dedicate resources in Communities of Concern	Supporting Action	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.0	0.0	0.0	2.0	0.0	0.0	3.0	5.5	0.0	0.0	4.6	3.0	1.0	2.0	2.0	2.0	2.0	1.0	2.0			3.56
124	Revise Council Policies and Municipal Codes to strengthen tree protection…	Supporting Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	7		2.20
123	Increase irrigation for trees in parks and street rights of way	Supporting Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	1.0	3.0	1.0	2.0	2.0	1.0	2.0	5	4	1.50
133	Implement a Citywide protocol for tracking planted/removed/maintained street trees	Supporting Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.0	3.0	1.0	2.0	1.5	1.0	2.0			1.10
130	Explore allocating revenue from tree removal fines and fees…	Supporting Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	3.0	2.0	2.0	2.0	1.0	2.0	5	4	1.50
121	Expand volunteer programs and partnerships to plant and maintain trees	Supporting Action	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	6.0	5.5	5.5	0.0	6.6	3.0	2.0	2.0	2.0	2.0	3.0	3.0	3.0	6	10	5.96
148	Support creation of new urban green space along freeways and City rights-of-way	Supporting Action	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	6.0	5.5	5.5	0.0	6.6	3.0	2.0	2.0	1.7	2.0	3.0	3.0	3.0	6	10	5.96
122	Diversification of tree species adapted to higher temperatures…	Supporting Action	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.0	0.0	0.0	2.0	0.0	0.0	3.0	5.5	0.0	0.0	4.6	2.0	3.0	3.0	3.0	3.0	1.0	1.0	1.0	9	1	2.71
	Implement the Right Tree, Right Place program…	Supporting Action																					2.0	2.0	0.0	6.0	5.5	5.5	0.0	6.6											
190	Monitor and report on SDG&E's plans to supplant the City's efforts…	Supporting Action	2.0	0.0	0.0	0.0	0.0	2.0	0.0				0.0	2.0	2.0	2.0	0.0	0.0																			
191	…with direct in-community charitable support for planting up to 2,500 trees	Supporting Action	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	6.0	5.5	5.5	0.0	6.6											

Local Water Supply (Measure)

No.	Action (abbrev.)	Type	OutAir	InAir	Pollut	Food	Walk	Parks	Safety	Invest	Jobs	HHEn	Trans	Heat	Hab	Bio	Water	ResInd	AggAir	AggPH	AggJob	AggRes	ScAir	ScPH	ScJob	ScRes	Stk	Tech	Ease	Fin	Main	CB	CE	HD	FeasSc	EqSc	PRIO
12	Develop local water supply and reduce dependence on imported water	Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	4.0	3.0	0.0	0.0	6.4	10.0	3.0	3.0	2.0	3.0	3.0	1.0	1.0	1.0	9	1	3.11
18	Support ongoing gallon per capita water use (GPCD) targets	Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	3.0	3.0	2.0	3.0	3.0	1.0	1.0	1.0	9	1	1.25

Strategy 5 Supporting Actions

No.	Action (abbrev.)	Type	OutAir	InAir	Pollut	Food	Walk	Parks	Safety	Invest	Jobs	HHEn	Trans	Heat	Hab	Bio	Water	ResInd	AggAir	AggPH	AggJob	AggRes	ScAir	ScPH	ScJob	ScRes	Stk	Tech	Ease	Fin	Main	CB	CE	HD	FeasSc	EqSc	PRIO
110	Advance undergrounding of utilities…	Supporting Action	1.0	1.0	1.0	0.0	1.0	2.0	2.0	2.0	1.0	0.0	0.0	0.0	2.0	2.0	1.0	0.0	2.0	6.0	3.0	5.0	2.8	5.1	4.6	5.5	2.0	2.0	2.0	1.0	2.0	2.0	1.0	1.0	4	3	3.97
89	Maximize planning and implementation of green infrastructure… in Communities of Concern	Supporting Action	0.0	0.0	2.0	0.0	0.0	2.0	0.0	1.0	2.0	0.0	0.0	2.0	2.0	2.0	3.0	0.0	0.0	4.0	1.0	9.0	0.0	6.4	1.0	7.5	2.0	2.0	2.0	2.0	2.0	3.0	3.0	3.0		10	5.18
91	Implement Waterways Restoration	Supporting Action	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	3.0	3.0	3.0	0.0	0.0	4.0	4.0	11.0	0.0	6.4	6.4	9.2	2.0	2.0	2.0	2.0	2.0	3.0	3.0	3.0	5	10	6.16
90	Implement storm water harvesting (capture/reuse)	Supporting Action	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	4.6	10.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	5	6	3.69
137	Amend building code to require % of non-roof surfaces meet urban heat criteria	Supporting Action	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	3.0	0.0	1.0	0.0	0.0	0.0	2.0	2.0	4.0	0.0	5.5	5.5	6.4	2.0	2.0	2.5	2.0	2.5	3.0	1.0	3.0	6	7	4.92
138	Install cool pavement material on City streets… prioritizing CoCs	Supporting Action	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	3.0	0.0	5.5	5.5	10.0	1.5	1.5	2.0	1.5	2.3	2.7	1.0	3.0	4	7	5.08

2019

San Diego's Climate Equity
INDEX REPORT

sustainability

Our vision is to be a sustainable and resilient city with opportunity in every community.

City of San Diego Sustainability Department Vision Statement

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Executive Summary

Historically in San Diego, as in most cities, some communities have been afforded greater access to opportunity than others over many years of growth and development. The City of San Diego's 2015 Climate Action Plan (CAP) established an opportunity to address environmental justice and social equity concerns - collectively referred to as climate equity – when addressing climate change. This direction, and the CAP overall, supports the City's General Plan which provides policies to pursue environmental justice in the planning process through greater community participation. It also establishes the need to prioritize and allocate citywide resources which provide public facilities and services to communities in need, and to improve mobility options and accessibility for the non-driving elderly, disabled, low-income, and other members of the population. The City has identified these communities as Communities of Concern.

To better understand our Communities of Concern, and to establish benchmarks and metrics to serve as a citywide assessment of climate equity, the City's Sustainability Department and the University of San Diego Energy Policy Initiatives Center (EPIC) created the first-of-its-kind Climate Equity Index (CEI). San Diego's CEI assessed all 297 census tracts that intersect with the City and developed standardized indicators to calculate a CEI score from 0-100 for each tract that can be compared to the score of other tracts.

Critical to this effort was collaboration with community stakeholders. To this end, the City worked with community-based organizations to form an Equity Stakeholder Working Group. Thirty-five indicators were selected to measure equity across the City based on input from the working group and research on nationwide best practices. Based on this assessment, the average CEI score for the City was determined to be 61. Census tracts that scored below the average are considered to have less access to opportunity than the tracts that scored above the average. In total, 172 census tracts scored at or above the average,

indicating high to very high access to opportunity, while 125 tracts scored below average with very low, low or moderate access to opportunity. This is represented in Figure 1 below.

Figure 1. Climate Equity Index Scores Across the City of San Diego
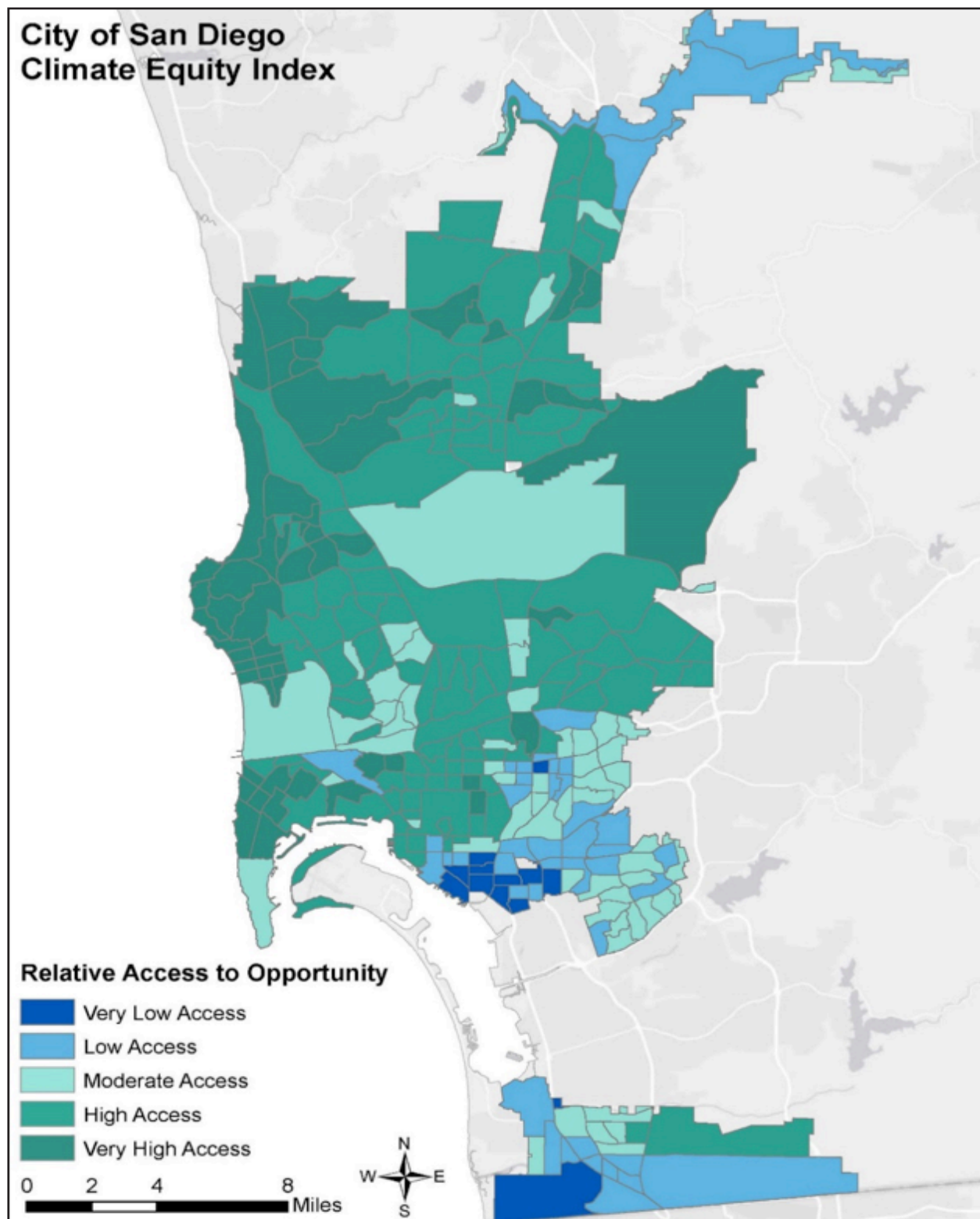
Energy Policy Initiatives Center, USD
12/09/2019

The CEI also highlights racial inequities within the City as a disproportionate number of people of color are concentrated in census tracts with very low to moderate access to opportunity. Seventy three percent of residents within these census tracts identify as people of color, compared to 40% of residents in tracts with high to very high access to opportunity. Overall 54% of the population of the City identify as people of color. Figure 2 shows the percentage of people of color per census tract category as identified in the CEI.

Figure 2. Percent of People of Color by Census Tract Performance
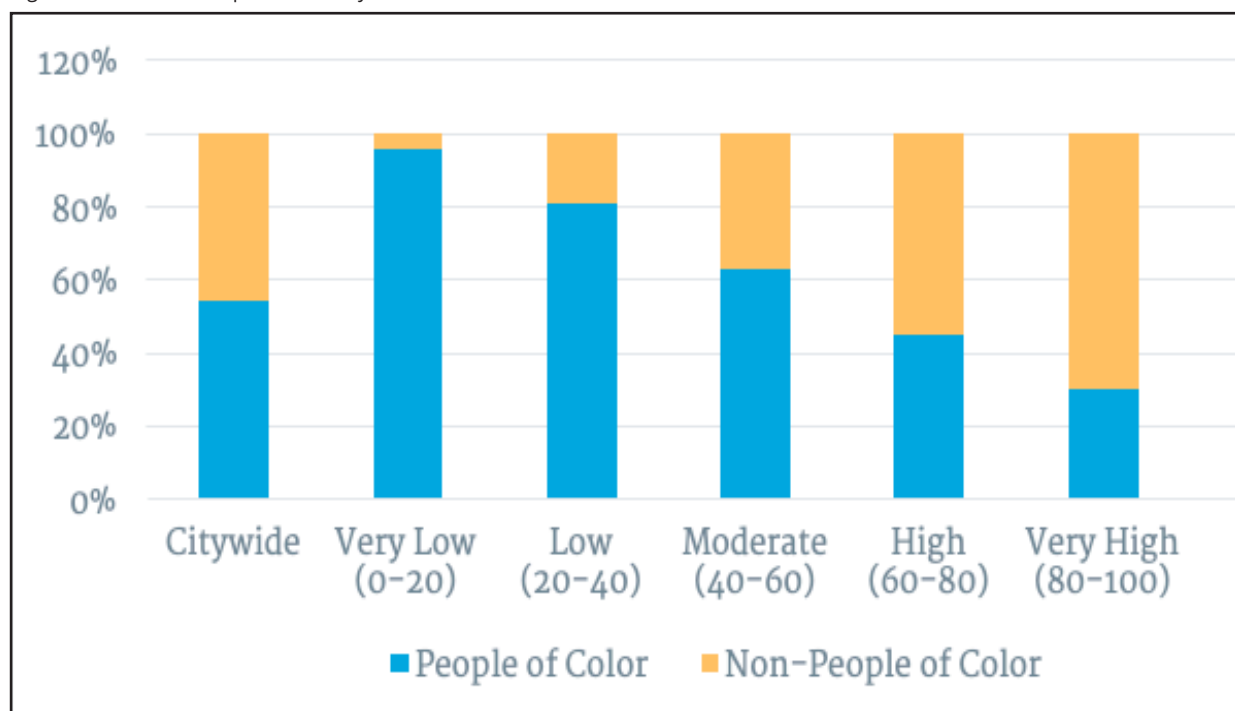
Thirteen census tracts were identified as having very low access to opportunity in which 96% identify as people of color. These tracts are in the neighborhoods of Barrio Logan, Lincoln Park, Nestor, the Tijuana River Valley, Logan Heights, Palm City, Mountain View, Stockton, Grant Hill, Southcrest, Teralta East and Shelltown.

Forty-eight census tracts were identified as having low access to opportunity, with an average of 81% identifying as people of color. Sixty-four tracts were identified as having moderate access to opportunity, with an average of 63% of their population identifying as people of color.

While race was not identified as an indicator within the CEI, the index highlights racial inequities the City can address through work to combat climate change and efforts to address climate equity.

After analyzing the results of the CEI assessment, including feedback from the Equity Stakeholder Working Group, City staff recommends the following actions:

RECOMMENDATION 1: Seek grant funding opportunities to support community engagement and invest in areas with very low to moderate access to opportunity.

RECOMMENDATION 2: Conduct public engagement efforts, in partnership with community-based organizations, in census tracts with very low access to opportunity.

RECOMMENDATION 3: Explore the feasibility of establishing a sustainability ambassador program in areas with a very low to moderate access to opportunity to improve participation in City planning.

RECOMMENDATION 4: Determine mechanisms to incorporate climate equity into City programs and projects.

RECOMMENDATION 5: Refresh data within San Diego's Climate Equity Index every five years.

Taking these recommended actions ensures the City is moving in the right direction to address climate equity when implementing the CAP and that the City is a world leader when planning for our future.

Background

THE CLIMATE ACTION PLAN AND COMMUNITIES OF CONCERN

On Dec. 5, 2015, the City of San Diego adopted its Climate Action Plan (CAP), setting forth five strategies that could achieve the goal of reducing greenhouse gas (GHG) emissions 50% by 2035. As stated within the document, "the benefits of the CAP are intended to be shared equally, fairly and with lack of prejudice among all persons citywide." The City recognizes the importance of ensuring all San Diegans receive the opportunities associated with the implementation of the CAP.

Using the term "disadvantaged communities," the CAP referred to what the City now calls Communities of Concern, those within census tracts in the top 30th percentile of the California Office of Environmental Health Hazard Assessment's CalEnviroScreen 3.0 (CalEnviroScreen) tool, census blocks eligible for Community Development Block Grants, and areas within a half-mile radius of affordable housing. A map of San Diego's Communities of Concern is included in Appendix A.

Additionally, the City's General Plan, which the CAP serves as mitigation to, includes policies that prioritize and allocate citywide resources to provide public facilities and services that improve mobility options and accessibility for the non-driving elderly, disabled, low-income, and other members of the population. City staff takes this as a directive to ensure we prioritize Communities of Concern when looking at investing in CAP projects and programs.

CLIMATE EQUITY

To address environmental justice and social equity, the City recognizes these two concepts are incorporated in the term "climate equity". The City worked with community-based organizations (CBOs) to define climate equity as efforts addressing historical inequities suffered by people of color, allowing everyone to fairly share the same benefits and burdens from climate solutions and attain full and equal access to opportunities regardless of one's background and identity.

> **Climate Equity:** *addressing historical inequities suffered by people of color, allowing everyone to fairly share the same benefits and burdens from climate solutions and attain full and equal access to opportunities regardless of one's background and identity.*
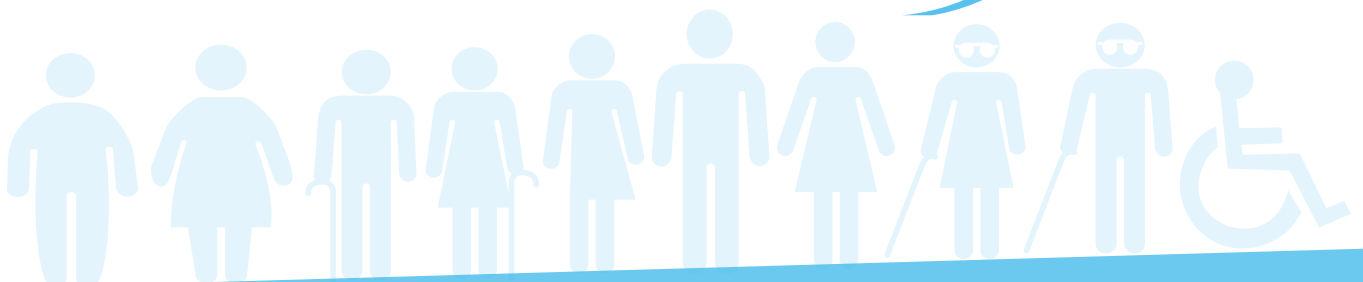
Throughout the nation, vulnerable populations are hit hardest by climate change.[1] As the City continues to plan to address those impacts it is imperative that decision-making tools are created and utilized to respond more effectively in communities that need it most.

To attain climate equity, the City recognizes the need to acknowledge where disparities exist and identify ways to redress those disparities. The City developed the CEI, along with stakeholders representing San Diego's Communities of Concern, to provide a data-backed method to understand the inequities experienced by these communities.

STAKEHOLDER ENGAGEMENT

The first step to addressing climate equity is to include Communities of Concern in the decision-making process. To do so, the City has established an informal Climate Equity Stakeholder Working Group to provide feedback and input on decisions for how the CEI was developed. This group may reconvene beyond the completion of the CEI to provide input on overall CAP implementation. The stakeholder group was integral in advising the City on the working definition of climate equity, provided input on how to measure climate equity and helped develop the recommendations in this report.

The Equity Stakeholder Working Group is comprised of 23 CBOs that serve San Diego's identified Communities of Concern. A list of the Equity Stakeholder Working Group members is available in the Acknowledgements section of this report.

CLIMATE EQUITY INDEX

San Diego's Climate Equity Index (CEI) was developed to measure the level of access to opportunity residents have within a census tract, and assess the degree of potential impact from climate change to these areas. For example, some census tracts have a higher level of access to opportunity as a result of greater access to public transit stops and pedestrian amenities, such as sidewalks and streetlights, or they spend a lower percentage of their income on housing, energy and transportation costs. These populations face relatively fewer barriers to commute to school or work or to invest in newer energy conservation technologies.

The CAP committed City staff to develop the methodology for reporting on equity[2]. To fulfill that commitment, the CEI identifies the level of access to opportunity for residents and provides a tool to measure inequity, allowing the City to prioritize areas with the least access to opportunity and begin dismantling historic barriers that have caused disparities in Communities of Concern. The CEI can also be a tool to identify other areas that should be included in the Communities of Concern definition.

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1 Making Equity Real in Climate Adaption and Community Resilience Policies and Programs: A Guidebook (2019)

2 City of San Diego Climate Action Plan (2015), Pg. 43

Methodology

INDICATORS

City staff researched nationwide best practices, reviewed available sources of data, and obtained input from the Equity Stakeholder Working Group to measure equity across the City. A total of 35 indicators were selected for the CEI. In deciding on the final list of indicators, the City worked with the Equity Stakeholder Working Group and assessed each indicator with the following guidelines:

Equity Focus - data identifies and represents equity issues within the City

Climate Focus - data has a close connection to the City's Climate Action Plan

Clear Connection - the relationship between the indicator and climate equity is clearly understood

Data Integrity - quality data is available from reliable and trustworthy sources

Data Update Frequency - the frequency of data updates should permit regular, future updates to the CEI and allow for indicators to be tracked over time

All indicators fall into one of five broader categories: environmental, socioeconomic, housing, mobility and health. The indicators that pertain to each category are identified in Table 1, in no particular order, along with a description of what was measured for each. For further discussion of individual indicators, refer to Appendix B.

EQUITY INDICATOR CATEGORIES

Environmental

Socioeconomic

Housing

Mobility

Health
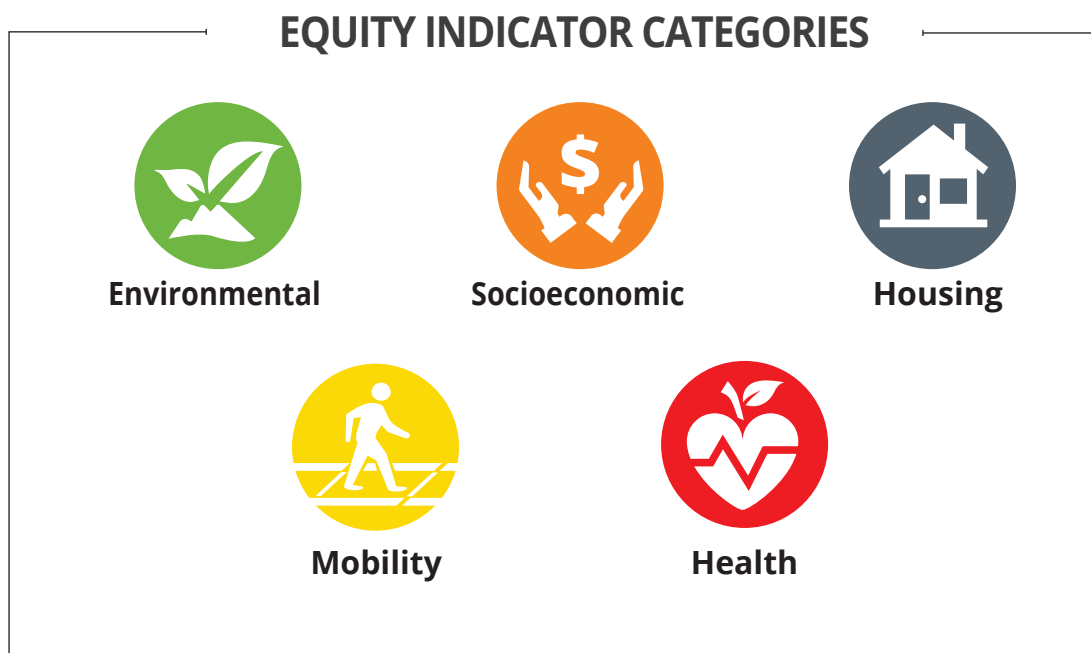
Table 1. Climate Equity Index Indicators

Indicator	Description
ENVIRONMENTAL INDICATORS	
Flood Risk*	*Percent of census tract within the 100-year flood plain and/or predicted to experience inundation during a 100-year storm surge event given a 2-meter rise in sea level*
Fire Risk*	*Percent of the census tract classified under the very high fire hazard severity zone*
Tree Coverage*	*Percent of tree canopy coverage*
Urban Heat Island Index	*Increase in temperature due to urban heat island (UHI) effect*
Proximity to Community Recreation Areas*	*Number of recreation areas (parks, open space, beaches, libraries and recreation centers) within 1/2 mile of populated neighborhoods*
Proximity to Waste Sites*	*Average distance to the nearest waste site (includes hazardous waste generators and facilities, facilities with documented toxic releases, solid waste sites and facilities, and cleanup sites)*
Pesticide Use	*Total pounds of selected pesticides used in production-agriculture per square mile as calculated by CalEnviroScreen 3.0*
Drinking Water Contaminants	*Average concentration of contaminants within drinking water systems as calculated by CalEnviroScreen 3.0*
Groundwater Threats	*CalEnviroScreen 3.0 groundwater threat scores for census tracts based on type of pollution site and location to populated neighborhoods*
Impaired Water Bodies	*Number of pollutants across all water bodies designated as impaired within the census tract as calculated by CalEnviroScreen*

Indicator	Description
HEALTH INDICATORS	
Asthma Rates*	*Rate of emergency department visits due to asthma*
Cancer Fatalities*	*Percent of total deaths that are cancer-related*
Healthy Food Access*	*Percent of population with low access to healthy food (> 1/2 mile for urban census tracts and >10 miles for rural census tracts)*
Low Infant Birth Weight	*Percent of full term births (37 weeks of gestation) with a birthweight less than 2,500 grams*
Heart Attack Fatalities*	*Percent of total deaths that are heart attack-related*

Indicator	Description
HOUSING INDICATORS	
Housing Cost Burden	*Median housing cost as a percent of median income*
Overcrowdedness	*Percent of housing units with greater than 1.00 occupants per room*

MOBILITY INDICATORS

Pedestrian Access*	*A combination of average Walk Score, miles of sidewalk, number of streetlights and pedestrian-vehicle collisions*
Commute Burden*	*Percent of population with commute time over the regional average (30 minutes for commuting by car and 45 minutes for commuting by mass transit)*
Transportation Cost Burden	*Median household transportation cost as a percentage of median household income*
Disability	*Percent of population with a disability*
Street conditions*	*Weighted average Overall Condition Index (OCI) score*
Bikeability*	*Weighted average Bike Score*
Access to Public Transit*	*Average distance to the nearest transit stop*
Traffic Density	*Traffic volume divided by total road length as calculated by CalEnviroScreen 3.0*
Electric Vehicle Charging Infrastructure*	*Number of publicly available charging stations (includes Level 2 and DC fast chargers)*

SOCIOECONOMIC INDICATORS

Unemployment	*Unemployment rate (percent of population unemployed)*
Educational Attainment	*Percent of population over age 25 with less than a high school education*
Linguistic Isolation	*Percent of households that are limited English-speaking households*
Digital Access	*Percent of households without internet access*
Median Income	*Estimated median household income in the past 12 months*
Poverty Rate	*Percent of population with income below 300% of the federal poverty level*
Change in Income*	*Five-year annual percent change in median household income*
Energy Cost Burden*	*Three-year average annual cost of energy as a percent of the median household income*
Solar Photovoltaic Systems*	*Number of solar photovoltaic systems per capita*

*Denotes data needing additional calculation to aggregate at the census tract level.

INDEX CALCULATION

The CEI is based on census tracts, the smallest geographical area for which most indicator data is available or can be reasonably derived from a larger area. Every tract receives a value for each of the 35 indicators and these values are then used to determine its CEI score. General methods for this process are identified in Figure 3 and are further detailed in Appendix B.

Figure 3. General Climate Equity Index Methods
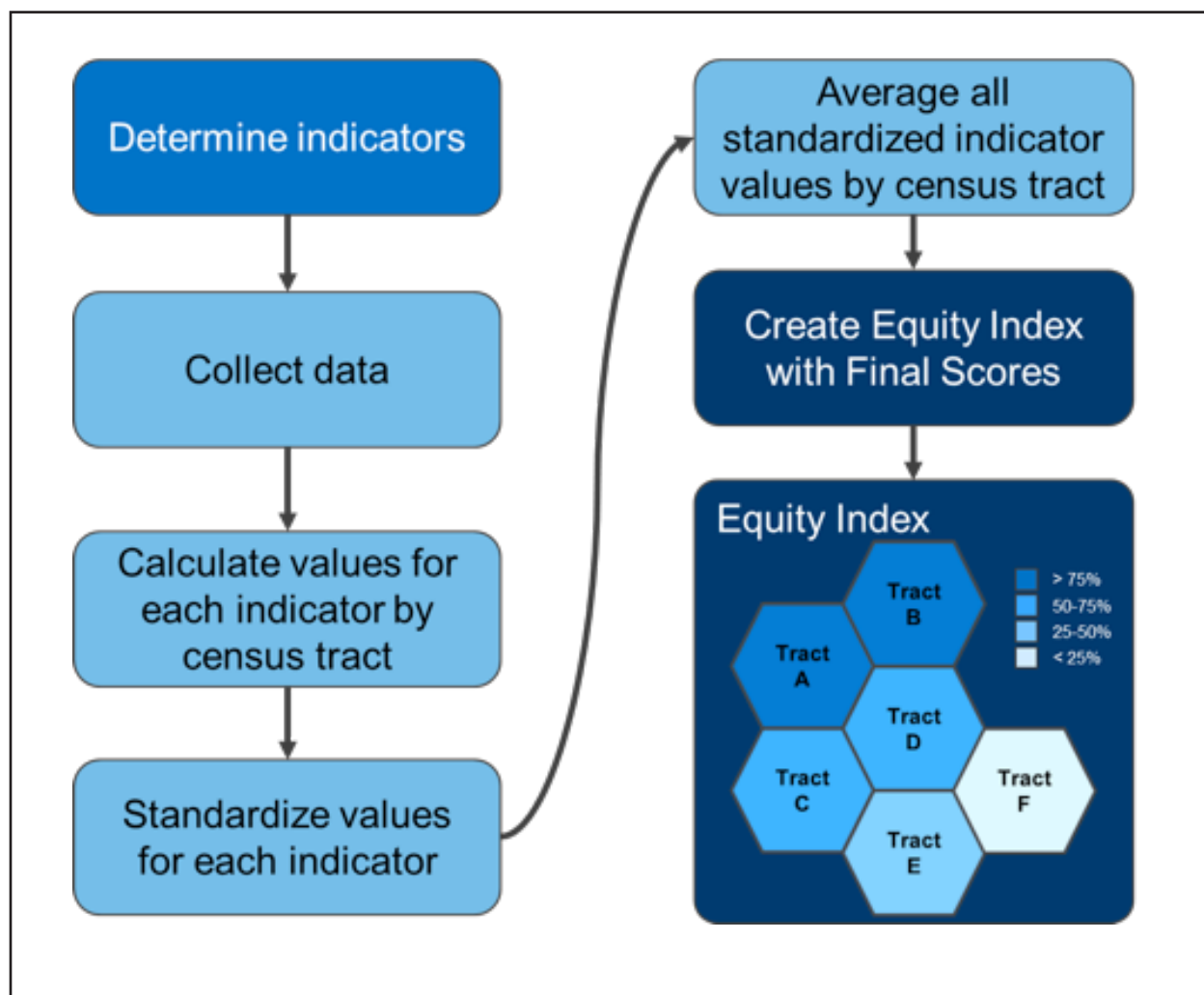
Data was collected at the census tract level, where available. Data not aggregated at the census tract level required additional calculations (see Appendix B for further details) and are noted in Table 1 above with an asterisk (*).

Next, all indicator values were standardized into z-scores, maintaining the relative difference in scores across census tracts while allowing for calculations across indicators. Final CEI scores were obtained by averaging all z-scores for a particular census tract and then indexing those scores to a value between 0-100 for easier interpretation of the results.

LIMITATIONS

While the CEI highlights areas of concern for the City to focus on when addressing climate equity, there are some limitations that need to be acknowledged.

GEOPOLITICAL BOUNDARIES

Ideally, CEI scores would be calculated at the smaller, more localized census block level. Census tracts contain multiple census blocks. However, currently available data restricts the geographic scale to the census tract level, therefore, the CEI scores represent data at the census tract level. Assigning fixed geographic boundaries permits CEI scores to be compared to the demographics of each tract; however, the benefits and/or burdens experienced are not always bound to these specific geographic areas. For instance, facilities and amenities offered in one census tract may be easily accessible to residents in neighboring census tracts. Conversely, if a hazardous waste site is located on the border of one tract, the potential pollution burden will be shared with the other tracts it borders even if the facility does not operate within them.

Census tract boundaries do not adhere to jurisdictional boundaries or other planning boundaries used by the City, as in Community Plan Areas for example. There are also multiple census tracts shared between the City of San Diego and one or more neighboring jurisdictions. Since most data were collected at the census tract level, CEI scores for these tracts reflect conditions across the entire tract, not just the portion located within the City.

DATA AVAILABILITY

There are several limitations that involve data availability that either restrict the potential for regular updates going forward or prevent the inclusion of certain indicators into the CEI. In assessing the City's tree canopy coverage, for example, there is currently no planned update to the 2014 data used to calculate CEI scores. Still, the stakeholder group felt this was an extremely important indicator since it is directly tied to the CAP. The CEI relies on other indicators that receive updates irregularly and may cause some uncertainty. This can potentially limit the ability of regular CEI updates to track how indicators, like tree canopy, change over time.

Some indicators proposed in discussion with the Equity Stakeholder Working Group were not included in this analysis due to a lack of data. For instance, air quality was suggested as a health indicator. While some regional data are available, there is currently no accurate way to assess air quality on a census tract level across the City. While the City acknowledges the importance of monitoring air quality, the current data available does not lend itself to be used for a citywide assessment and therefore was not included in the CEI.

While the City acknowledges these limitations, it maintains confidence in the CEI to accurately measure climate equity within the City of San Diego. As better data becomes available for our citywide assessment, City staff will work with the Equity Stakeholder Working Group to determine if additional indicators should be included in the CEI and assess any future need to adapt methods.

Findings

Figure 1 highlights the results of the CEI. Each of the 297 census tracts within the City has been assigned a score between 0 and 100, based on how each tract scores across all indicators. Scores illustrate the relative difference between census tracts, with the census tract performing the best across all indicators scoring the highest (100) and the tract performing least best across all indicators the lowest (0). Scores for other census tracts are scaled to demonstrate their performance relative to the highest and lowest scoring tracts.

Five categories were developed to represent CEI scores and better identify the relative differences in access to opportunities among census tracts.

CEI score of 0-20:
very low access to opportunity

CEI score of 20-40:
low access to opportunity

CEI score of 40-60:
moderate access to opportunity

CEI score of 60-80:
high access to opportunity

CEI score of 80-100:
very high access to opportunity

Figure 1. Climate Equity Index Scores Across the City of San Diego
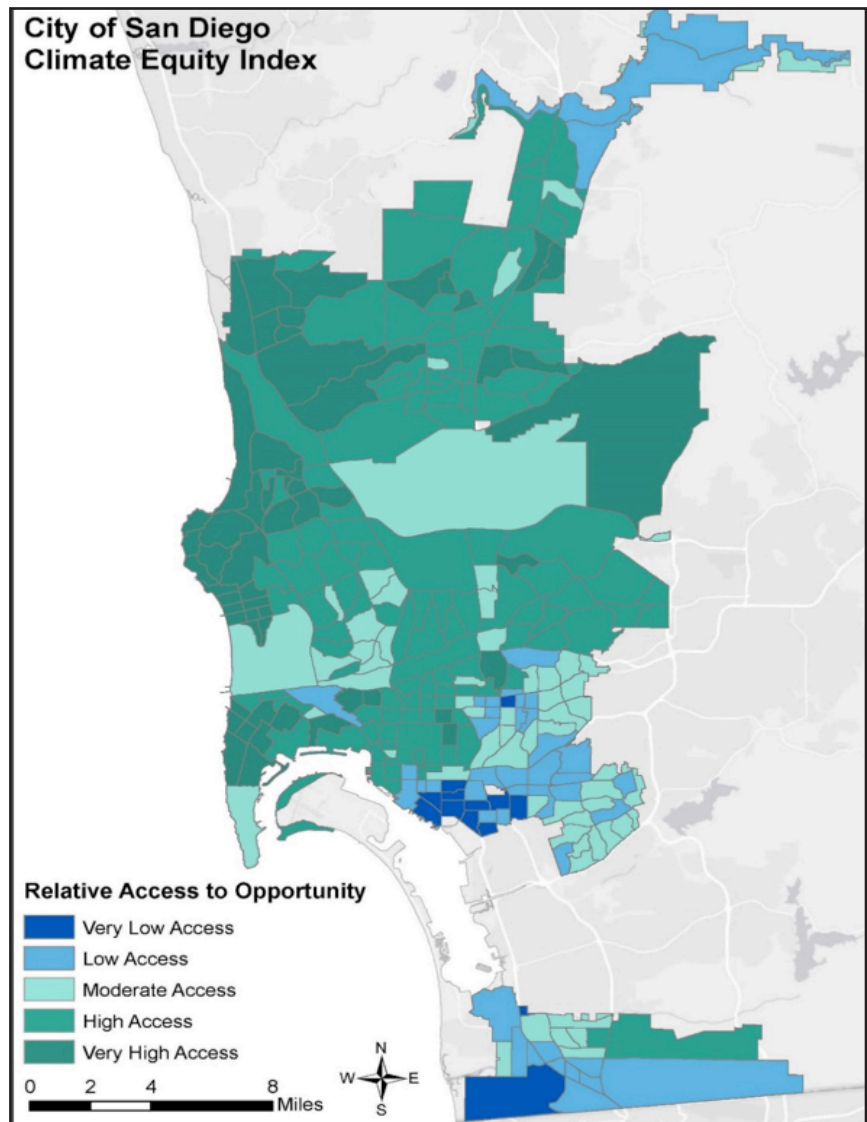
Energy Policy Initiatives Center, USD
12/09/2019

The average CEI score across the City is 61, with a standard deviation of 21. A majority of the City's tracts (172 or 58%) scored at or above the average, demonstrating high to very high access to opportunity. Relative to other tracts in the City, San Diegans living within these tracts face fewer barriers to improve their

quality of life and enjoy a higher access to opportunities to improve their lifestyle. However, this still leaves many San Diegans facing higher barriers and with less opportunity.

There are 125 census tracts within the City that show very low to moderate access to opportunity. Below are a few demographic key points.[3]

- Census tracts with a below average CEI score represent 42% of the total population in all census tracts included in the analysis.

- The 13 census tracts with the least access to opportunity are in the neighborhoods of Barrio Logan, Lincoln Park, Nestor, the Tijuana River Valley, Logan Heights, Palm City, Mountain View, Stockton, Grant Hill, Southcrest, Teralta East and Shelltown.

- The data show that there is a disproportionate amount of people of color in our below average tracts, as shown in Figure 2.

Figure 2. Percent of People of Color by Census Tract Performance
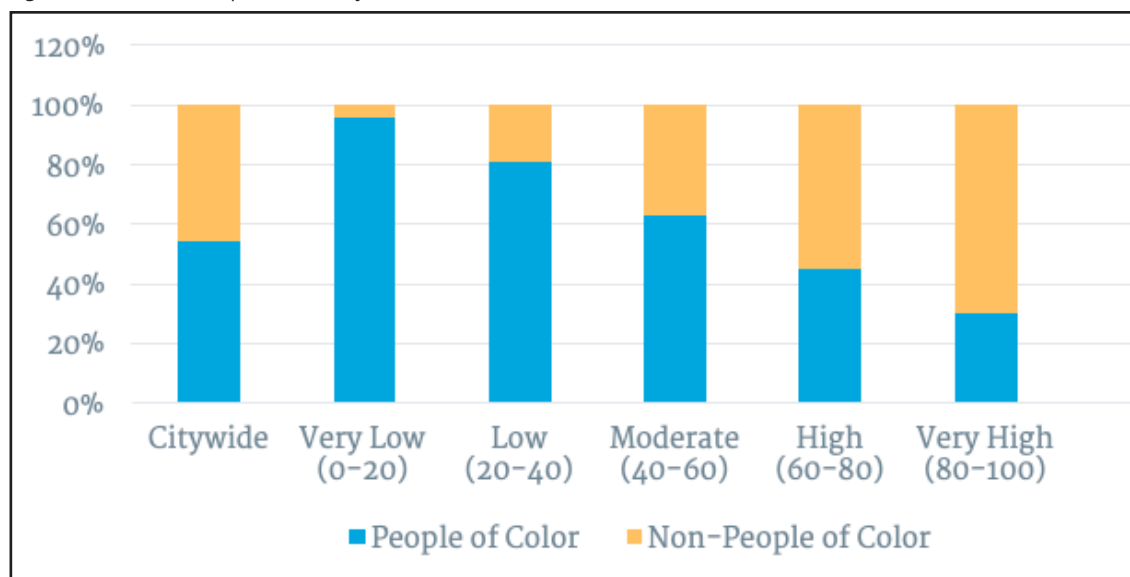
- The average percent of people of color in all the San Diego census tracts is 54%. In census tracts below average, the percent of people of color is 73%.

- Within the 13 census tracts with very low access to opportunity, 96% of residents identify as people of color.

- Within the 48 census tracts with low access to opportunity, 81% identify as people of color.

- Within the 64 tracts with moderate access to opportunity, 63% identify as people of color.

- Within the 116 tracts with high access to opportunity, 45% identify as people of color.

- Within the 56 tracts with very high access to opportunity, 31% identify as people of color.

3 Demographic data is based on the U.S. Census Bureau's 2017 American Community Survey 5-year estimate. For census tracts that are shared between the City and another jurisdiction, demographic data represents the entire census tract, not just the portion within the City of San Diego.

Recommendations

Implementation of the CAP affords the City of San Diego the chance to increase access to opportunity in Communities of Concern and become a leader in addressing climate equity. Progress is possible and the City is taking its first major step in acknowledging concerns and moving forward with bold actions to address climate equity.

This multi-faceted task is a relatively new discipline for municipalities and governments to tackle. While there are some examples of success across the nation, due to the diverse nature of our communities, any approach the City takes to address climate equity will require unique solutions developed in close coordination with our communities. Staff recommends the following actions to begin addressing climate equity in the City.

RECOMMENDATION 1: SEEK GRANT FUNDING OPPORTUNITIES TO SUPPORT COMMUNITY ENGAGEMENT AND INVEST IN AREAS WITH VERY LOW TO MODERATE ACCESS TO OPPORTUNITY

Effective outreach and engagement in our Communities of Concern require resources and innovative, non-traditional methods. The City should seek out grants and other funding opportunities that support our efforts, as well as those by stakeholder organizations, that focus on activating, organizing and engaging residents within the communities with very low to moderate access to opportunities. The City can partner with community groups to identify and apply for grants that support our mission of engaging communities and empowering them when it comes to CAP projects and programs that could benefit our Communities of Concern.

RECOMMENDATION 2: CONDUCT PUBLIC ENGAGEMENT EFFORTS, IN PARTNERSHIP WITH COMMUNITY-BASED ORGANIZATIONS, IN CENSUS TRACTS WITH VERY LOW ACCESS TO OPPORTUNITY

The solutions to reducing the City's GHG emissions in Communities of Concern should be done in consultation with stakeholders. Steps should be taken by City staff to prioritize public engagement activities in census tracts with very low access to opportunity. Due to the diversity of backgrounds and demographics, the City should consider partnering with CBOs that currently work in and have relationships with community members that reside in these census tracts.

Engagement should center around education on the City's CAP goals and climate equity, and seek input from residents on projects that help address climate change and reduce GHG emissions.

RECOMMENDATION 3: EXPLORE THE FEASIBILITY OF ESTABLISHING A SUSTAINABILITY AMBASSADOR PROGRAM IN AREAS WITH VERY LOW TO MODERATE ACCESS TO OPPORTUNITY

One way to strengthen our communities and provide equal access is to invest in cultivating community leaders and empowering them to become sustainability ambassadors. Partnering with CBOs and local universities, the City can look to establish a Sustainability Ambassador program, empowering residents by demonstrating the importance of sustainability and climate equity, and providing them with the tools to effect change and educate their fellow community members. This would also improve the relationship between the City and our diverse communities.

RECOMMENDATION 4: DETERMINE MECHANISMS TO INCORPORATE CLIMATE EQUITY INTO CITY PROGRAMS AND PROJECTS

The City should move forward in a coordinated effort to address climate equity, as it intersects with various City Departments. A policy can be developed to provide guidance on how best to incorporate climate equity into City operations and ensure every department is prioritizing Communities of Concern.

The City can also assess other mechanisms to help dismantle barriers our communities face to become more civically engaged and to become a part of the decision-making process, internally and, where applicable, with other agencies within the City. This process should also identify and include specific mechanisms to intergrate climate equity into resiliency and adaptation plans and future climate action planning updates.

RECOMMENDATION 5: REFRESH DATA WITHIN SAN DIEGO'S CLIMATE EQUITY INDEX EVERY FIVE YEARS

The City continues its commitment to include a progress report on the CAP to update the public on the actions taken to address climate equity. To ensure the City is moving in the right direction, a data refresh of the CEI should also be done every five years to measure progress in achieving climate equity goals and potentially revisit based on new information.

Acknowledgments

The following organizations comprised the City's informal Equity Stakeholder Working Group.
We thank every organization for their involvement and contribution of time and input in establishing the City's Climate Equity Index.

Alliance San Diego

Bayside Community Center

Business For Good

Casa Familiar

Center for Sustainable Energy

Circulate San Diego

City Heights CDC

Climate Action Campaign

Environmental Health Coalition

GRID Alternatives

Groundworks San Diego

I Am My Brother's Keeper CDC

Mid-City CAN

Nile Sisters Development Initiative

Partnership for the Advancement of New Americans (PANA)

Project New Village

RISE San Diego

San Diego 350

San Diego EDC

San Diego Housing Federation

The Greenlining Institute

The San Diego Foundation

Urban Collaborative Project

APPENDIX A

City of San Diego's Climate Action Plan Identified
Communities of Concern

SD sustainability

Communities of Concern
- CalEnviroScreen 3.0 Top 30%
- Community Development Block Grant Eligible
- 1/2 mile of Affordable Housing

Census Tracts

N

0   3 Miles
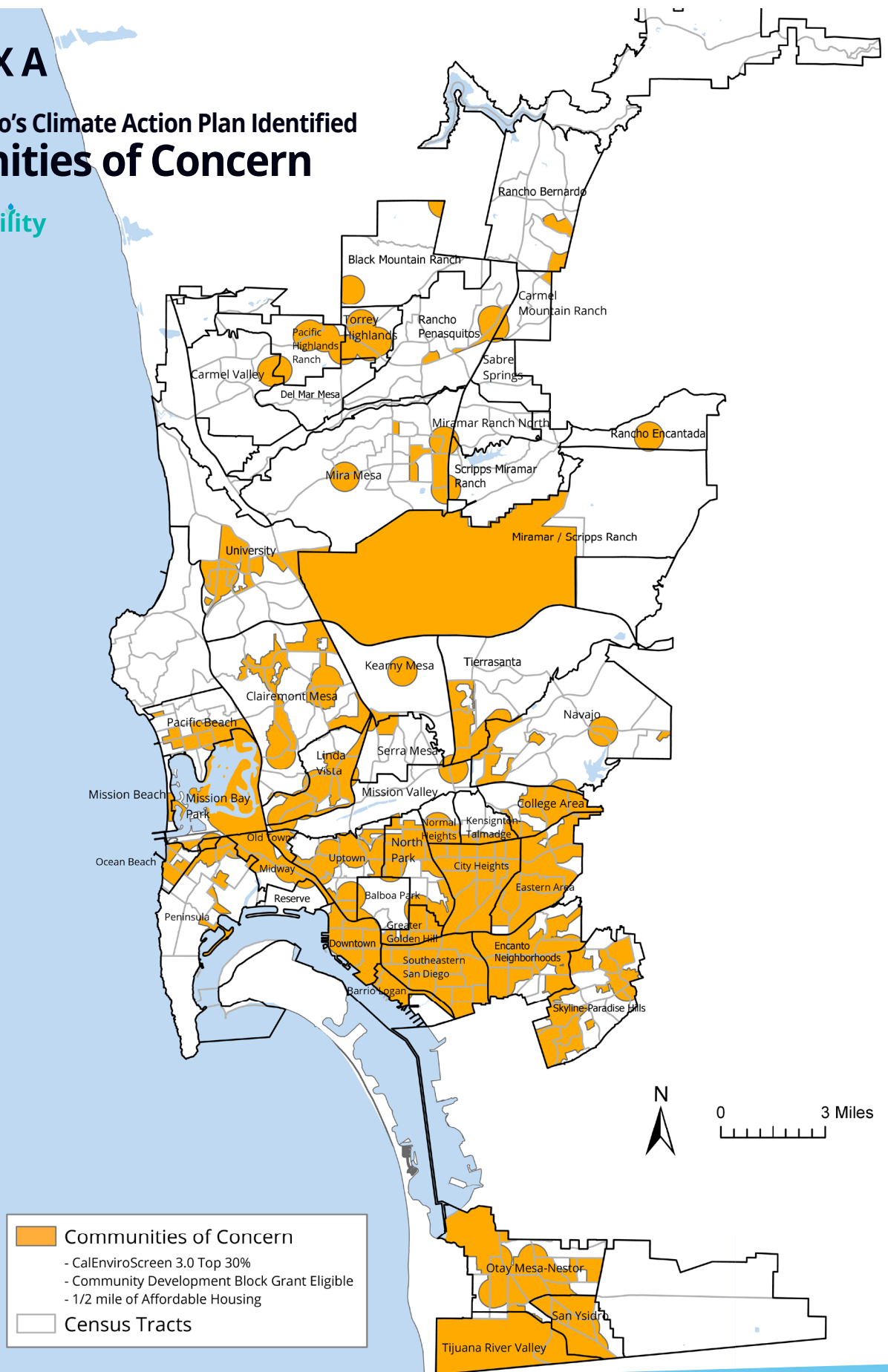
APPENDIX B

City of San Diego
Climate Equity Index Methods

November 2019

Prepared for the City of San Diego

Prepared by the Energy Policy Initiatives Center

University of San Diego, 5998 Alcalá Park, San Diego, CA 92110 ◆ www.sandiego.edu/epic

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About EPIC

The Energy Policy Initiatives Center (EPIC) is a non-profit research center of the USD School of Law that studies energy policy issues affecting California and the San Diego region. EPIC's mission is to increase awareness and understanding of energy- and climate-related policy issues by conducting research and analysis to inform decision makers and educating law students.

For more information, please visit the EPIC website at www.sandiego.edu/epic.

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TABLE OF CONTENTS

INTRODUCTION

This report provides a summary of the methods and indicators used to calculate the Climate Equity Index (CEI) for the City of San Diego (City).

Section 2 provides discussion on the methods used for the analysis. Section 3 provides discussion on each of the 35 indicators used in the analysis including: what was measured, data source(s) used, indicator specific methods, and potential limitations.

GENERAL METHODS

The CEI is based at the census tract level, where each tract receives a value for each indicator and its 35 indicator values are then used to determine its CEI score. General methods for this process are identified in Figure 1.
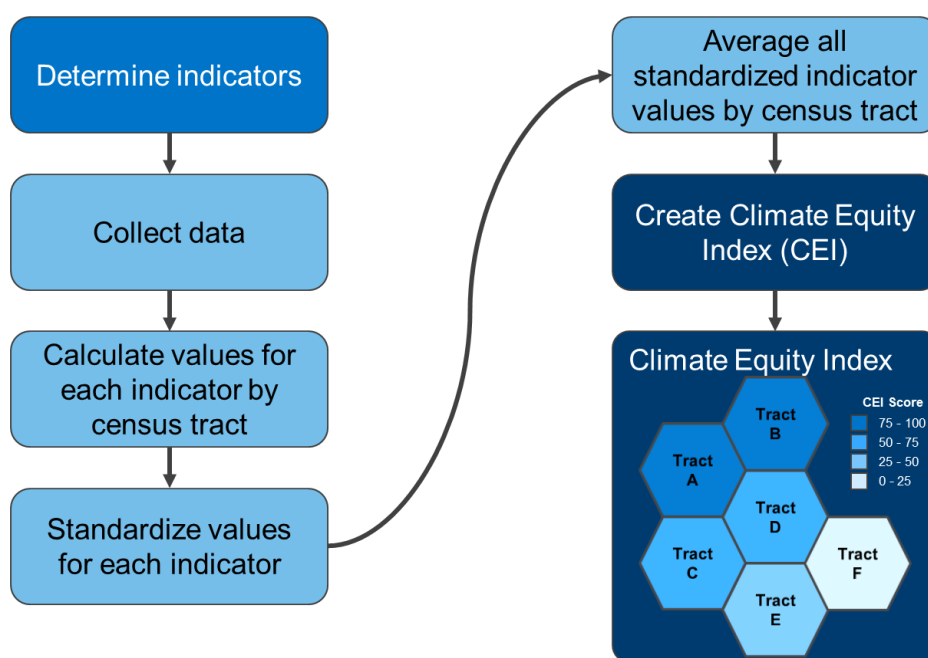
Figure 1. General Climate Equity Index Methods

Indicators were identified through discussion with City staff and the Equity Stakeholder Working Group (ESWG). The following sections detail the methods identified in Figure 1 to calculate CEI scores.

Data Collection

Data were collected for all indicators based on certain criteria to maintain the integrity of the CEI. Key criteria include:

- Data should be available at the census tract level for the entire City of San Diego or in a manner that can be transformed to the census tract level;
- Data should meaningfully represent its corresponding indicator in the context of the CEI; and
- Data should be current with an emphasis on sources that are frequently updated or planned to be updated.

Some indicators were identified by the City and ESWG that did not meet one or more of the criteria above (e.g., air quality); these indicators were not included in the CEI with the understanding that they may be included at a later date should better data become available.

Calculating Individual Indicator Values

Once data were collected for indicators, aggregate indicator values were calculated for each census tract. For some indicators, the data collected were available at the census tract level and required few or no further modifications. For instance, data collected from the U.S. Census Bureau's American Community Survey (ACS) is provided at the census tract level. This includes many of the socioeconomic indicators such as median income, unemployment rate, and digital access. For indicators where data was not available by census tract, additional calculations were necessary to determine values for each tract. More details on indicator specific calculations are provided in Section 3 of this report.

Standardizing Indicators

Once values were calculated for each indicator at the census tract level, they were standardized so that indicators could be compared to one another. The reason for standardizing the indicators is that they are each measured in different units. For instance, median income is measured in dollars per household and fire risk is measured in percent area. By standardizing, the indicators are converted to a common scoring system that allows for an "apples to apples" comparison and permits calculations necessary to aggregate indicators into an overall CEI score (Figure 2).
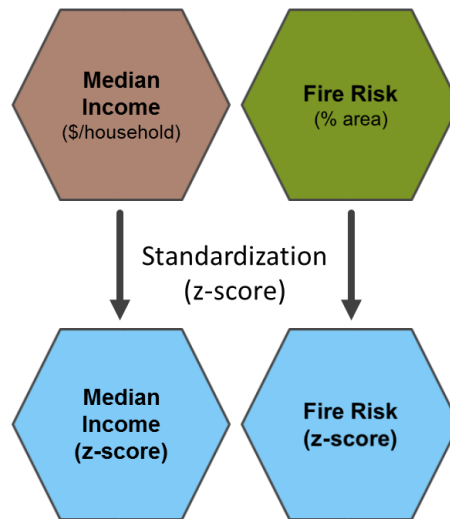
Figure 2. Standardization of Indicators

Indicators were standardized using z-scores. A z-score is a statistical measure that identifies how many standard deviations a value is from the mean. In other words, how far a given value is from the average. Z-scores maintain the magnitude in differences between values and acts as a common metric between datasets with different units. Z-scores were calculated for each census tract indicator value using Equation 1.

Equation 1. Z-score Formula

$$z_{ij} = \frac{x_{ij} - \mu_i}{\sigma_i}$$

Where,

x_{ij} = value for indicator i for census tract j
μ_i = average for indicator i
σ_i = standard deviation for indicator i

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Calculating CEI Scores

Once z-scores were calculated for all census tracts across all indicators, indicators could be combined into a single census tract value. This was done by averaging all z-scores for each census tract (**Figure 3**). Z-scores were averaged instead of summed to avoid penalizing census tracts that may have had data missing for one or more indicator.
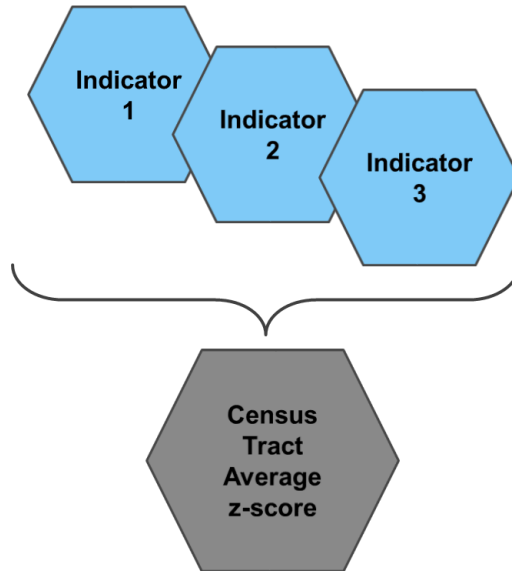
Figure 3. Average Census Tract Z-score

Average z-scores were indexed to a scale of 0-100 (the Climate Equity Index) for easier interpretation. This indexing was done using **Equation 2**.

Equation 2. Z-score Formula

$$Score_j = \frac{(index_{max} - index_{min})}{(z_{max} - z_{min})} * (z_j - z_{min}) + index_{min}$$

Where,

> $Score_j$ = CEI score for census tract j
> $index_{max}$ = maximum possible index value (100)
> $index_{min}$ = minimum possible index value (0)
> z_{max} = maximum value for all average z-scores
> z_{min} = minimum value for all average z-scores
> z_j = mean z-score for census tract j

To prevent outliers from skewing results, average z-scores greater than three standard deviations from the mean were removed from indexing calculations and automatically assigned either the highest (100) or lowest (0) index value depending on its relationship to the mean.

Indexed scores illustrate the relative difference between census tracts, with the census tract performing the best across all indicators scoring the highest (100) and the tract performing the lowest, the worst (0). Scores for other census tracts are scaled to demonstrate their performance relative to the highest and

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lowest scoring tracts. **Figure 4** is an illustrative example of how CEI scores can be mapped across census tracts.
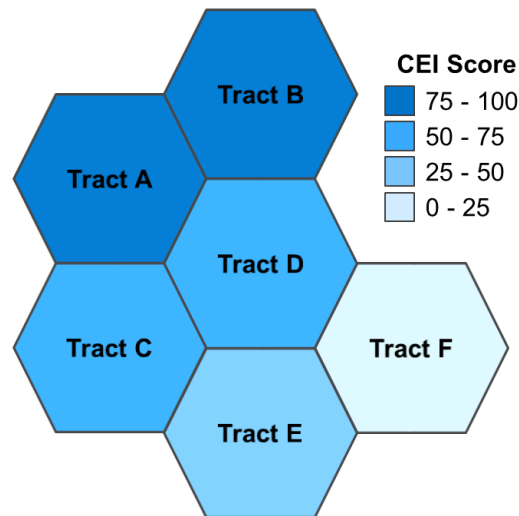
Figure 4. Illustration of CEI Scored Census Tracts

INDICATORS

Environmental Indicators

The following sections detail the data sources and indicator-specific methods used in calculating CEI scores for the following ten (10) environmental indicators:

- Flood Risk;
- Fire Risk;
- Tree Coverage;
- Urban Heat Island Index;
- Proximity to Community Recreation Areas;
- Proximity to Waste Sites;
- Pesticide Use;
- Drinking Water Contaminants;
- Groundwater Threats; and
- Impaired Water Bodies.

Flood Risk

The flood risk indicator measures the percent area of each census tract that falls within the 100-year flood plain and/or is predicted to experience inundation during a 100-year storm surge event given a 2 meter rise in sea level. The floodplain dataset was last updated in June of 2019 and the sea level rise (SLR) dataset was updated in May of 2018. While both datasets are expected to be updated in the future, it is unclear when those updates will occur.

Indicator Specific Methods

The floodplain and sea level rise shapefiles were combined using ArcGIS software to determine all areas across the City that are within the 100-year flood plain and/or are expected to experience inundation during a 100-year storm event given a 2 meter rise in sea level. This new shapefile was intersected with a census tract boundary layer to identify those same areas by census tract. ArcGIS was then used to calculate the total area within each census tract with a qualifying flood risk as a percent of the total census tract area.

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Data Source(s)

SanGIS, Federal Emergency Management Agency (FEMA), County of San Diego, Dept. of Public Works, Flood Control Engineering (2019). *Flood_Plain*. Shapefile

Barnard PL., Erikson LH, Foxgrover AC, Limber PW, O'Neill AC, and Vitousek S. (2018). *Coastal Storm Modeling System (CoSMoS) for Southern California, v3.0, Phase 2 (ver. 1g, May 2018)*. U.S. Geological Survey data release. Shapefile

SANDAG, U.S. Census Bureau (2014). Census Tracts 2010. Shapefile

Fire Risk

The fire risk indicator measures the percent area of each census tract that falls within zones identified as very high fire severity by the California Department of Forestry and Fire Prevention (CAL FIRE). While the fire hazard severity zone (FHSZ) shapefile provided by the City is the current map being utilized by the City, it is unclear when it was most recently updated and no future update date was provided. FHSZs are not expected to significantly change in the near term and using the same data for CEI updates may be acceptable. This assumption will need to be reevaluated with any future CEI update.

Indicator Specific Methods

The FHSZ shapefile was intersected with a census tract boundary layer to identify those areas in each census tract that are within a very high fire severity zone. Calculations were then done to determine the percent of each census tract that falls within these zones.

Data Source(s)

City of San Diego, CAL FIRE (n.d.). *Fire Hazard Severity Zone Local Responsibility Area (FHSZ LRA)*. Shapefile. Provided by City staff.

SANDAG, U.S. Census Bureau (2014). Census Tracts 2010. Shapefile

Tree Coverage

The tree coverage indicator measures the percent tree canopy coverage for each census tract across all land use categories identified in a 2014 Light Detection and Ranging (LiDAR) analysis for the City of San Diego. Results of the 2014 LiDAR analysis were made available in 2017. Currently, there is no plan to update the data with a second LiDAR study. This may limit the ability of future CEI updates to track progress for this indicator and updated CEI scores may not accurately capture City efforts to increase tree canopy within census tracts.

Indicator Specific Methods

The tree canopy raster dataset contains grid cells that cover the City of San Diego, with each identified as one of seven different land cover categories (tree canopy, bush/shrub, buildings, roads, bare earth, other paved surfaces, or water). The raster file was converted to a shapefile and intersected with the census tract boundary layer with individual polygons representing each land cover category for each census tract. Consistent with how the University of Vermont estimated tree coverage for the entire City, the total coverage for each census tract was derived by dividing the area of each tract categorized as tree canopy by the total area for all land cover types less water.

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Data Source(s)

University of Vermont Spatial Analysis Laboratory, City of San Diego (2017). *TreeCanopy_2014_SanDiego*.
    Raster Dataset

SANDAG, U.S. Census Bureau (2014). Census Tracts 2010. Shapefile

Urban Heat Island Index

The urban heat island index indicator measures the positive temperature differential (in degree hours per day) between urban census tracts and reference points in rural, upwind reference points. The indicator uses results from the California Environmental Protection Agency's (CalEPA) Urban Heat Island Index (UHII), which measures temperature at two meters above ground level, where people experience heat. The UHII was last updated in 2015 and it is uncertain if and when the data will be updated. This may limit the ability of future CEI updates to include any increases and/or decreases in urban heat island impacts across City census tracts.

Indicator Specific Methods

Data for this indicator were provided at the census tract level through the UHII. No additional calculations or adjustments outside of what was done for the UHII were done for purposes of the CEI.

Data Source(s)

CA Environmental Protection Agency (2015). *Urban Heat Island Index for California*. Shapefile

SANDAG, U.S. Census Bureau (2014). Census Tracts 2010. Shapefile

Proximity to Community Recreation Areas

The proximity to community recreation areas indicator measures the number of recreation areas (parks, open space, beaches, libraries, and recreation centers) within ½ mile of populated neighborhoods. Location data for this indicator were provided by City staff or collected from SanGIS. For all community recreation area datasets, the most recent year of data is 2018. It is expected that all will undergo frequent updates; however, it is unclear how often and when those updates will occur. Each of these datasets are not expected to significantly change in the near term and using the same data for CEI updates may be acceptable. This assumption will need to be reevaluated with any future CEI update. Future updates may involve working with City staff to identify changes and make necessary updates to the original datasets used here.

Indicator Specific Methods

Multiple shapefiles were collected for this indicator either from the City or downloaded directly from SanGIS, SANDAG's online data portal. All layers were combined into a single shapefile and a ½ mile buffer was applied to each recreation area (park, open space, public beach, library, and recreation centers). This buffered layer was spatially joined with a census tract boundary layer and the number of buffered community recreation areas that overlap (either wholly or partially) with each census tract were summed to estimate the indicator value.

Data Source(s)

City of San Diego (2019). *Recreation Center Locations*. Shapefile

City of San Diego (2019). *Library Locations*. Shapefile

SANDAG, County of San Diego, City of San Diego, City of Carlsbad, City of Chula Vista, City of Coronado, City of Del Mar, City of El Cajon, City of Encinitas, City of Escondido, City of Imperial Beach, City of La Mesa, City of Lemon Grove, National City, City of Oceanside, City of Poway, City of San Marcos, City of Santee, City of Vista, San Diego Port District, State Parks (2019). *Parks*. Shapefile

U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Total Population (B01003). CSV

SANDAG, U.S. Census Bureau (2014). Census Tracts 2010. Shapefile

Proximity to Waste Sites

The proximity to waste sites indicator measures the average distance to the nearest waste site, which includes: hazardous waste generators and facilities, facilities with documented toxic releases, solid waste sites and facilities, and Cal EPA identified cleanup sites. Location data for this indicator were collected directly from CalEnviroScreen. Data from the most recent CalEnviroScreen update (version 3.0, 2017) represent conditions in 2016, with the exception of facilities with documented toxic releases. This component includes data from 2012-2014. The CalEnviroScreen tool is expected to undergo future updates; however the frequency of those updates is unclear and may not align with CEI updates. Publicly available datasets may be used to update this indicator in line with methods used in the current version of CalEnviroScreen for future CEI updates.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from CalEnviroScreen 3.0. A shapefile was created that integrates the location of waste sites (hazardous waste generators and facilities, facilities with documented toxic releases, solid waste sites and facilities, and Cal EPA identified cleanup sites) used for multiple CalEnviroScreen indicators. Next, the average distance to the nearest waste site was estimated across each census tract. A weighted average distance for each tract was calculated by weighting the average distance of populated neighborhoods by its population.

Data Source(s)
California Environmental Protection Agency (Cal EPA) Office of Environmental Health Hazard Assessment (OEHHA) (2017). *CalEnviroScreen 3.0*. Shapefile

SANDAG, U.S. Census Bureau (2014). Census Tracts 2010. Shapefile

Pesticide Use

The pesticide use indicator measures the total pounds per square mile (lb/mi^2) of 70 Cal EPA selected pesticides used in production-agriculture. Values for this indicator were collected directly from CalEnviroScreen 3.0. CalEnviroScreen data was last updated in 2017 and data relevant to this indicator use a three-year average from 2012-2014. The CalEnviroScreen tool is expected to undergo future updates; however the frequency of those updates is unclear and may not align with CEI updates. Publicly available datasets may be used to update this indicator in line with methods used in the current version of CalEnviroScreen for future CEI updates.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from CalEnviroScreen 3.0. No additional calculations or adjustments outside of what was done for CalEnviroScreen were done for purposes of the CEI.

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Data Source(s)

California Environmental Protection Agency (Cal EPA) Office of Environmental Health Hazard Assessment
(OEHHA) (2017). *CalEnviroScreen 3.0*. Shapefile

Drinking Water Contaminants

The drinking water contaminants indicator measures the average concentration of contaminants within drinking water systems in each census tract. Values for this indicator were collected directly from CalEnviroScreen 3.0. CalEnviroScreen data was last updated in 2017 and data relevant to this indicator include the average concentration of drinking water contaminants over one complete compliance cycle (2005-2013). The CalEnviroScreen tool is expected to undergo future updates; however the frequency of those updates is unclear and may not align with CEI updates. Publicly available datasets may be used to update this indicator in line with methods used in the current version of CalEnviroScreen for future CEI updates.

Indicator Specific Methods

Data for this indicator were gathered at the census tract level from CalEnviroScreen 3.0. No additional calculations or adjustments outside of what was done for CalEnviroScreen were done for purposes of the CEI.

Data Source(s)

California Environmental Protection Agency (Cal EPA) Office of Environmental Health Hazard Assessment
(OEHHA) (2017). *CalEnviroScreen 3.0*. Shapefile

Groundwater Threats

The groundwater threats indicator measures CalEnviroScreen groundwater threat scores for census tracts based on type of pollution site and its location to populated neighborhoods. Potential threats to groundwater include the storage and disposal of hazardous waste in storage tanks either above or underground at commercial, industrial, and/or military sites. Values for this indicator were collected directly from CalEnviroScreen 3.0. CalEnviroScreen data was last updated in 2017 and data used in the analysis relevant to this indicator are form 2016. The CalEnviroScreen tool is expected to undergo future updates; however the frequency of those updates is unclear and may not align with CEI updates. Publicly available datasets may be used to update this indicator in line with methods used in the current version of CalEnviroScreen for future CEI updates.

Indicator Specific Methods

Data for this indicator were gathered at the census tract level from CalEnviroScreen 3.0. No additional calculations or adjustments outside of what was done for CalEnviroScreen were done for purposes of the CEI.

Data Source(s)

California Environmental Protection Agency (Cal EPA) Office of Environmental Health Hazard Assessment
(OEHHA) (2017). *CalEnviroScreen 3.0*. Shapefile

Impaired Water Bodies

The impaired water bodies indicator measures the number of pollutants across all water bodies designated as impaired within each census tract as calculated by CalEnviroScreen 3.0. CalEnviroScreen

data was last updated in 2017 and data used in the analysis relevant to this indicator are form 2012. The CalEnviroScreen tool is expected to undergo future updates; however the frequency of those updates is unclear and may not align with CEI updates. Publicly available datasets may be used to update this indicator in line with methods used in the current version of CalEnviroScreen for future CEI updates.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from CalEnviroScreen 3.0. No additional calculations or adjustments outside of what was done for CalEnviroScreen were done for purposes of the CEI.

Data Source(s)
California Environmental Protection Agency (Cal EPA) Office of Environmental Health Hazard Assessment (OEHHA) (2017). *CalEnviroScreen 3.0*. Shapefile

Socioeconomic Indicators
The following sections detail the data sources and indicator-specific methods used in calculating CEI scores for the following nine (9) socioeconomic indicators:
- Unemployment;
- Educational Attainment;
- Linguistic Isolation;
- Digital Access;
- Median Income;
- Poverty Rate;
- Change in Income;
- Energy Cost Burden; and
- Solar Photovoltaic Systems.

Unemployment
The unemployment rate indicator measures the percent of the population within each census tract that is over the age of 16 and unemployed. Unemployment data are collected from the American Community Survey (ACS), which is updated annually. The 2013-2017 five-year average is applied in this analysis.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from American Fact Finder, the online ACS data portal. No additional calculations or adjustments were needed to convert data.

Data Source(s)
U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Employment Status (S2301). CSV

Educational Attainment
The educational attainment indicator measures the percent of the population within each census tract that is over the age of 25 and has less than a high school education. Educational attainment data are collected from the ACS, which is updated annually. The 2013-2017 five-year average is applied in this analysis.

Indicator Specific Methods

Data for this indicator were gathered at the census tract level from American Fact Finder. To calculate the percent of the population over the age of 25 with less than a high school education, the number of individuals with below a high school education were divided by the sum of those with below and those with above a high school education.

Data Source(s)
U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Educational Attainment for the Population 25 Years and Over (B15003). CSV

Linguistic Isolation
The linguistic isolation indicator measures the percent of limited-English speaking households within each census tract based on all primary language groups identified in the American Community Survey. The ACS identifies limited-English speaking households for the following language groups: Spanish, Asian and Pacific Island languages, other Indo-European languages, and other languages. Linguistic isolation data are collected from the ACS, which is updated annually. The 2013-2017 five-year average is applied in this analysis.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from American Fact Finder, the online ACS data portal. No additional calculations or adjustments were needed to convert data.

Data Source(s)
U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Limited English Speaking Households (S1602). CSV

Digital Access
The digital access indicator measures the percent of households without internet access within each census tract. Those considered to have internet access include both households with an active internet subscription and those without, but are still provided internet (e.g., student dorms where the university maintains the internet subscription). Digital access data are collected from the ACS, which is updated annually. The 2013-2017 five-year average is applied in this analysis.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from American Fact Finder, the online ACS data portal. Data is provided that identifies those with internet access (either with or without their own subscription) and those without access. To calculate the percent of the population within each census tract without internet access, the number of individuals without internet access was divided by the total number of individuals.

Data Source(s)
U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Internet Subscriptions in Household (B28011). CSV

Median Income
The median income indicator measures the median household income within the past 12 months for each census tract. Median income data are collected from the ACS, which is updated annually. The 2013-2017 five-year average is applied in this analysis.

Indicator Specific Methods

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Data for this indicator were gathered at the census tract level from American Fact Finder, the online ACS data portal. No additional calculations or adjustments were needed to convert data.

Data Source(s)
U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates.* Median Income in the Past 12 Months (S1903). CSV

Poverty Rate
The poverty rate indicator measures the percent of the population within each census tract with an income below 300% of the federal poverty level ($24,600 for a family of four in 2017). A 300% threshold was chosen as it most closely aligns with guidelines used by the County of San Diego to designate low-income households. Poverty rate data are collected from the ACS, which is updated annually. The 2013-2017 five-year average is applied in this analysis.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from American Fact Finder, the online ACS data portal. To calculate the percent of the population below 300% of the federal poverty level, the number of individuals below this threshold was divided by the total number of individuals for each census tract.

Data Source(s)
County of San Diego, Housing Commission (2018). *2017 SDHC Affordable Housing Resource Guide*. PDF

U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates.* Poverty Status in the Past 12 Months (S1701). CSV

Change in Income
The change in income indicator measures the five-year annual percent change in median household income for each census tract. Change in income data are collected from the ACS, which is updated annually. The five-year average estimates from 2013-2017 are applied in this analysis.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from American Fact Finder, the online ACS data portal. Data for median household income for the 2013-2017 five-year estimates were collected and the percent change year-over-year was calculated and then averaged for each census tract. This represents the average five-year annual percent change in median household income.

Data Source(s)
U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates.* Median Income in the Past 12 Months (S1903). CSV

U.S. Census Bureau (n.d.). *2016 ACS 5-year estimates.* Median Income in the Past 12 Months (S1903). CSV

U.S. Census Bureau (n.d.). *2015 ACS 5-year estimates.* Median Income in the Past 12 Months (S1903). CSV

U.S. Census Bureau (n.d.). *2014 ACS 5-year estimates.* Median Income in the Past 12 Months (S1903). CSV

U.S. Census Bureau (n.d.). *2013 ACS 5-year estimates.* Median Income in the Past 12 Months (S1903). CSV

Energy Cost Burden

The energy cost burden indicator measures the three-year average annual household cost of energy per census tract as a percent of median household income. Energy data was provided to EPIC by request and is available annually by San Diego Gas and Electric (SDG&E). Median income data are collected from the American Community Survey (ACS), which is updated annually. The 2013-2017 five-year average is applied in this analysis.

Indicator Specific Methods

Data for this indicator were collected through American Fact Finder (median household income) and through a Privacy Greenlight request to SDG&E. SDG&E provided energy consumption by census tract and rate schedule for both natural gas and electricity. The average total energy cost per household assumes that each household has one natural gas and one electricity meter. Historic rates for 2015-2017 were multiplied by the kWh or therms reported depending on the corresponding rate schedule. Only those customers on the standard (DR or GR) or low-income (DR-LI or GR-LI) rate schedules were included. These totals were weighted by their respective number of meters and combined to provide a weighted average electricity cost per meter and a weighted average natural gas cost per meter by census tract. The sum of both is the average energy cost for each census tract, which was divided by the median household income to obtain the energy cost burden for that tract.

Data Source(s)

U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Median Income in the Past 12 Months (S1903). CSV

SDG&E (n.d.). *2015-2017 Residential Energy Consumption Data*. Provided to EPIC through a Project GreenLight request

SDG&E (2017). *Schedule DR – Residential Rate*. PDF

SDG&E (2017). *Schedule GR – Residential Natural Gas Service*. PDF

SDG&E (2016). *Schedule DR – Residential Rate*. PDF

SDG&E (2016). *Schedule GR – Residential Natural Gas Service*. PDF

SDG&E (2015). *Schedule DR – Residential Rate*. PDF

SDG&E (2015). *Schedule GR – Residential Natural Gas Service*. PDF

Solar Photovoltaic Systems

The solar photovoltaic (PV) systems indicator measures the total number of installed solar photovoltaic (PV) systems per capita. Solar PV data were provide by City staff for years 2015-2018. Data for previous years was unavailable at the time for activity prior to 2015. Google Project Sunroof data was used as a supplement to estimate the number of PV systems installed across the City prior to 2015. Project Sunroof states that imagery used in its calculations was pulled sometime between 2013 and 2015. This means that PV systems may have been left out of the analysis if the imagery was pulled prior to 2015. Since calculating CEI scores, the City has been able to gather installation permit data for activity in earlier years. This will be used in lieu of Project Sunroof data in any updates to the CEI. Additionally, City permit data is

continuously updated. Population data used to calculate per capita estimates were collected from the ACS, which is updated annually. The 2013-2017 five-year average is applied in this analysis.

Indicator Specific Methods
Data for this indicator were directly downloaded from the Project Sunroof website (for years prior to 2015) and provided by the City (2015-2018). Project sunroof data was intersected with the census tract boundary layer and a count was taken of the number of systems within each census tract. Data provided by the City was spatially mapped and the same methods were applied to estimate the number of systems installed between 2015 and 2018. The two counts for each census tract were added together and this sum was divided by the census tract's population to estimate the number of PV systems per capita.

Data Source(s)
City of San Diego (2019). *2015-2018 Solar PV Installation Data*. Provided to EPIC by City staff

Google Project Sunroof (2019). *Google Project Sunroof Data Explorer*. CSV

U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Total Population (B01003). CSV

SANDAG, U.S. Census Bureau (2014). Census Tracts 2010. Shapefile

Housing Indicators
The following sections detail the data sources and indicator-specific methods used in calculating CEI scores for the following two (2) housing indicators:
- Housing Cost Burden; and
- Overcrowdedness.

Housing Cost Burden
The housing cost burden indicator measures the median housing cost per census tract as a percent of median household income. It is a weighted average metric that factors in both rent and mortgage costs alongside the number of units that rent versus own. Housing cost data are collected from the ACS, which is updated annually. The 2013-2017 five-year average is applied in this analysis.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from American Fact Finder, the online ACS data portal. Two datasets were collected to estimate the housing cost burden – median income and select housing characteristics. The select housing characteristics dataset contains information on the number of households that are renter-occupied versus owner occupied as well mortgage and rent cost information. For mortgage costs, the bottom of each range is used for calculations as a conservative estimate and the average mortgage cost is weighted by the number of households within each range. The same is applied to renter costs. The overall average housing cost is weighted by the number of households that rent versus own. The housing cost burden takes the weighted average housing cost and divides it by the median income for the same census tract.

Data Source(s)
U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Median Income in the Past 12 Months (S1903). CSV

U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Selected Housing Characteristics (DP04). CSV

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Overcrowdedness

The overcrowdedness indicator measures the percent of housing units within a census tract with greater than one occupant per room as defined by the American Community Survey and includes both renter and owner occupied units. In estimating the number of occupants per room, the ACS considers a room to be a whole room within a housing unit including: living rooms, dining rooms, kitchens, bedrooms, finished recreation rooms, enclosed porches suitable for year-round use, and lodger's rooms. Overcrowdedness data are collected from the ACS, which is updated annually. The 2013-2017 five-year average is applied in this analysis.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from American Fact Finder, the online ACS data portal. No additional calculations or adjustments were needed to convert data.

Data Source(s)
U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Tenure by Occupants per Room (B25014). CSV

Mobility Indicators

The following sections detail the data sources and indicator-specific methods used in calculating CEI scores for the following nine (9) mobility indicators:
- Pedestrian Access;
- Commute Burden;
- Transportation Cost Burden;
- Disability;
- Street Conditions;
- Bikeability;
- Access to Public Transit;
- Traffic Density; and
- Electric Vehicle Charging Infrastructure.

Pedestrian Access

The pedestrian access indicator is a combination of four separate measures for each census tract: average walk score, population weighted miles of sidewalk, population weighted number of streetlights, and five-year average number of pedestrian-vehicle collisions. Walk scores were provided by City staff, are current as of 2016, and are frequently updated. Pedestrian-vehicle collision data is also frequently updated and the City provided data through 2018. A five-year average is used for pedestrian-vehicle collisions. The City's sidewalk inventory was most recently updated in 2015 and the streetlight inventory in 2019. It is unclear when the sidewalk and streetlight inventories will be next updated or if these updates will align with CEI updates. This may limit the ability of the CEI to comprehensively track progress on this indicator.

Indicator Specific Methods
All data for this indicator were provided by City staff. Each component (walk score, sidewalk, streetlights, and pedestrian-vehicle collisions) was calculated separately by census tract and then converted to a z-score following the same methods used to calculate CEI scores. Z-scores were then averaged for each census tract to determine an average pedestrian collision z-score to include in the CEI analysis. Walk scores were already provided at the census tract level and no additional calculations were needed before

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converting to a z-score. Pedestrian-vehicle collision data were averaged across five years of data (2014-2018) for each census tract before converting to z-scores. The sidewalk dataset was intersected with the census tract boundary layer and the total miles of sidewalk within each census tract was weighted by the population. The population weighted miles of sidewalk were then converted to z-scores. A similar approach was used for streetlights by intersecting streetlight data with the census tract boundary layer to determine the number of streetlights per tract. These totals were then weighted by population to get a population weighted number of streetlights per tract before converting to z-scores. The four census tract level z-scores were then averaged into a single value.

Data Source(s)
City of San Diego (2015). *City of San Diego Sidewalk Inventory*. Shapefile. Data provided to EPIC by City staff

City of San Diego (2019). *City of San Diego Pedestrian-Vehicle Collision Data*. Excel. Data provided to EPIC by City staff

City of San Diego (n.d.). *City of San Diego Streetlight Inventory*. Shapefile. Data provided to EPIC by City staff

Walk Score (2019). *City of San Diego Walk Scores*. Shapefile. Data provided to EPIC by City staff

U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates.* Total Population (B01003). CSV

SANDAG, U.S. Census Bureau (2014). Census Tracts 2010. Shapefile

Commute Burden
The commute burden indicator measures the percent of the each census tract population with a commute time over the regional average. This is a weighted average value that considers the regional average commute time for both those that commute by car (~30 minutes) and those by mass transit (~45 minutes) along with the total population that commutes by each. Commute time data are collected from the ACS, which is updated annually. The 2017 five-year average is applied in this analysis.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from American Fact Finder, the online ACS data portal. Population counts were collected for individuals who commute more than 30 minutes if commuting by car or more than 45 minutes if commuting by mass transit. The sum of these two groups was divided by the total population for each census tract to get the percent of the population with a significant commute burden (a commute time over the regional average).

Data Source(s)
U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates.* Travel Time to Work (B08303). CSV

SANDAG, TrueNorth Research (2018). Park & Ride / Commute Survey. PDF

Transportation Cost Burden
The transportation cost burden indicator measures the median household transportation cost by census tract as a percent of the median household income. This indicator uses data from both ACS and the Center

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for Neighborhood Technology's (CNT) Housing and Transportation (H+T) Affordability Index. ACS data is updated annually and the 2013-2017 five-year average is applied here for median income. The H+T index was most recently updated in 2017; however, it is unclear how often the index is updated. This may limit the ability of future CEI updates to capture changes in transportation cost burdens.

Indicator Specific Methods
Data for this indicator were directly downloaded at the census tract level through American Fact Finder (ACS) and the CNT website. The average transportation cost included in the CNT dataset was divided by the corresponding median household income in the ACS dataset for each census tract. This provides the transportation cost as a percent of household income.

Data Source(s)
U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Median Income in the Past 12 Months (S1903). CSV

Center for Neighborhood Technology (CNT) (2019). *Housing and Transportation (H+T) Affordability Index*. CSV

Disability
The disability indicator measures the percent of the population with a Disability data collected from the ACS, which is updated annually. The 2013-2017 five-year average is applied in this analysis. Types of disabilities counted in the ACS include: ambulatory, hearing, cognitive, vision, independent living, and self-care.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from American Fact Finder, the online ACS data portal. The percent of the population with a disability was calculated by summing total males and females by age class with a disability and dividing that sum by the total population for each census tract.

Data Source(s)
U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Sex by Age by Disability Status (B18101). CSV

Street Conditions
The street conditions indicator measures the weighted average Overall Condition Index (OCI) score for each census tract as determined by the City of San Diego. The City maintains the OCI and provides periodic updates for public download. The most recent dataset and that used for this analysis is from 2015. If updates to the publicly available OCI are not aligned with CEI updates, City staff may work internally to identify updates that can be made to the existing dataset explicitly for the CEI.

Indicator Specific Methods
Data for this indicator were provided by City staff and contains a list of all streets within the City and its corresponding OCI score. OCI scores were weighted by the length of the roadway and averaged across all weighted OCI scores within a given census tract to determine census tract level scores.

Data Source(s)
City of San Diego (2019). *City of San Diego Street Overall Condition Index (OCI)*. Excel. Data provided to EPIC by City staff

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SANDAG, U.S. Census Bureau (2014). [Census Tracts 2010](#). Shapefile

Bikeability

The bikeability indicator measures the weighted average bikeability scores of each census tract as determined by the Bicycle Network Analysis. The most recent set of bikeability scores was updated in 2019; however, it is unclear how often scores will be updated to account for significant changes to the bikeability of each census block. This may limit the ability of future CEI updates to track progress for this indicator and updated CEI scores may not accurately capture City efforts to increase bicycle infrastructure within census tracts.

Indicator Specific Methods
Data for this indicator were directly downloaded at the census block level through the Bicycle Network Analysis website. Census block scores were weighted by the block's area and aggregated to the census tract level to achieve a weighted average bikeability score for each census tract.

Data Source(s)
People for Bikes (2019). *[Bicycle Network Analysis (BNA)](#).* Shapefile

SANDAG, U.S. Census Bureau (2014). [Census Tracts 2010](#). Shapefile

Access to Public Transit

The access to public transit indicator measures the population weighted average distance to the nearest transit stop. Transit stops are included for rail, trolley, and bus lines. Location data relevant to this indicator is publicly available through SanGIS and the most recent file represents transit stops in 2019. While the dataset is expected to undergo future updates; the frequency of those updates is unclear and may not align with CEI updates. This may limit the ability of future CEI updates to track progress for this indicator.

Indicator Specific Methods
Data for this indicator were directly downloaded through SanGIS as a point shapefile indicating transit stops through San Diego County. The average distance to the nearest transit stop was estimated across each census tract and a weighted average distance for each tract was calculated by weighting the average distance of populated neighborhoods by its population.

Data Source(s)
SANDAG, San Diego Metropolitan Transit System (MTS), North County Transit District (NCTD) (2019). Transit Stops – General Transit Feed Specification (GTFS). Shapefile

U.S. Census Bureau (n.d.). *[2017 ACS 5-year estimates](#).* Total Population (B01003). CSV

SANDAG, U.S. Census Bureau (2014). [Census Tracts 2010](#). Shapefile

Traffic Density

The traffic density indicator measures total traffic volume by total road length as estimated by CalEnviroScreen 3.0. CalEnviroScreen data was last updated in 2017 and the most recent year of data available for traffic density is 2013. The CalEnviroScreen tool is expected to undergo future updates; however the frequency of those updates is unclear and may not align with CEI updates. Publicly available

datasets may be used to update this indicator in line with methods used in the current version of CalEnviroScreen for future CEI updates.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from CalEnviroScreen 3.0. No additional calculations or adjustments outside of what was done for CalEnviroScreen were done for purposes of the CEI.

Data Source(s)
California Environmental Protection Agency (Cal EPA) Office of Environmental Health Hazard Assessment (OEHHA) (2017). *CalEnviroScreen 3.0*. Shapefile

Electric Vehicle Charging Infrastructure
The electric vehicle (EV) charging infrastructure indicator measures the number of publicly available charging stations within each census tracts. This includes both Level 2 and DC fast chargers. The U.S. Department of Energy's Alternative Fuels Data Center maintains a database with location data for multiple types charging infrastructure and is continuously updated with new data. Data for this analysis were current as of the download date (August 2019).

Indicator Specific Methods
Data for this indicator were directly downloaded from the Alternative Fuels Data Center website. The dataset was cleaned to include only publicly available EV charging infrastructure (Level 2 and DC fast chargers) within the City of San Diego. This excluded charging stations that are limited to a particular vehicle make or are exclusive to patrons of the facility (e.g., chargers at hotels limited to hotel guest use). Data was then spatially mapped using ArcGIS and overlaid with a census tract boundary layer. The two layers were spatially joined to get a count of the number of chargers within each census tract.

Data Source(s)
U.S. Department of Energy, Alternative Fuels Data Center (2019). *Alternative Fueling Station Locator*. CSV

SANDAG, U.S. Census Bureau (2014). Census Tracts 2010. Shapefile

Health Indicators
The following sections detail the data sources and indicator-specific methods used in calculating CEI scores for the following five health indicators:
- Asthma Rates;
- Cancer Fatalities;
- Healthy Food Access;
- Low Infant Birth Weight; and
- Heart Attack Fatalities.

Asthma Rates
The asthma rates indicator measures the rate of emergency department visits due to asthma. This includes all age groups and is expressed as an age-adjusted rate per 10,000 individuals. Asthma rate data are collected from Tracking California. Data are updated annually and the most recent year available is 2017.

Indicator Specific Methods
Data for this indicator were gathered at the zip code level from Tracking California. Rates were collected for zip codes that overlap with census tracts within the City of San Diego. A weighted average rate was then calculated for each census tract by weighting the respective rate for each zip code by its area that overlaps with a particular census tract. This was done by intersecting a zip code shapefile with the census tract boundary layer in ArcGIS. This is consistent with methods used in CalEnvironScreen to apportion zip code values to census tracts.

Data Source(s)
Tracking California, CA Office of Statewide Health Planning and Development (OSHPD) (2019). *Asthma*. CSV

U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates.* Total Population (B01003). CSV

SANDAG, U.S. Census Bureau (2014). Census Tracts 2010. Shapefile

Cancer Fatalities
The cancer fatalities indicator measures the five-year average percent of deaths within each census tract that are cancer related. Cancer fatality data were collected from the California Department of Public Health by zip code for years 1992-2016. Data is updated annually, however, there is a three year delay for each year. For instance, the most recent data available in 2019 is for 2016. A five year average is used in this analysis, which includes years 2012-2016.

Indicator Specific Methods
The data for this indicator were directly downloaded from the CA Department of Public Health's website by zip code. First, the percent of deaths associated with cancer was calculated for each zip code by dividing the total number of cancer related deaths by the total number of deaths. A weighted average percent was then calculated for each census tract by weighting the respective percent for each zip code by the area that zip code overlaps with a particular census tract. This was done by intersecting a zip code shapefile with the census tract boundary layer in ArcGIS. This is consistent with methods used in CalEnvironScreen to apportion zip code values to census tracts.

Data Source(s)
CA Department of Public Health (CDPH) (2018). *Leading Causes of Death by Zip Code 1989-Current*. CSV

U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates.* Total Population (B01003). CSV

SANDAG, U.S. Census Bureau (2014). Census Tracts 2010. Shapefile

Healthy Food Access
The healthy food access indicator measures the percent of the population within each census tract that has a lower level of access to healthy foods as measured by the USDA Food Access Research Atlas. Low access is considered greater than ½ mile for urban census tracts and greater than 10 miles for rural census tracts. The Food Access Research Atlas was last updated in 2015 and data contained within the atlas are reflective of that year. The Atlas is expected to undergo future updates; however the frequency of those updates is unclear and may not align with CEI updates. This may limit the ability of future CEI updates to track progress for this indicator.

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Indicator Specific Methods
Data for this indicator were gathered at the census tract level from The USDA Food Access Research Atlas. Population counts are provided for the number of individuals considered to have low access to healthy food. Low access is defined as living greater than ½ mile from healthy food options for urban census tracts and greater than 10 miles for rural census tracts. The percent of the population considered to have low access was found by dividing the population with low access by the total population for each census tract.

Data Source(s)
U.S. Department of Agriculture (USDA) (2015). *Food Access Research Atlas*. Excel

U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Total Population (B01003). CSV

Low Infant Birth Weight
The low infant birth weight indicator measures the percent of full term births (37 weeks of gestation) within each census tract with a birthweight less than 2,500 grams. Low infant birthweight data is collected from Tracking California. Data is updated annually; however, each update is for data that is for three to four years previous. As such the most recent data available is for 2015.

Indicator Specific Methods
Data for this indicator were gathered at the census tract level from Tracking California. No additional calculations or adjustments outside of what was done for Tracking California were done for purposes of the CEI.

Data Source(s)
Tracking California, CA Department of Public Health, Office of Vital Statistics (2019). *Maternal and Infant Health*. CSV

Heart Attack Fatalities
The heart attack fatalities indicator measures the five-year average percent of deaths within each census tract that are heart attack related. Heart attack fatality data were collected from the California Department of Public Health by zip code for years 1992-2016. Data is updated annually, however, there is a three year delay for each year. For instance, the most recent data available in 2019 is for 2016. A five year average is used in this analysis, which includes years 2012-2016.

Indicator Specific Methods
The data for this indicator were directly downloaded from the CA Department of Public Health's website by zip code. First, the percent of deaths associated with heart attacks was calculated for each zip code by dividing the total number of heart attack related deaths by the total number of deaths. A weighted average percent was then calculated for each census tract by weighting the respective percent for each zip code by the area that zip code overlaps with a particular census tract. This was done by intersecting a zip code shapefile with the census tract boundary layer in ArcGIS. This is consistent with methods used in CalEnvironScreen to apportion zip code values to census tracts.

Data Source(s)
CA Department of Public Health (CDPH) (2018). *Leading Causes of Death by Zip Code 1989-Current*. CSV

U.S. Census Bureau (n.d.). *2017 ACS 5-year estimates*. Total Population (B01003). CSV

SANDAG, U.S. Census Bureau (2014). Census Tracts 2010. Shapefile

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SDG&E (2016). *Schedule DR – Residential Rate*. PDF

SDG&E (2016). *Schedule GR – Residential Natural Gas Service*. PDF

SDG&E (2015). *Schedule DR – Residential Rate*. PDF

SDG&E (2015). *Schedule GR – Residential Natural Gas Service*. PDF

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U.S. Census Bureau (n.d.). *2016 ACS 5-year estimates*. Median Income in the Past 12 Months (S1903). CSV

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Methods for Estimating Greenhouse Gas Emissions and Emissions Reductions in the San Diego Climate Action Plan

Draft

November 2021

Prepared for the City of San Diego

The City *of*

SAN DIEGO

Prepared by the Energy Policy Initiatives Center

EPIC

ENERGY POLICY INITIATIVES CENTER
UNIVERSITY OF SAN DIEGO SCHOOL OF LAW

About EPIC

The Energy Policy Initiatives Center (EPIC) is a non-profit research center of the USD School of Law that studies energy policy issues affecting California and the San Diego region. EPIC's mission is to increase awareness and understanding of energy- and climate-related policy issues by conducting research and analysis to inform decision makers and educate law students.

For more information, please visit the EPIC website at www.sandiego.edu/epic.

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1   OVERVIEW

This Appendix provides a summary of the greenhouse gas (GHG) emissions estimate for the City of San Diego (referred to as San Diego or the City) in calendar year 2019, the business-as-usual (BAU) emissions projections through 2050, and the methods used to calculate the GHG emissions reductions from the actions included in the City of San Diego's Climate Action Plan (CAP).

This Appendix includes the following sections:

- Section 2 describes the background sources used for this Appendix;
- Section 3 provides the 2019 GHG emissions inventory results summary and the methods used to prepare each emissions category of the inventory;
- Section 4 provides a summary of the emissions projections for 2030, 2035, and 2050, and the methods used to prepare projections for each emissions category;
- Section 5 describes this CAP's 2030 and 2035 targets;
- Section 6 provides a summary of emissions impacts from federal, State (California), regional actions, as well as five CAP strategies;
- Section 7 details the common data sources and methods used to estimate emissions reduction, and the methods used to estimate emissions reduction from federal, State, regional, and CAP strategies.

Unless stated otherwise, all activity data, GHG emissions, and GHG emissions reductions reported in this Appendix are annual values for the calendar year, and all emission factors reported in this document are annual average values for the calendar year.

1.1   Rounding of Values in Tables and Figures

Rounding is used for the final GHG values within the tables and figures throughout the document. Values are not rounded in the intermediary steps in any calculation. Because of rounding, some totals may not equal the values summed in any table or figure.

2   BACKGROUND

2.1   Greenhouse Gases

The primary GHGs included in the emissions estimates presented here are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Each GHG has a different capacity to trap heat in the atmosphere, known as its global warming potential (GWP), which is normalized relative to CO_2 and expressed in carbon dioxide equivalents (CO_2e). In general, the 100-year GWPs reported by the Intergovernmental Panel on Climate Change (IPCC) are used to estimate GHG emissions. The GWPs used in this inventory are from the IPCC Fourth Assessment Report (AR4),[1] provided in Table 1.

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[1] IPCC Fourth Assessment Report: Climate Change 2007: Direct Global Warming Potentials (2013).

1

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Table 1 Global Warming Potentials Used in San Diego GHG Emission Inventory & Projections

Greenhouse Gas	Global Warming Potential
Carbon dioxide (CO_2)	1
Methane (CH_4)	25
Nitrous oxide (N_2O)	298
IPCC 2013.	

2.2 Demographics

The San Diego Association of Governments (SANDAG) estimates and forecasts population, housing, and employment for all jurisdictions in the San Diego region. The population, housing and jobs estimates are provided in Table 2.[2]

Table 2 Population, Housing, and Jobs Estimates (San Diego, 2019-2050)

Year	Population	Single-Family Units		Multi-Family Units		Jobs	Service Population*
		Total	Occupied	Total	Occupied		
2019	1,420,571	285,910	272,419	249,150	228,566	911,117	2,331,688
2030	1,552,815	291,134	277,719	340,195	312,889	1,000,498	2,553,313
2035	1,599,353	293,182	279,673	378,092	347,744	1,046,814	2,646,167
2050	1,646,129	294,298	280,738	411,758	378,708	1,140,676	2,786,805
*Service population is the sum of population and jobs 2030, 2035, and 2050 data are based on SANDAG Series 14 Draft 2021 Regional Plan Growth Forecast Housing unit types include single detached units, single attached units, two to four units, five plus or apartment units, and mobile homes. SANDAG 2020, 2021							

3 BASELINE 2019 GHG EMISSIONS INVENTORY

3.1 Summary of 2019 GHG Emissions Inventory

The total GHG emissions from San Diego in 2019 were approximately 10.5 million metric tons CO_2e (MMT CO_2e), distributed into categories as shown in Figure 1.[3]

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[2] 2019 population and housing estimates are from SANDAG: Demographic & Socio-Economic Estimates for San Diego (August 19, 2020 Version). SANDAG Data Surfer, accessed September 28, 2020. The estimates for the same year vary by version. 2030, 2035, and 2050 data are based on SANDAG Series 14 Draft 2021 Regional Plan Growth Forecast, provided by SANDAG (June 2021).

[3] The 2019 GHG emissions inventory in this document updated from the 2019 inventory in the CAP Annual Report 2020, due to updated data sources after the Annual Report release: (1) 2019 electricity emissions factor became available in December 2020; and (2) new mobile sources emissions inventory (EMFAC2021) became available in 2021.

Energy Policy Initiatives Center (EPIC)
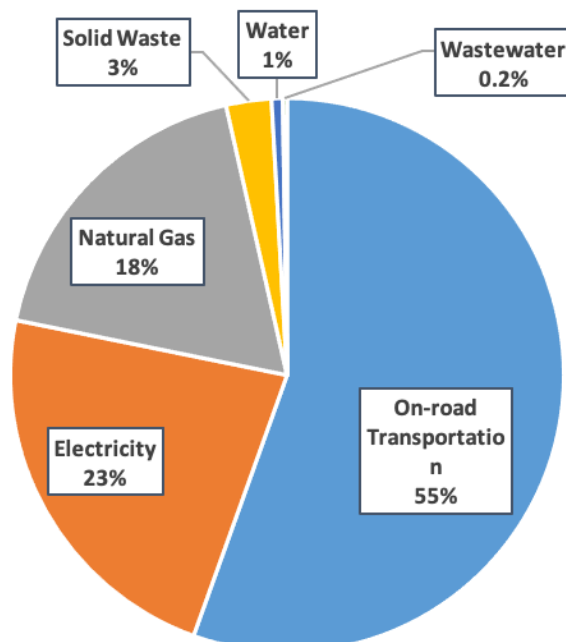
Percentage may not add to totals due to rounding.
Energy Policy Initiatives Center, 2021

Figure 1 Breakdown of GHG Emissions in City of San Diego (2019)

Table 3 Total and Breakdown of GHG Emissions in City of San Diego (2019)

Emissions Category	2019 Inventory	
	GHG Emissions (MT CO$_2$e)	Distribution (%)
On-Road Transportation*	5,805,000	55%
Electricity	2,375,000	23%
Natural Gas	1,911,000	18%
Solid Waste	277,000	3%
Water	68,000	1%
Wastewater	26,000	0.2%
Total	10,462,000	100%

Sums may not add up to totals due to rounding. GHG emissions for each category are rounded to the nearest thousand. Values are not rounded in the intermediary steps in the calculation.

[1]2019 vehicle miles traveled (VMT) are based on 2016 VMT adjusted to account for regional VMT growth, as reflected in the California Highway Performance Monitoring System from 2017 to 2019. 2016 VMT is from SANDAG's Series 14 base year in the draft 2021 Regional Plan and activity-based model (ABM2+).
Energy Policy Initiatives Center 2021.

3.2 Method to Calculate 2019 GHG Emissions Inventory

3.2.1 On-Road Transportation

The emissions associated with on-road transportation are calculated by multiplying the estimated City of San Diego VMT and the average vehicle emission rate in the San Diego region in 2019.

Annual VMT was estimated based on the average weekday VMT for the City provided by SANDAG using the Series 14 Forecast and activity-based model (ABM2+). SANDAG provided VMT estimates for 2016.[4] The 2016 VMT provides the starting point for the 2019 VMT values, which were estimated using annual VMT growth rates from California's public road data in the San Diego region derived from the Highway Performance Monitoring System (HPMS).[5]

SANDAG allocates the VMT derived from ABM2+ to the City of San Diego using the Origin-Destination (O-D) method.[6] The O-D VMT method is the preferred method proposed by the U.S Community Protocol in "TR.1 Emissions from Passenger Vehicles" and "TR.2 Emissions from Freight and Service Trucks" that estimates miles traveled based on where a trip originates and where it ends to attribute on-road emissions to cities and regions (Figure 2).[7]
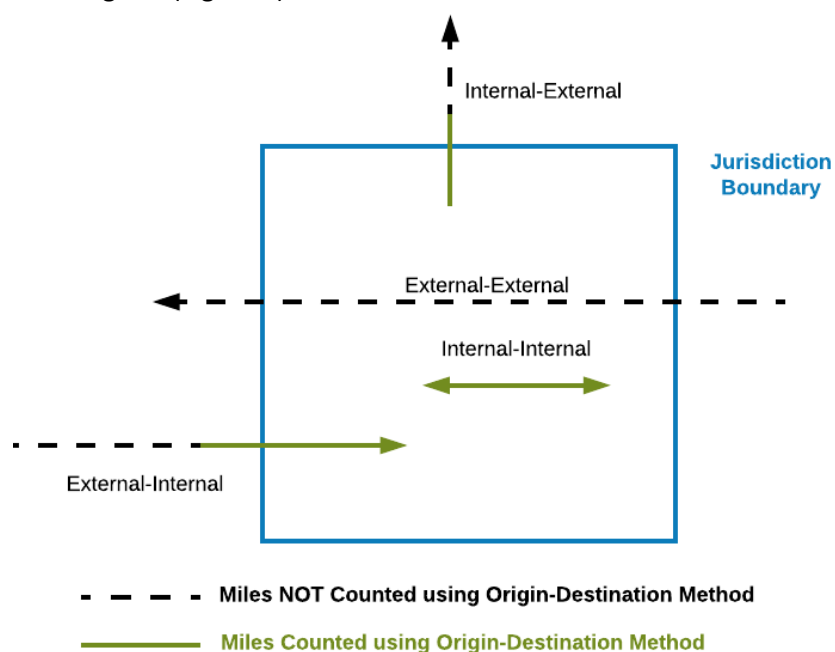
Figure 2 Components of O-D Method for VMT Calculation

O-D VMT allocated to San Diego include all miles traveled for trips that originate and end within San Diego city limits (referred to as Internal-Internal), and half of the miles traveled for trips that either begin within San Diego and end outside the City (referred to as Internal-External), or vice versa (referred to as External-Internal). In accordance with the methodology, VMT from trips that begin and end outside San Diego that only pass through the City limits (referred to as External-External) are not included in the

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[4] 2016 VMT was provided by SANDAG to City of San Diego (Sep 2021). SANDAG Activity Based Model 2+ Release v14.2.1, Draft 2021 Regional Plan Networks, Policies, and Assumptions, Growth Forecast 14.38, Year 2016, Reference Scenario 87, October 2020.

[5] California Department of Transportation: Highway Performance Monitoring System (HPMS).

[6] SANDAG (2013): Vehicle Miles Traveled Calculation Using the SANDAG Regional Travel Demand Model. Technical White Paper.

[7] ICLEI – Local Governments for Sustainability USA: U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, Version 1.0 (2012), Appendix D: Transportation and Other Mobile Emission Activities and Sources.

total City VMT. The total average weekday VMT were multiplied by 347 to adjust from average weekday VMT to average annual VMT, which includes weekends.[8]

The average weekday Series 14 O-D VMT estimates for each trip type in 2016 provided by SANDAG and the total VMT allocated to the City based on the ICLEI methodology described above are given in Table 4.

Table 4 2016 O-D VMT Estimates by Trip Types and Total VMT provided by SANDAG (San Diego, 2016)

Year	VMT by Trip Type (Miles/Weekday)			Total City VMT (100% * I-I + 50% * I-E/E-I) (Miles per Weekday)	Total City VMT (Miles per Year)
	Internal-Internal (I-I) Trips	External-Internal/Internal-External (I-E/E-I) Trips	External-External Trips (Information only, excluded from City VMT)*		
2016	22,402,731	29,018,904	3,236,859	36,912,183	12,808,527,434

*Though excluded from this analysis, miles from External-External trips (pass-through trips) shown here are the portion only within the City boundary, not from the entire trip.

Based on SANDAG Series 14 (Draft 2021 Regional Plan) and ABM2+ VMT estimates. The conversion factor from miles per weekday to miles per year is 347.

SANDAG 2021, Energy Policy Initiatives Center 2021

Historical year data from other than 2016 base year are not available under SANDAG ABM2+. Therefore, to estimate 2019 O-D VMT, the 2016 O-D VMT was adjusted by the annual rates of increase from 2016 to 2019, as indicated by the State public road VMT monitoring system (CalTrans HPMS). Annual Caltrans HPMS VMT was used to estimate VMT growth rates for the San Diego region. The rates were applied to the City of San Diego 2016 O-D VMT data (Table 4) as an approximation of VMT growth since 2016. The CalTrans HPMS VMT estimate for the San Diego region is based on daily monitoring on all public roads, including city streets, county roads, state highways, roads maintained by state and federal agencies, freeways, etc. The estimated daily VMT and annual rate of increase from 2016 to 2019 with CalTrans HPMS data are given in Table 6.[9]

Table 5 San Diego Region Daily VMT Derived from the CalTrans Highway Performance Monitoring System

Year	San Diego Region Daily VMT (thousand miles/day)	Annual Rate of Increase (%)
2016	79,622	2.1%
2017	81,253	2.0%
2018	82,618	1.7%
2019	84,235	2.0%

CalTrans 2020, Energy Policy Initiatives Center 2021.

Using these annual rates of increase, the estimated 2019 VMT for the City of San Diego are provided in Table 6. It is assumed that the City of San Diego VMT growth follows the pattern of the San Diego

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[8] The conversion of 347 weekdays to 365 days per year as used by CARB. CARB: California's 2000-2014 Greenhouse Gas Emission Inventory Technical Support Document (2016 Edition), p. 41 (September 2016).
[9] California Department of Transportation: HPMS Data, accessed October 13, 2020.

regional VMT growth shown in the CalTrans HPMS data. The adjustment method may change if better information becomes available on City of San Diego VMT and travel patterns.

The average annual vehicle emission rate expressed in grams of CO_2e per mile driven (g CO_2e/mile) is derived from the statewide mobile source emissions model EMFAC2021 developed by CARB.[10]

EMFAC2021 was run in the default activity mode to generate the total VMT and total vehicle GHG emissions for the San Diego region, including all vehicle model years, classes, and fuel types.[11] This document assumes that the City of San Diego has the same distribution of vehicle types as the San Diego region.

Total estimated VMT, average vehicle emission rates, and corresponding GHG emissions from on-road transportation from 2019 are given in Table 6.

Table 6 VMT, Emission Rate, and GHG Emissions from On-Road Transportation (San Diego, 2019)

| Year	Total VMT (Miles/year)	Average Vehicle Emission Rate (g CO_2e/mile)	GHG Emissions (MT CO_2e)
2019	13,550,575,607	428	5,805,000
GHG emissions for each category are rounded. Values are not rounded in the intermediary steps in the calculation. Energy Policy Initiatives Center 2021.			

3.2.2   Electricity

Emissions from electricity in City of San Diego were estimated using the Built Environment (BE.2) method from the U.S. Community Protocol, by multiplying electricity use by the City-specific electricity emission factor in 2019.[12]

Annual metered electricity sales data within the City were provided by the local utility, San Diego Gas & Electric (SDG&E).[13] The electricity sales data do not include the electricity sales to San Diego County Regional Airport Authority, San Diego Unified Port District, and the military. The electricity sales were then adjusted by 1) a loss factor[14] of 1.07[15] to account for transmission and distribution losses; and 2) subtracting electricity use associated with moving water within the City limits, which is allocated to the water category emissions. The adjusted net energy for load (electricity sales + losses) is provided in Table 7.

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[10] CARB: EMission FACtors model, EMFAC2021 v1.0.1, downloaded on August 30, 2021. EMFAC2021 is the most recent model as of October 2021.

[11] *Id.*

[12] ICLEI – Local Governments for Sustainability USA: U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, Version 1.0 (2012), Appendix C: Built Environment Emission Activities and Sources.

[13] 2017–2019 metered electricity sales were provided to EPIC by SDG&E (August 18, 2020).

[14] The transmission and distribution loss factor is used to scale end-use demand or retail sales to produce net energy for load. L. Wong, *A Review of Transmission Losses In Planning Studies*, CEC Staff Paper (August 2011).

[15] California Energy Commission (CEC): *California Energy Demand 2015–2025 Final Forecast Mid-Case Final Baseline Demand Forecast Forms*, SDG&E Mid. The transmission and distribution loss factor is calculated based on the ratio of net energy for load (total sales + net losses) and total sales from SDG&E Form 1.2 Mid.

For a given year, the City-specific electricity emission factor, expressed in pounds of CO_2e per megawatt-hour (lbs CO_2e/MWh), is estimated based on the specific power mix of bundled power[16] and Direct Access (DA) power[17] in the City and their respective emission factors.

The SDG&E bundled emission factors are calculated using Federal Energy Regulatory Commission (FERC) Form 1[18] data, the California Energy Commission (CEC) Power Source Disclosure (PSD) Program[19] data on SDG&E-owned and purchased power, and U.S. EPA Emissions and Generating Resource Integrated Database (eGRID) 2019 Edition[20] on specific power plant emissions. The 2019 SDG&E bundled emission factor calculated using the sources above is 633 lbs CO_2e/MWh, with 31% eligible renewable. The DA emission factor, 836 lbs CO_2e/MWh, is based on California Public Utilities Commission (CPUC) Decision D.14-12-037.[21] The City-specific electricity emission factors are provided in Table 7.

Emissions are calculated by multiplying the adjusted net energy for load (electricity sales + losses) and the corresponding City-specific electricity emission factor. The net energy for San Diego's load (electricity sales + losses), electricity emission factors, and corresponding GHG emissions from the electricity category for 2019 are shown in Table 7.

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[16] SDG&E bundled power includes the electricity from SDG&E-owned power plants and the electricity from its net procurements.

[17] Direct Access refers to electricity that customers purchase from non-SDG&E electric service providers (ESPs), but SDG&E still provides transmission and distribution services. See SDG&E Direct Access Program.

[18] FERC: Form 1 – Electric Utility Annual Report.

[19] CEC: Power Source Disclosure Program under Senate Bill 1305. The SDG&E annual power source disclosure reports in 2019 were provided to EPIC by CEC staff. SDG&E 2019 Power Content Label, version October 2020. The CEC PSD Program, under the requirements of Assembly Bill (AB) 1110 (Ting, Chapter 656, Statutes of 2016), requires retail electric providers to disclose GHG emissions intensity (i.e., electricity emission factor) and unbundled renewable energy credits, starting in 2021 for 2020 procurements. Starting in 2021, the GHG emissions intensity reported by retail electric providers for the PSD Program will be used directly to calculate GHG emissions from the electricity category.

[20] U.S. EPA. eGRID 2019 Edition, released on February 23, 2021.

[21] CPUC: Decision 14-12-037, December 18, 2014 in Rulemaking 11-03-012 (filed March 24, 2011). The recommended emission factor is 0.379 MT CO_2e/MWh (836 lbs CO_2e/MWh). The recommended emission factor has not changed since 2014. All electric service suppliers must meet the Renewables Portfolio Standards in the target years.

Energy Policy Initiatives Center (EPIC)

Table 7 Net Energy for Load, Emission Factor, and GHG Emissions from Electricity Category (San Diego, 2019)

Year	Net Energy for Load (electricity sales + losses)[1] (MWh)	City-Specific Emission Factor (lbs CO_2e/MWh)[2]	GHG Emissions (MT CO_2e)
2019	7,795,981	671	2,375,000

[1]The net energy for load does not include the net energy for load from San Diego County Regional Airport Authority, San Diego Unified Port District, and the military.
[2]City-Specific emission factors are for City of San Diego only and do not represent the emission factors of SDG&E bundled electricity or of other jurisdictions in the San Diego region.

GHG emissions for each category are rounded. Values are not rounded in the intermediary steps in the calculation.

Energy Policy Initiatives Center 2021.

3.2.3   Natural Gas

Emissions from natural gas use in San Diego were estimated using method Built Environment (BE.1) from the U.S. Community Protocol, by multiplying the natural gas use (the activity) and the natural gas emission factor in 2019.[22]

Annual natural gas sales were provided by SDG&E, broken down by residential, commercial and industrial customer class.[23] The natural gas sales data do not include the sales to San Diego County Regional Airport Authority, San Diego Unified Port District, and the military. The natural gas emission factor is based on the heat content of the fuel and the fuel's CO_2, CH_4, and N_2O emissions. The heat content of fuel and the emissions from CO_2, CH_4, and N_2O were based on the CARB statewide inventory.[24]

To estimate emissions from the combustion of natural gas, end-use was multiplied by the emission factor. The total natural gas end-use and corresponding GHG emissions from the natural gas category for 2019 are given in Table 8.

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[22] ICLEI– Local Governments for Sustainability USA: U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, Version 1.0 (2012), Appendix C: Built Environment Emission Activities and Sources.
[23] 2017–2019 metered natural gas sales were provided by SDG&E to EPIC (August 18, 2020).
[24] CARB: GHG Current California Emission Inventory Data.

Table 8 Natural Gas End-Use and GHG Emissions from Natural Gas Category (San Diego, 2019)

Year	Natural Gas End-Use (Million Therms)	Natural Gas Emission Factor (Million MT CO₂e/Million Therms)	GHG Emissions (MT CO₂e)
2019	351	0.00545	1,911,000

The natural gas sales do not include the sales to San Diego County Regional Airport Authority, San Diego Unified Port District, and the military.

GHG emissions for each category are rounded to the nearest thousand. Values are not rounded in the intermediary steps in the calculation.

SDG&E 2020, Energy Policy Initiatives Center 2021.

3.2.4 Solid Waste

Emissions from the decomposition of organic material in waste disposed at landfills were estimated using method Solid Waste (SW.4) from the U.S. Community Protocol, by multiplying the amount of waste disposed by the City in 2019 and an emission factor for mixed solid waste.[25] This represents the immediate and all future emissions from decay of this waste.

Solid waste disposal is the waste disposed by the City in landfills, regardless of whether the landfills accepting the waste are located inside or outside of the City boundary. The majority of the waste from the City is disposed at West Miramar Sanitary Landfill, Otay Landfill, and Sycamore Landfill.[26] The total and per-capita solid waste disposal are given in Table 10.[27]

The emission factor of mixed solid waste depends on the percentage of each waste type within the waste stream disposed in a landfill. The City of San Diego's 2012–2013 Waste Characterization Study, conducted at Miramar Landfill, was used as a proxy for San Diego's solid waste composition.[28] Only the CH_4 emissions from waste degradation are considered non-biogenic and included in this category. The CO_2 emissions from waste degradation are considered biogenic and not included in this category.

The EPA Waste Reduction Model (WARM) is used to determine the emission factor of each waste type. WARM is a life-cycle GHG model to assess and compare waste management options (e.g., landfilling, recycling, source reduction, composting), through the life-cycle of waste materials (from material extraction to disposal). However, under the U.S Community Protocol, only emissions from the disposal and associated degradation of waste are included. Therefore, only the landfill emission factors in EPA WARM are used in the calculation. WARM reports the landfill CH_4 emission factor of each waste material in MT CO₂e/short ton, with and without Landfill Gas (LFG) recovery.

The mixed solid waste emission factor is given in Table 9. The landfill emission factors without LFG recovery are identified here; and the LFG recovery is applied later.

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[25] ICLEI – Local Governments for Sustainability USA: U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, Version 1.0 (2012), Appendix E: Solid Waste Emission Activities and Sources.
[26] CalRecycle: Disposal Reporting System (DRS): Jurisdiction Disposal and Alternative Daily Cover (ADC) Tons by Facility.
[27] 2019 waste disposal was downloaded from CalRecycle, Disposal Reporting System (DRS): Jurisdiction Disposal and Alternative Daily Cover (ADC) Tons by Facility, accessed September 8, 2020.
[28] City of San Diego: Waste Characterization Study 2012–2013 Final Report (2014), accessed November 04, 2019.

Table 9 Mixed Solid Waste Emission Factor

Waste Component	Waste Distribution (%)[1]	Landfill Gas Emission Factors	
		CH$_4$ without Landfill Gas Recovery (MT CO$_2$e/short ton disposed)	Source[2]
Paper	16.8%		
Corrugated Containers/Cardboard	*5.0%*	2.36	Exhibit 3-27, WARM v15 Containers /Packaging
Newspaper	*0.8%*	0.94	Exhibit 3-27, WARM v15 Containers /Packaging
Magazine	*0.6%*	1.08	Exhibit 3-27, WARM v15 Containers /Packaging
Mixed Paper (general)	*10.4%*	2.14	Exhibit 3-27, WARM v15 Containers /Packaging
Plastic	8.9%	0	-
Glass	1.7%	0	-
Metal	3.5%	0	-
Organics	38.9%		
Food	*15%*	1.62	Exhibit 1-49, WARM V15 Organic Materials
Tree (Branches)	*5.3%*	1.3	Exhibit 2-13 WARM V15 Organic Materials
Leaves and Grass	*6.8%*	0.59 (leaves)	Exhibit 2-13 WARM V15 Organic Materials
Trimmings	*3.5%*	0.73	Exhibit 2-13 WARM V15 Organic Materials
Mixed Organics	*8.3%*	0.53	Exhibit 1-48 WARM V15 Organic Materials
Electronics	0.6%	0	-
Construction & Demolition	24.6%	0	-
Household Hazardous Waste	0.2%	0	-
Special Waste	3.1%	0	-
Mixed Residue	1.6%	0.53	
Mixed Waste Emission Factor		**0.785**	
Source: [1] City of San Diego 2014. [2]EPA Waste Reduction Model (WARM) Version 15 (May 2019)			

The mixed waste emission factor given in Table 9 is the emission factor without landfill gas collection. The 75% default capture rate of CH$_4$ emissions from landfills, from the U.S. Community Protocol, is applied in the emissions calculation. The total and per-capita solid waste disposal and the corresponding GHG emissions for 2019 are given in Table 10.

Table 10 Solid Waste Disposal and GHG Emissions from Solid Waste Category (San Diego, 2019)

Year	Solid Waste Disposed			GHG Emission Factor (MT CO_2e/Short Ton)	Oxidation Rate[2]	Total GHG Emissions (MT CO_2e)	Default CH_4 Capture Rate	Remaining Emissions (MT CO_2e)
	City-wide (Short Tons/Year)	City-wide (MT/Year)	Per Capita Solid Waste Disposal (kg/person/day)[1]					
2019	1,569,447	1,423,779	2.7	0.785	10%	1,108,249	75%	277,000

GHG emissions for each category are rounded. Values are not rounded in the intermediary steps in the calculation.
[1] Informational, based on total waste disposal and population estimates.
[2] The oxidation rate is the default amount of methane that is oxidized and not emitted, therefore only 90% of total methane emissions are produced.
Energy Policy Initiatives Center 2020.

3.2.5   Water

Emissions from water use in a jurisdiction result from the energy required to move water from origin sources to end-use customers, including upstream supply and conveyance, water treatment, and water distribution, as shown in Figure 3. The energy required to move water is primarily electricity but may include natural gas or other fuels.

California Energy Commission, 2005
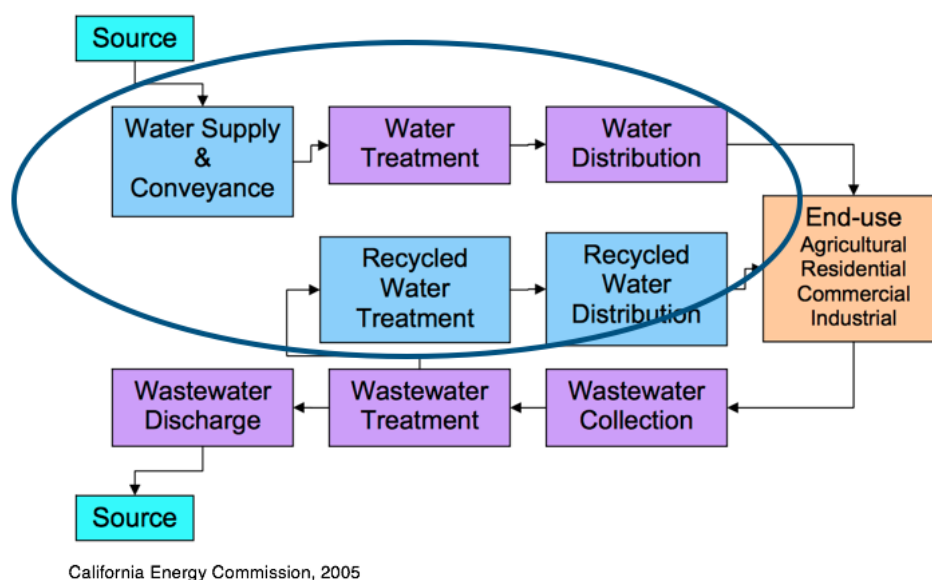
Figure 3 Segments of the Water Cycle

Emissions from water were estimated using the method Wastewater and Water (WW.14) from the U.S. Community Protocol.[29] Emissions associated with water end-use, such as water heating and cooling, are included in the electricity and natural gas category, not in this water category, as data are not available to separate out those values.

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[29] ICLEI – Local Governments for Sustainability USA: U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, Version 1.0 (2012), Appendix F: Wastewater and Water Emission Activities and Sources.

Energy Policy Initiatives Center (EPIC)

The City of San Diego is one of the member agencies of the water wholesaler in the San Diego region, the San Diego County Water Authority (SDCWA). The City of San Diego delivers potable and recycled water within the City boundary, and also sells water to or treats water for neighboring water agencies and cities, such as the City of Del Mar and the California American Water Company (CalAm).[30]

The potable water supply sources for the City of San Diego include: 1) imported untreated water from SDCWA; 2) imported treated water from SDCWA; 3) surface water from local reservoirs; and 4) groundwater from the Santee-El Monte Basin.[31] Recycled water is produced at the City's North City Water Reclamation Plant (North City WRP) and South Bay Water Reclamation Plant (South Bay WRP) and is used for non-potable use, such as landscape irrigation.

The potable water supplied within City of San Diego (excluding sales to other water agencies) and the percentage of water from each source, and the recycled water are given in Table 11.[32]

Table 11 Water Supplied and Supply Source (San Diego, 2019)

Year	Potable Water Supplied					Recycled Water Supplied (Acre-Feet)
	Imported SDCWA Treated	Imported SDCWA Untreated	Local Surface Reservoir	Local Groundwater Basin	Potable Water Supplied (Acre-Feet)	
2019	10%	77%	14%	0.1%	161,472	7,999
Percentages may not add up to totals due to rounding. Potable water supplied (acre-feet) is the City of San Diego's water production excluding sales to other water agencies. City of San Diego 2020, Energy Policy Initiatives Center 2020.						

The energy used to produce and distribute water from each source is different due to the different raw source type and its location. The energy intensity of water, or the energy needed to move one unit of water through each segment of the water-use cycle (water supply and conveyance, water treatment, and water distribution) individually, expressed in kWh per acre foot (kWh/Acre-foot), are described below.

Upstream Supply and Conveyance – This is defined as supply and conveyance of water from the raw sources to the local service area. The upstream supply and conveyance energy use for SDCWA untreated water consists of conveyance of water from the State Water Project and the Colorado River through Metropolitan Water District (MWD)'s and SDCWA's service area. The upstream supply and conveyance energy use for SDCWA treated water consists of that associated with SDCWA untreated water and the

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[30] California American Water Company (CalAm)'s service area in San Diego region includes Cities of Imperial Beach and Coronado, and portions of the City of Chula Vista. California American Water: 2015 Urban Water Management Plan, Southern Division – San Diego County District (2016).

[31] City of San Diego, 2015 Urban Water Management Plan, Section 6 System Water Supplies (2016).

[32] Recycled water sales, water production at each of City's water treatment plants (WTPs) from each water source and sales to other agencies (City of Del Mar and CalAm) were provided by City of San Diego from 2017 to 2019. Water sales to City of Del Mar is from the imported raw water treated in City of San Diego's WTPs. The water sales to CalAm (excluding CalAm's service area in City of San Diego's South Bay area) is from local water treated in WTPs. Recycled water was produced at the City's North City Water Reclamation Plant and provided to City customers only.

water treatment energy use before the water is delivered to City of San Diego's service area. The water may be treated at MWD or SDCWA's water treatment plants (WTPs).[33]

Water suppliers have begun to voluntarily report the energy intensity in their service areas in Urban Water Management Plans (UWMPs). SDCWA's and MWD's 2015 UWMP voluntary energy intensity reporting are used to calculate the upstream supply energy intensity for SDCWA's member agencies. The energy intensity is based on the average of fiscal years 2013 and 2014 is shown in Table 12.

Table 12 Components of Average Upstream Energy Intensity for SDCWA Member Agencies

Water System Segment	FY 2013 and 2014 Average Energy Intensity (kWh/Acre-Foot)	Data Source
MWD delivered untreated*	1,817	MWD UWMP 2015 Appendix 9
SDCWA conveyance**	-62	SDCWA UWMP 2015 Appendix K
SDCWA Untreated Subtotal	**1,755**	
SDCWA treatment	60	SDCWA UWMP 2015 Appendix K
SDCWA distribution***	1.1	SDCWA UWMP 2015 Appendix K
SDCWA Treated Total	**1,816**	

MWD - Metropolitan Water District, SDCWA – San Diego County Water Authority, UWMP - Urban Water Management Plan.
*Includes conveyance from the State Water Project & Colorado River water to MWD's distribution system, and distribution from MWD to MWD's member agencies.
**Conveyance of raw water supplies to the water treatment plants or to member agency connections (negative value means hydro-electric generation by SDCWA).
*** Distribution of treated water from SDCWA's Twin Oaks Water Treatment Plant to SDCWA's member agencies.
 "Upstream" refers to moving water from the original source to SDCWA's member agency's service area or first connection point
MWD 2016, SDCWA 2016, Energy Policy Initiatives Center 2018.

Local Supply and Conveyance – This is defined as supply and conveyance of local surface and groundwater within the water agency service area to water treatment plants, such as pumping water from local surface water reservoirs to nearby water treatment plants. Due to the way data is provided, the local supply and conveyance energy intensity is combined with local water treatment energy intensity.

Local Potable Water Treatment – This is the energy used for water treatment plant operations. The energy intensity depends on the source water quality, the treatment level, and capacity and efficiency of the associated water treatment plant (WTP). City of San Diego owns three WTPs: Alvarado, Miramar and Otay WTP that treat raw water to potable levels. The WTPs treat both imported untreated SDCWA water and local water. Both Alvarado and Otay WTP have on-site behind-the-meter PV systems. The PV systems are connected with the raw water pump stations at Alvarado and Otay WTP that pump water to and from the WTPs to the nearby reservoirs. Because the water conveyance and treatment operations are connected, the local water conveyance and treatment energy intensity are combined and given in Table 13.

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[33] SDCWA 2016: Urban Water Management Plan 2015, Metropolitan Water District of Southern California, Urban Water Management Plan 2015.

Table 13 Local Water Conveyance and Treatment Energy Intensity (San Diego, 2019)

Combined Miramar, Otay and Alvarado WTPs	2019	Description
Water Treated (Acre-Feet)	152,586	Total water treated at three WTPs
Total Treatment + Conveyance Energy Use (kWh)	11,519,163	Total electricity consumption including treatment plant operation, lake pump stations and electricity generated at Alvarado and Otay on-site PV systems
Total Treatment + Conveyance Energy Intensity (kWh/Acre-Foot)	75	Total energy Intensity (total electricity divided by water treated)
Solar Production (kWh)	2,272,785	Annual electricity generated Alvarado and Otay on-site PV systems
Net Treatment + Conveyance Energy Use (kWh)	9,255,955	Net electricity purchase from the grid (SDG&E). Total electricity consumption minus solar production.
Net Treatment + Conveyance Energy Intensity (kWh/Acre-Foot)	**61**	**Net Energy Intensity (net energy divided by water treated)**
WTP – Water Treatment Plant. The energy intensities are the average of all three City of San Diego WTPs, do not represent the energy intensity of each individual WTP. City of San Diego 2020, Energy Policy Initiatives Center 2020.		

Local Potable Water Distribution – This is defined as the energy required to move treated water from water treatment plants to end-use customers. Distribution energy use includes energy use for water pump stations and/or pressure reduction stations, water storage tanks, etc. Local distribution energy intensity depends on the service area's geological conditions, such as the elevation the water is pumped to/from, the pump station's energy efficiency, and whether a pump station is offline for maintenance or repair, which would cause water to be pumped to other pressure zones and rerouted back. The City of San Diego's water service area has some areas with gravity-fed system (no energy needed) and some areas that need water pumping. The citywide water distribution energy intensity is given in Table 14.

Table 14 Local Water Distribution Energy Intensity (San Diego, 2019)

Citywide Water Distribution	2019	Description
Total Water Moved (Acre-Feet)	168,014	Total City of San Diego water production from all water sources (including sales to other water agencies)
Distribution Pump Stations Energy Use (kWh)	25,340,506	Electricity use at water pump stations excluding lake pump stations
Water Distribution Energy Intensity (kWh/Acre-Foot)	**151**	**Citywide water distribution energy intensity**
The energy intensities are the citywide water distribution system energy intensities, do not represent the energy intensity of a specific area or pressure zone within the City. City of San Diego 2020, Energy Policy Initiatives Center 2020.		

<u>Local Recycled Treatment and Distribution</u> – This is energy required to treat recycled water (tertiary treatment, in addition to conventional wastewater treatment) and deliver it to end-use customers. In the City, the recycled water is delivered to customers in purple pipes, separated from the potable water distribution system. The recycled water energy intensity from the City's 2015 UWMP voluntary reporting, 38 kWh/Acre-Foot, is used for all years.[34] The intensity includes energy use for tertiary treatment at WRPs and for recycled water distribution.

To convert the energy intensity of water to GHG emissions per unit of water, the electricity emission factor associated with the energy use is applied. For upstream energy use, a California-wide average emission factor from EPA eGRID is applied. [35] For local energy use, including potable water conveyance and treatment, distribution, and recycled water treatment and distribution, SDG&E's bundled electricity emission factor is applied because SDG&E is the electricity supplier. The electricity emission factors are given in Table 15.

Table 15 Electricity Emission Factors for Water-Energy Intensities

Year	Electricity Emission Factors for Water-Energy Intensities (lbs CO_2e/MWh)	
	Upstream (WECC-California from eGRID)	Local (SDG&E)[1]
2019	530	633

[1]SDG&E bundled emission factor is different from City-specific electricity emission factor, which is based on percentages of electricity sales to SDG&E bundled and DA customers, SDG&E and DA emission factors.

EPA 2021, Energy Policy Initiatives Center 2021

For upstream supply and conveyance emissions, the volume of water from SDCWA (treated and untreated) was multiplied by the upstream energy intensities (Table 12) and the upstream electricity emission factor (Table 15). Because the electricity use and GHG emissions associated with upstream supply and conveyance are outside the City boundary and would not be included in the electricity category, they are accounted for in the water category.

For local conveyance and treatment emissions, the volume of water treated at three WTPs and delivered within the City (excluding sales to other agencies) was multiplied by the net water treatment energy intensity (Table 13) and local SDG&E's electricity emission factor (Table 15). Because WTPs are located within San Diego, the electricity use associated with water treatment is included in the electricity category for San Diego. Therefore, electricity and GHG emissions associated with water treatment occur within the City boundary and have been subtracted from the electricity category, as they are accounted for in the water category.

For local water distribution emissions, total water within the City (excluding sales to other agencies) was multiplied by the water distribution energy intensity (Table 14) and local SDG&E's electricity emission factor (Table 15). Electricity and GHG emissions associated with water distribution occur within the City

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[34] City of San Diego, 2015 Urban Water Management Plan, Table 10-4 Energy Intensity for Wastewater and Recycled Water.
[35] The Western Electricity Coordinating Council (WECC) CAMX (eGRID Subregion) emission rate (530 lbs CO_2e/MWh) from eGRID was used as representative of the average California electricity emission rate for upstream electricity. U.S. EPA. eGRID 2016 Edition. Released February 15, 2018, accessed June 29, 2018.

boundary and have been subtracted from the electricity category, as they are accounted for in the water category.

For recycled water treatment and distribution emissions, total recycled water supplied was multiplied by the recycled water energy intensity (38 kWh/Acre-Foot, Table 14) and local SDG&E's electricity emission factor (Table 15). Electricity and GHG emissions associated with recycled water treatment and distribution occur within the City boundary and have been subtracted from the electricity category, as they are accounted for in the water category.

In 2019, 88% of the GHG emissions in the water category were from upstream supply and conveyance. The breakdown of emissions for the water category is given in Figure 4.

Energy Policy Initiatives Center 2020
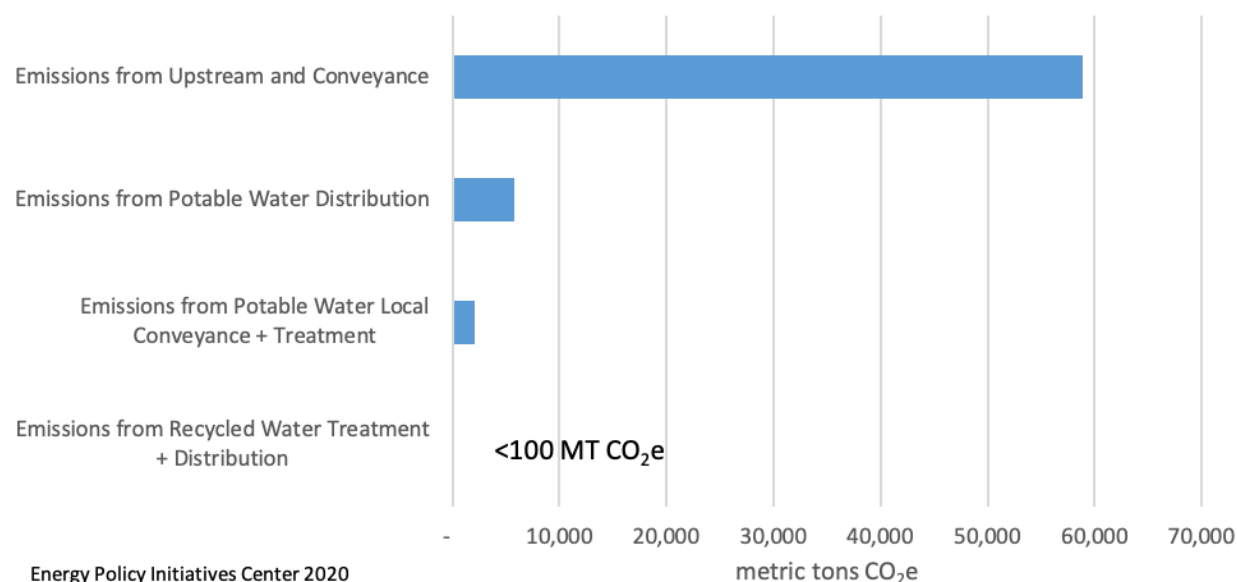
Figure 4 Emissions from the Water Category by Water System Segment (San Diego, 2019)

The total potable and recycled water supplied and the corresponding GHG emissions from the water category in 2019 are given Table 16.

Table 16 Water Supplied and GHG Emissions from the Water Category (San Diego, 2019)

Year	Potable Water Supplied (Acre-Feet)	Potable Water GHG Intensity (MT CO$_2$e/Acre-Foot)	Recycled Water Supplied (Acre-Feet)	Recycled Water GHG Intensity (MT CO$_2$e/Acre-Foot)	GHG Emissions (MT CO$_2$e)
2019	161,472	0.41	7,999	0.01	68,000
GHG emissions for each category are rounded to the nearest thousands. Values are not rounded in the intermediary steps in the calculation. Energy Policy Initiatives Center 2021.					

3.2.6   Wastewater

The emissions from wastewater generated by San Diego were estimated by multiplying the total amount of wastewater generated in 2019 and the emission factor of the wastewater treatment processes. Unlike the water category, in which the GHG emissions result from the energy used to move and treat

water, wastewater-related GHG emissions include only "*process, stationary and fugitive GHG emissions,*" as described in U.S Community Protocol "WW.1 – WW.14."[36]

Wastewater generated in the City of San Diego is conveyed to the City of San Diego Metropolitan Sewerage System (Metro System). The Metro System collects and treats wastewater from 12 partner agencies. Wastewater collected by the Metro System is treated at one of the three wastewater treatment plants (WWTPs): Point Loma WWTP, North City WRP, and South Bay WRP.[37]

It is assumed the percentage of City of San Diego's wastewater treated at each WWTP is the same as that of the entire Metro System. The City's wastewater generation and the percentage treated at each WWTP are given in Table 17.

Table 17 City of San Diego Wastewater Generation (San Diego, 2019)

Year	% of Wastewater Treated at Each WWTP			Wastewater Flow to Metro System	
	Point Loma WWTP	South Bay WRP	North City WRP	Average Million Gallons per Day (MGD)	Million Gallons per Year
2019	86%	4%	10%	105	38,241
Sum may not add up to totals due to rounding. WWTP – wastewater treatment plant; WRP – water reclamation plant. City of San Diego 2020, Energy Policy Initiatives Center 2021.					

Point Loma WWTP and North City WRP both report plant operation GHG emissions to CARB under the Mandatory GHG Reporting Regulation (MRR) program.[38] The reported GHG emissions include three components: (1) direct CO_2 from combustion of anaerobic digester gas; (2) CH_4 and N_2O emissions from digester gas combustion; and (3) operational fossil fuel emissions assuming complete combustion. The direct CO_2 from combustion of anaerobic digester gas is considered biogenic, while the other two components of CO_2 emissions are considered non-biogenic emissions.

The wastewater treatment emission factor (MT CO_2e/million gallons) at Point Loma WWTP and North City WRF are calculated by dividing the reported GHG emissions by the plants' wastewater flows, as shown in Table 18.[39]

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[36] ICLEI – Local Governments for Sustainability USA: U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, Version 1.0 (2012), Appendix F: Wastewater and Water Emission Activities and Sources.

[37] City of San Diego, 2015 Urban Water Management Plan, Section 3 Description of Existing Water System. Some of the North City WRP's flow (non-tertiary flow) is conveyed to Point Loma WWTP for discharge.

[38] CARB: Mandatory GHG Reporting – Reported Emissions. CARB MRR uses 21 as the CH_4 GWP, therefore the CO_2e for CH_4 in this report is recalculated using 25 as the CH_4 GWP to be consistent with other categories in the inventory.

[39] Point Loma WWTP and North City WRP GHG Reports and the wastewater flow into each facility were provided by City of San Diego in August 2017 and July 2018.

Table 18 Emission Factors at Wastewater Treatment Plant (San Diego, 2019)

Year	Point Loma WWTP			North City WRP		
	Annual Flow (million gallons)	GHG Emissions (MT CO$_2$e)	Wastewater Emission Factor (MT CO$_2$e/million gallon)	Annual Flow (million gallons)	GHG Emissions (MT CO$_2$e)	Wastewater Emission Factor (MT CO$_2$e/million gallon)
2019	52,571	15,483	0.30	5,905	17,733	3.00
WWTP – wastewater treatment plant; WRP – water reclamation plant. On average 99% of the emissions from Point Loma WWTP and 98% of emissions from North City WRP are biogenic. City of San Diego 2020, Energy Policy Initiatives Center 2020.						

For the GHG emissions calculation, the wastewater emission factor derived from Point Loma WWTP was applied to the wastewater flow into Point Loma WWTP and the emission factor derived from North City WRP was applied to the flow into both North City WRP and South Bay WRP. The total wastewater flow, the citywide weighted average wastewater emission factors, as well as the corresponding GHG emissions are given in Table 19.

Table 19 Wastewater Generated and GHG Emissions from Wastewater Category (San Diego, 2019)

Year	Total Wastewater Generated (Million Gallons/year)	Wastewater Emission Factor[1] (MT CO$_2$e/ Million Gallon)	GHG Emissions (MT CO$_2$e)
2019	38,241	0.67	26,000
[1]Weighted average emission factor of wastewater treated at three wastewater treatment plants in City of San Diego. GHG emissions for each category are rounded to the nearest thousand. Values are not rounded in the intermediary steps in the calculation. Energy Policy Initiatives Center 2020.			

4   BUSINESS-AS-USUAL EMISSIONS PROJECTION

To inform the development of GHG reduction strategies within the CAP, GHG emissions are projected using the baseline year GHG inventory, as well as estimates for population, housing, and job growth. This is used to develop a BAU projection, which demonstrates emissions growth in the absence of any new policies and programs. Next, future emissions reduction expected from baseline year adopted federal and State policies and programs are applied, creating a legislatively-adjusted BAU. Figure 5 provides an illustrative example of the difference between a BAU and a legislatively-adjusted BAU.
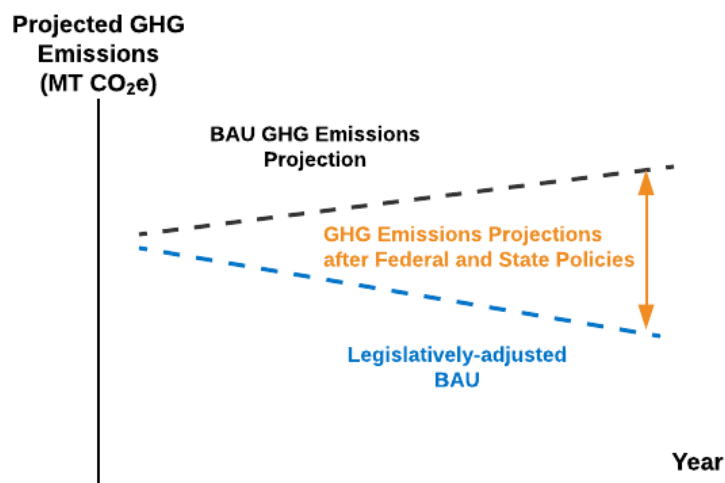
Energy Policy Initiatives Center, 2018

Figure 5 Illustrative Example Only: BAU and Legislatively-adjusted BAU Emissions Projections

The total and distribution of projected emissions by category are presented in Table 20.

Table 20 Projected Total and Category-GHG Emissions (San Diego 2030, 2035 and 2050)

Year	Business-as-usual GHG Emissions Projections (MT CO_2e)						
	On-Road Transportation	Electricity	Natural Gas	Solid Waste	Water	Wastewater	Total
2030	5,384,000	2,619,000	2,113,000	303,000	75,000	28,000	10,522,000
2035	5,555,000	2,738,000	2,211,000	312,000	77,000	29,000	10,922,000
2050	5,908,000	2,960,000	2,389,000	321,000	79,000	30,000	11,687,000
Sum may not add up to totals due to rounding. Projected GHG emissions for each category are round. Values are not rounded in the intermediary steps in the calculation. Energy Policy Initiatives Center 2021							

The methods used to project activity level and emission factors in each category are described in Table 21 below.

Table 21 Method to Project Business-as-usual Emissions

Emissions Category	Activity	Method to Project Activity Level	Emission Factor	Method to Project Emission Factor
On-Road Transportation	VMT	Service Population Increase	Average Vehicle Emission Rate	All new vehicles have the same emission rate as new vehicles in baseline year
Electricity	Net Energy for Load	Residential: Population Increase Non-Residential: Jobs Increase	City-specific Emission Factor	Fixed at baseline year emission factor
Natural Gas	Natural Gas end-use	Residential: Population Increase Non-Residential: Jobs Increase	Natural Gas Emission Factor	Fixed at baseline year emission factor
Solid Waste	Waste disposal	Population Increase	Mixed Waste Emission Factor	Fixed at baseline year emission factor
Water	Potable and Recycled Water Supply	Rate of Increase in 2020 Urban Water Management Plan Demand Forecast	Energy Intensity and Electricity Emission Factor	Fixed at baseline year emission factor
Wastewater	Wastewater Generation	Population Increase	Wastewater Emission Factor	Fixed at baseline year emission factor
Method to project business-as-usual emissions only Baseline year is 2019. Population, jobs, and service population are provided in Table 2. Energy Policy Initiatives Center 2021				

5   CLIMATE ACTION PLAN 2030 AND 2035 TARGETS

The CAP has a net-zero GHG emissions by 2035 target. For the interim 2030 target, the CAP uses the science-based target (SBT) based on the Race to Zero initiative. ICLEI developed a per capita SBT, a 63.3% per capita reduction from a recent (2016-2019) baseline year, for U.S. cities following the U.S. Community Protocol.[40] The San Diego CAP utilizes a baseline year of 2019, the most recent inventory year described in Section 3, to calculate its 2030 SBT. Table 22 shows the BAU emissions projections, which represent emissions levels in the absence of any new policies and programs, as well as the 2030 and 2035 target levels.

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[40] Science Based Targets Network: Science-based Climate Targets: A Guide for Cities (November 2020). The ICLEI target is calculated nationwide based on the One Planet City Challenge methodology in page 7.

Energy Policy Initiatives Center (EPIC)

Table 22 Emissions Projections, Targets, and Emissions Reductions Needed

Year	Business-as-usual Projection* (MT CO₂e)	Per Capita Target Emissions Level (MT CO₂e per Capita)	Target Emissions Level (MT CO₂e)
2019 (Baseline)	10,462,000	7.4	-
2030	10,522,000	2.7**	4,194,000
2035	10,922,000	Net-Zero	Net-Zero
Emissions projection are rounded. *Business-as-usual projection without impact of federal, State, regional and CAP actions. **Science-Based Target for 2030 (63.3% reduction from the 2019 per capita emissions) ICLEI 2021, Energy Policy Initiatives Center 2021.			

6   SUMMARY OF EMISSIONS REDUCTION ESTIMATES

This section summarizes the GHG emissions reductions from reaching the goals identified for each strategy and measure included in the San Diego CAP. Table 23 below presents a summary of emissions reductions from the five strategies in the San Diego CAP, as well as the reductions from federal, State, and regional actions.

Table 23 Summary of 2030 and 2035 GHG Emissions Reduction Amounts by Strategy in the San Diego CAP

All Regulations and CAP Strategies	Emissions Reductions (MT CO₂e)	
	2030	**2035**
Strategy 1: Decarbonization of the Built Environment	1,012,000	2,056,000
Strategy 2: Clean & Renewable Energy	1,065,000	1,205,000
Strategy 3: Mobility & Land Use	767,000	1,199,000
Strategy 4: Circular Economy	242,000	305,000
Strategy 5: Resilient Infrastructure and Ecosystems	93,000	122,000
Reduction from Regional Actions	538,000	660,000
Total Reduction from Federal and State Regulations	2,297,000	3,228,000
Total Reduction (Federal, State, Regional and CAP Strategies)*	6,014,000	8,774,000
*Total emissions reduction values in 2030 and 2035 are rounded. Energy Policy Initiatives Center 2021		

Each strategy has several measures. Table 24 presents a detailed summary of the emissions reductions from each CAP measure and from each federal and State action.

Table 24 Summary of 2030 and 2035 GHG Emissions Reductions from Measures in San Diego CAP

CAP Strategies	Federal and State Regulations and CAP Measures	Emissions Reductions (MT CO₂e)	
		2030	**2035**
Strategy 1: Decarbonization	Measure 1.1 Decarbonize Existing Buildings	931,661	1,915,290
	Measure 1.2 Decarbonize New Development	65,329	108,559

21

CAP Strategies	Federal and State Regulations and CAP Measures	Emissions Reductions (MT CO$_2$e)	
		2030	**2035**
of the Built Environment	Measure 1.3 Decarbonize City Facilities	15,149	32,639
Strategy 2: Clean & Renewable Energy	Measure 2.1: Citywide Renewable Energy Generation	687,677	521,231
	Measure 2.2: Increase Municipal Zero Emissions Vehicles	11,042	15,990
	Measure 2.3: Increase Electric Vehicle Adoption	366,481	667,458
Strategy 3: Mobility & Land Use	Measure 3.1: Safe and Enjoyable Routes for Pedestrians and Cyclists	79,722	115,315
	Measure 3.2: Increase Safe, Convenient, and Enjoyable Transit Use	162,866	234,351
	Measure 3.3: Increase Telecommuting	181,205	242,177
	Measure 3.4: Reduce Traffic Congestion to Improve Air Quality and Trip Length	1,519	2,037
	Measure 3.5: Climate-Focused Land Use	341,724	605,185
	Measure 3.6: Vehicle Management		
Strategy 4: Circular Economy	Measure 4.1: Changes to the Waste System	215,268	277,305
	Measure 4.2: Municipal Waste Reduction		
	Measure 4.3: Local Food System & Food Recovery		
	Measure 4.4: Zero Waste to Landfill		
	Measure 4.5 Capture Methane from Wastewater Treatment Facilities	26,461	27,254
Strategy 5: Resilient Infrastructure and Ecosystems	Measure 5.1 Carbon Sequestration through Restoration	406	812
	Measure 5.2 Increase Tree Canopy	82,806	102,290
	Measure 5.3 Increase Local Water Supply and Reduce Water Dependence	9,910	18,507
Regional Action	SANDAG 2021 Regional Plan Actions	537,519	659,643
Federal and State Regulations	Federal and California Vehicle Efficiency Standards	299,463	683,557
	California Energy Efficiency Programs	260,293	245,825
	Renewables Portfolio Standard	1,343,634	1,840,993
	California Solar Policy, Programs and 2019 Mandates	393,665	457,840
Total Reduction from Federal and State Regulations		2,297,056	3,228,215
Total Reduction from Regional Action		537,519	659,643
Total Reduction from CAP Measures		3,179,227	4,886,400
Total Reduction (Federal, State, Regional, and CAP Measures)*		6,014,000	8,774,000
*Total emissions reduction values in 2030 and 2035 are rounded. Energy Policy Initiatives Center 2021			

Figure 6 provides a visualization of the emissions trend for the CAP horizon year through 2050.
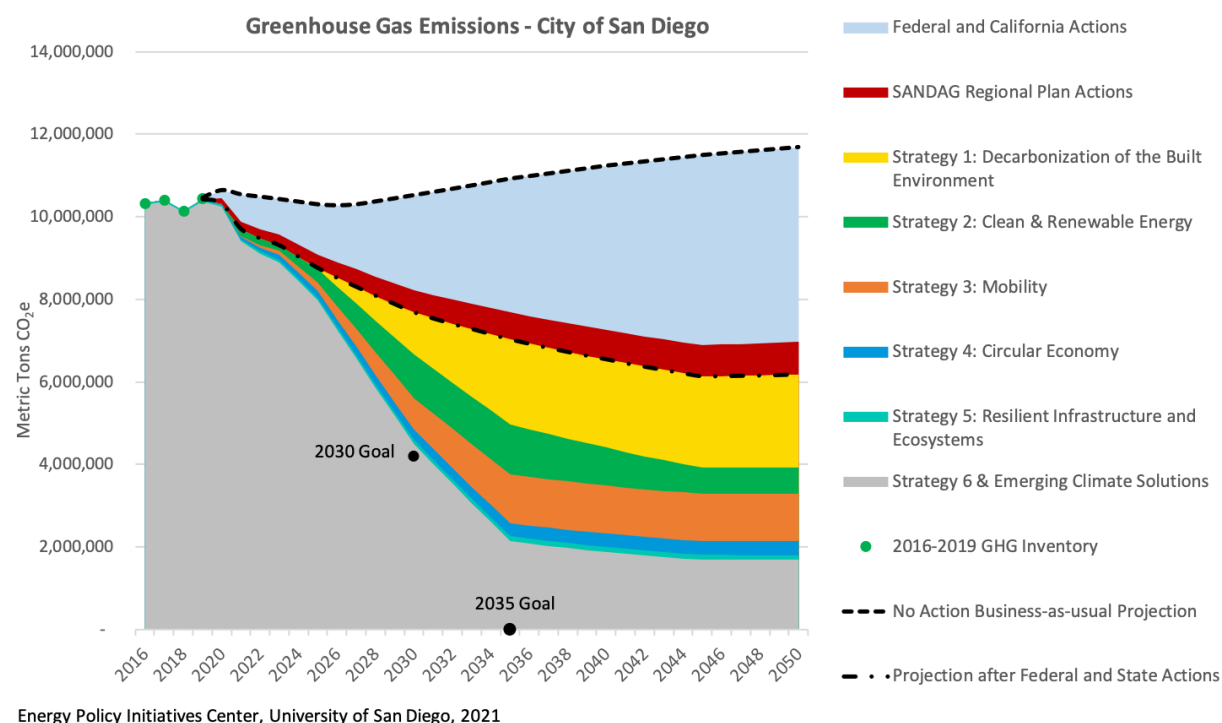
Figure 6 San Diego GHG Emissions Trend (2016-2050)

In Figure 6, the colored wedges represent the reduction from each local CAP strategy and from federal, State, and regional actions. Each wedge represents the cumulative GHG reduction from each strategy from when the strategy is initiated through 2050. The grey area beneath the colored wedges represents the remaining emissions after all the actions have taken place.

7   METHODS TO ESTIMATE GHG EMISSIONS REDUCTIONS

The following sub-sections describe the methods to estimate GHG emissions reductions:

- Section 7.1 to Section 7.3 discusses a set of common assumptions and sources used to calculate emissions reductions in energy and on-road transportation categories:
- Section 7.4 describes the emissions reductions from federal and State actions;
- Section 7.5 describes the emissions reductions from the draft 2021 Regional Plan developed by SANDAG; and
- Section 7.6 describes the emissions reductions from CAP strategies and measures.

7.1   Common Assumptions and Methods for Calculating Electricity Emissions Reductions

The following overall assumptions and methods are used in the calculation of emissions reductions related to electricity, including both those from federal and State actions and CAP measures. Details for the calculation of each action are provided in Sections 7.4 through Section 7.6.

7.1.1 GHG Emission Factor for Electricity

For the purpose of estimating emission reductions, the emission factor for electricity in San Diego is the weighted average emission factor of gross generation from four sources of supply: SDG&E, the electric retail suppliers for SDG&E's DA customers, San Diego Community Power (SDCP), and behind-the-meter photovoltaic (PV) systems. The citywide emission factors are different from the emission factors used in the GHG inventory, described in Section 3, because the electricity generated from behind-the-meter PV systems are assumed to be zero-emissions and not accounted for in the GHG inventory. However, to estimate the effects of State actions and CAP measures that increase the grid-supply of renewable and zero-carbon electricity, all sources are considered. Considering behind-the-meter PV as a source that contributes to the citywide emission factor helps to calculate the effects of energy efficiency programs that may reduce behind-the-meter electricity use, or from additional electric vehicle (EV) charging load, which may come from behind-the-meter electricity sources and not just from grid supply.

The citywide emission factor is calculated based on the percentage of renewable content in, and the percentage of, gross generation from each source of supply as described below. This method is applied to 2019, the baseline year, as well as the target years. As the percentage of renewable and zero-carbon supply in the mix increases, the weighted average emission factor of electricity supply decreases.

7.1.1.1 Supply from SDG&E

As of 2019, SDG&E's bundled power mix is 31% renewable, as described in Section 3.2. It is assumed SDG&E will meet the 33% renewable by 2020, 60% renewable by 2030, and 100% carbon-free by 2045 required by the Renewables Portfolio Standard (RPS) under SB 100 (de León) (Chapter 312, Statutes of 2016).[41] The mandates are discussed in Section 7.4.1.

7.1.1.2 Supply from Electric Retail Suppliers of SDG&E Direct Access Customers

Like SDG&E, electric retail suppliers of SDG&E DA customers are required to meet RPS targets.

7.1.1.3 Supply from San Diego Community Power

SDCP, the Community Choice Energy program launched in 2021, would increase the renewable and zero-carbon electricity beyond the current RPS mandates for target years.

The renewable and zero-carbon content of the program would affect the citywide weighted average emission factor. Because the RPS requires all of California's retail electricity suppliers to meet the RPS requirement, a portion of the emissions reduction from RPS compliance is credited to State actions. The remaining portion of reductions, beyond 60 % in 2030 and beyond 73% in 2035, is attributed to the City under Measure 2.1.

7.1.1.4 Supply from behind-the-meter PV Systems

Electricity generation from behind-the-meter PV systems, including residential and non-residential PV systems, is considered a part of the overall electricity supply. Electricity generation from PV is considered 100% zero-carbon (i.e., GHG-free). The State's solar policies and programs, including the 2019 California Building Energy Efficiency Standards (Title 24, Part 6) residential PV mandates, is discussed in Section 7.4.2.

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[41] SB 100 (de León) California Renewables Portfolio Standard Program: emissions of greenhouse gases (2017–2018). The interim RPS targets are 44% by 2024 and 52% by 2027 from eligible renewable energy resources.

7.1.1.5   Weighted Average GHG Emission Factor for Electricity

The weighted average GHG emission factor for electricity is based on the percentage of gross generation from each previously referenced supply, as well as the percentage of renewable content in each supply.

Table 25 shows the contribution from each supply to gross generation and its renewable and zero-carbon content, as well as the resulting overall citywide annual weighted average emission factors for 2019, 2030, and 2035.

Table 25 2019 and Projected 2030 and 2035 GHG Emission Factor for Electricity in San Diego

Year		2019	2030	2035
San Diego Community Power	% of Gross Generation Supplied	-	65%	65%
	Renewable Content in Supply	-	100%	100%
Other Electric Retail Suppliers	% of Gross Generation Supplied	17%	16%	16%
	Renewable Content in Supply	30%	60%	73%
SDG&E	% of Gross Generation Supplied	74%	3%	3%
	Renewable Content in Supply	31%	60%	73%
Behind-the-meter PV	% of Gross Generation Supplied	8%	15%	15%
	Renewable Content in Supply	100%	100%	100%
Overall Citywide	Citywide Renewable Supply	36%	92%	95%
	Electricity Emission Factor (lbs CO_2e/MWh)	591	73	50
2019 is the latest year with utility data available. The 2019 overall citywide emission factor here is different from the emission factor used in the GHG inventory. 2030 and 2035 data are projections based on CAP assumptions, current status, and future impact of State policies and programs. Energy Policy Initiatives Center 2021				

In 2019, SDG&E and other electric retail suppliers supplied accounted for 91% of the gross generation, and behind-the-meter PV systems supplied the remainder. In 2030, the projected electricity supply from behind-the-meter PV systems is estimated to be 15% of gross generation. To comply with the 2030 RPS target, the renewable content in the supply of both SDG&E and other electric retail suppliers will increase to 60%; this Appendix assumes the renewable supply is fixed at the RPS mandate level to avoid overestimating the emissions reductions from their renewable supplies. For SDCP, it is assumed to have 100% renewable and zero-carbon sources in 2030.[42] Based on these supply contributions, the citywide annual weighted electricity emission factor in 2030 is projected to be 73 lbs CO_2e/MWh (92% renewable).[43] Using the same method, the projected overall citywide electricity emission factor in 2035 would be 50 lbs CO_2e/MWh (95% renewable).

These annual weighted citywide electricity emission factors are used to calculate the GHG reductions from State action and CAP measures that increasing renewable supply.

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[42] SDCP: Community Choice Aggregation Implementation Plan and Statement of Intent (December 9, 2019). Proposed Resource Plan 2021-2030. SDCP has a goal to achieve a 100% renewable portfolio by no later than 2035. Several member jurisdictions in SDCP have CAPs with 100% by 2030 renewable energy goal.

[43] Starting with SDG&E's 2016 bundled emission factor of 525 lbs CO_2e/MWh (43 percent renewable), the projected 2030 SDG&E and other electric retail provider's emission factor is 368 lbs CO_2e/MWh (60 percent renewable) and the projected 2030 local program emission factor is zero (100 percent renewable or zero-carbon). The 2030 citywide emission factor is then 368 lbs CO_2e/MWh*15 percent.

7.1.2 Allocation of GHG Emissions Reductions from Actions that Increase Renewables in Electricity to State Actions and Local CAP Measures

The projected citywide electricity emission factor is used to estimate the GHG emissions reductions from any actions that increase the overall renewable supply. The total reduction resulting from State and local CAP measures to increase renewable supply is given in Table 26. It is calculated using the projected gross generation in target years, as well as the difference in the 2030 and 2035 citywide emissions and BAU emission factors.

Table 26 Emissions Reductions from All Actions Increasing Renewable Supply in San Diego

Year	Gross Generation (GWh)	BAU Projections		Projections with State and Local Actions in Increasing Renewable and Supply		Emissions Reduction from Increased Renewable Supply (MT CO_2e)
		BAU Electricity Emission Factor (lbs CO_2e/MWh)	BAU Emissions from Electricity (MT CO_2e)	Projected Electricity Emission Factor (lbs CO_2e/MWh)	Projected Emissions from Electricity (MT CO_2e)	
2030	10,327	591	2,767,889	73	342,912	2,424,977
2035	11,487	591	3,078,717	50	258,653	2,820,064

The projections with increasing renewable supply are based on CAP assumptions and State policies and programs.
Energy Policy Initiatives Center 2021.

The BAU emission factor for 2019 (Table 25) is kept constant through the year 2035. The total emissions reduction from increasing renewable supply, as calculated above (Table 26), is attributed to each supply based on its renewable (if beyond the RPS mandate) contribution to the total citywide renewable content. This attribution and impact on GHG reductions from each supply are shown in Table 27.

Table 27 Attribution of Emissions Reductions to Supplies that Increase Renewable Supply in San Diego

Year	Electricity Supply	Total	San Diego Community Power	Other Electric Retail Suppliers	SDG&E	Behind-the-meter PV
2030	% of Gross Generation Supplied by Renewables Sources	92%	65%	10%	2%	15%
	Emissions Reduction from Increased Renewables Supply (MT CO_2e)	2,424,977	1,719,193	257,828	54,290	393,665
2035	% of Gross Generation Supplied by Renewables Sources	95%	65%	12%	2%	15%
	Emissions Reduction from Increased Renewables Supply (MT CO_2e)	2,820,064	1,930,487	357,566	74,171	457,840

2030 and 2035 data are the projections based on CAP assumptions and the future impact of State policies and programs.
Energy Policy Initiatives Center 2021.

7.2 Common Assumptions and Methods for Calculating Natural Gas Emissions Reductions

The default emission factor of 0.00545 MT CO_2e per therm used for the baseline 2019 GHG inventory, as described in Section 3.2.3, is used for all years to estimate the emissions reductions for the CAP measures related to reducing natural gas use.

Energy Policy Initiatives Center (EPIC)

7.3 Common Assumptions and Methods for Calculating On-Road Transportation Emissions Reductions

The following assumptions and methods are used to calculate emissions reductions for strategies related to on-road transportation, including federal and State actions and local CAP measures.

7.3.1 GHG Emission Factor for On-Road Transportation

The GHG emission factor of the on-road transportation fleet is used in several ways throughout the Appendix: it is used to estimate the effect of State actions to increase the vehicle fuel efficiency standard, the impact of reduced VMT, and the effect of CAP measures that increase the miles driven by EVs. However, the GHG emission factor is also affected by federal, state, and local actions that increase vehicle efficiency and increase ZEVs, as described below.

7.3.1.1 Impact of Federal and State Actions on Average Vehicle Emission Rates

The default outputs of CARB's Mobile Source Emissions Inventory EMFAC2021 model are used to determine the average vehicle emission rates for the San Diego region.[44] The average vehicle emission rates for the San Diego region were used as proxies for the City of San Diego. The EMFAC2021 model outputs include effects of all key federal and State regulations related to tailpipe GHG emissions reductions that were adopted through 2020.[45]

Using the EMFAC2021 default output, the average vehicle emission rates (g CO_2e/mile) are calculated based on the distribution of VMT for each vehicle class and its emission rate. The average vehicle emission rates (Table 28) are used to estimate the GHG emissions reduction impact of Federal and State policies that increase vehicle efficiency and increase the number of zero emission vehicles (ZEVs) on the road.

Table 28 Average Vehicle Emission Rate in the San Diego Region

Year	Ratio of e-VMT to Total VMT (%)	Average Vehicle Emission Rate– with the Impact of all Adopted State and Federal Policies (g CO_2e/mile)
2019	1.4%	428
2030	7.7%	343
2035	10%	317
Based on the CARB EMFAC2021 model. The model includes all key federal and State regulations related to tailpipe GHG emissions reductions that were adopted through 2020. e-VMT: electric vehicle miles traveled CARB 2021, Energy Policy Initiatives Center 2021.		

7.3.1.2 Impact of CAP Measure 2.3: Increase Electric Vehicle Adoption

Through CAP Measure 2.3: Increase Electric Vehicle Adoption, the City plans to increase the percentage of vehicle miles driven by EVs (e-VMT) out of all miles driven by light-duty vehicles (LD VMT) to 16% by

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[44] CARB: EMission FACtors model, EMFAC2021 v1.0.1. EMFAC2021 is the most recent model as of October 2021.
[45] CARB: EMFAC2021 Volume III Technical Document, Version 1.0.1 (April 2021). Section 1.3.5 Regulations and Policies includes a list of polices and regulations covered in EMFAC2021.

Energy Policy Initiatives Center (EPIC)

2030 and 25% by 2035. The average vehicle emission rate in the San Diego region (Table 28) must be adjusted to derive a San Diego specific average vehicle emission rate, as shown in Table 29.[46]

Table 29 Average Vehicle Emission Rate in the City of San Diego

Year	Ratio of e-VMT to Total LD VMT – with the Impact of Measure 2.3 (%)	Ratio of e-VMT to Total VMT – with the Impact of Measure 2.3 (%)	Average Vehicle Emission Rate – San Diego Specific (g CO₂e/mile)
2019	1.5%	1.4%	428
2030	16%	15%	318
2035	25%	23%	273
Adjusted from San Diego region average vehicle emission rate due to the impact of Measure 2.2: Increase Electric Vehicle Adoption e-VMT: electric vehicle miles traveled; LD-VMT: light-duty vehicle miles traveled 2030 and 2035 emission rates are projected based on CAP assumptions and future impact of State policies and programs. CARB 2021, Energy Policy Initiatives Center 2021.			

The projected San Diego-specific 2030 average vehicle emission rate in Table 29 is used to estimate the emissions reduction from CAP measures that reduce fuel use (improve road condition) and reduce VMT. Because vehicle efficiency improves and the population of EVs increases, the average vehicle emission rate decreases. Therefore, measures that reduce the same miles would lead to ever-decreasing GHG emission reduction through the lifetime of the CAP.

7.4 Federal and State Actions that Lead to GHG Emissions Reductions Locally

Apart from how federal and State regulations affect the emissions factors of electricity and the on-road transportation fleet, these same policies lead to significant emissions reduction in the City over the lifetime of this CAP . This section provides a summary of the methods used to estimate and attribute the emissions reductions associated with the following federal and State actions that increase renewable electricity, building energy efficiency, and clean and efficient transportation:

- California RPS
- California Solar Programs, Policies and 2019 Mandates
- California Energy Efficiency Programs
- Federal and California Vehicle Efficiency Standards

7.4.1 California Renewables Portfolio Standard

SB 100, the 100 Percent Clean Energy Act of 2018, adopts a 60% RPS for all of California's retail electricity suppliers by 2030. The legislation also provides goals for the intervening years before 2030 and establishes a State policy requiring that "zero-carbon" resources supply 100% of all retail electricity sales to end-user customers and all State agencies by December 31, 2045.[47] If interpolated linearly

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[46] This assumes that the vehicle class distribution and VMT distribution by vehicle class in San Diego are the same as those in the region. It also assumes that e-VMT only replaces the c-VMT of the same model year vehicle, therefore, only changes the VMT distribution within the same vehicle class. For example, the ratio of miles driven by light-duty vehicles (LDVs) to miles driven by all vehicles remains unchanged, while the ratio of e-VMT driven by LDVs to all miles driven by LDVs increases.

[47] SB 100 (de León): California Renewables Portfolio Standard Program: emissions of greenhouse gases (2017–2018). The interim RPS targets are 44 percent by 2024 and 52 percent by 2027 from eligible renewable energy resources.

between 60% renewables in 2030 and 100% zero-carbon in 2045, the interim 2035 target would be 73% renewables. The SB 100 renewables and zero-carbon targets are shown in Figure 7 below.

Targets apply to all retail providers include Direct Access, Community Choice Aggregators and Investor Owned Utilities
Energy Policy Initiatives Center, 2021
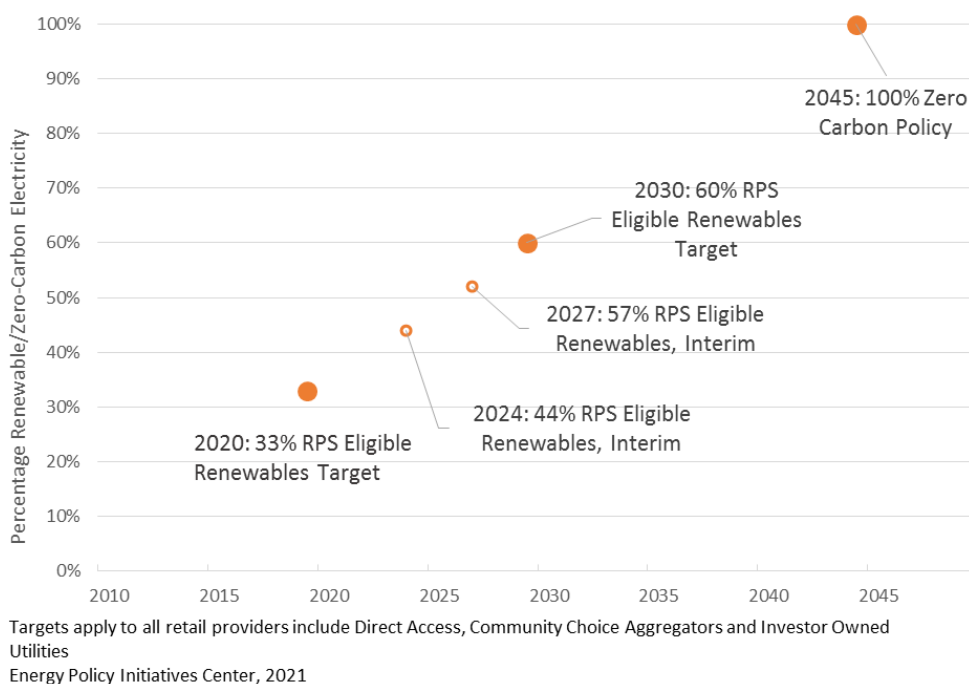
Figure 7 SB 100 Renewables and Zero-Carbon Targets

All retail electricity suppliers are required to meet the State's RPS requirements, including SDG&E, retail electricity suppliers for SDG&E's DA customers, and SDCP. In this Appendix, a conservative approach is taken which assumes all providers for current utility customers, including electricity sales to DA customers, will meet, but not surpass, the RPS requirements for 2030 and 2035. Under this assumption, all emissions reductions from SDG&E and electric retail suppliers reaching 60 % renewables in 2030 and 73 % renewables in 2035 are credited to the State under the RPS requirements.

For the SDCP, a portion of the emissions reductions from the program will be credited to the State under RPS compliance, and the remaining reduction will be attributed to local measure, as described in Section 7.6.2.1. Table 30 shows results from RPS mandates in target years.

Energy Policy Initiatives Center (EPIC)

Table 30 Electricity Suppliers and Projected Emissions Reduction from California Renewables Portfolio Standard

Year	(a) RPS-Related Emissions Reduction from the Utility* (MT CO₂e)	(b) RPS-Related Emissions Reduction from SDCP (MT CO₂e)	(a + b) All RPS-Related Emissions Reductions (MT CO₂e)
2030	312,118	1,031,516	1,343,634
2035	431,737	1,409,255	1,840,993
SDCP: San Diego Community Power			
*Includes SDG&E and electric retail suppliers of SDG&E Direct Access customers.			
2030 and 2035 data are projections under the CAP based on current status, future impact of State policies and programs, and CAP measures assumptions.			
Energy Policy Initiatives Center 2021.			

7.4.2 California Solar Programs, Policies and 2019 Mandates

California has several policies and programs to encourage customer-owned, behind-the-meter PV systems, such as the California Solar Initiative, New Solar Home Partnership, Net Energy Metering, and electricity rate structures designed for solar customers. The latest California 2019 Building Energy Efficiency Standards, which went into effect on January 1, 2020, require all newly constructed single-family homes, low-rise multi-family homes, and detached accessory dwelling units (ADUs) to have PV systems installed, unless the building receives an exception.[48]

The California Energy Demand 2020–2030 Revised Forecast, developed by the CEC, has projections for PV capacity from behind-the-meter PV adoption in the SDG&E planning area through 2030. The demand forecast provides three cases: high-demand, mid-demand, and low-demand. The PV projection from 2020–2030 in the SDG&E planning area mid-demand case is used to forecast the PV generation in San Diego.[49]

The California Distributed Generation (DG) Statistics database includes capacities of behind-the-meter PV systems interconnected in a jurisdiction in a given year for each of the three Investor-Owned Utility (IOU) planning areas, including SDG&E. The DG Statistics database also provides detailed information about the behind-the-meter PV systems installed in a jurisdiction from the start year of incentive programs through the current year. This provides a historical record used to determine the capacity in GHG inventory years and can also help determine trends in PV installation.

A comparison of the estimated capacity and electricity generation from PV systems in San Diego and in the SDG&E planning area are given in Table 31.[50]

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[48] CEC: 2019 Building Energy Efficiency Standards – 2019 Residential Compliance Manual (December 2018). For the requirements on newly constructed single-family and low-rise multi-family homes, see Section 7.2 Prescriptive Requirements for Photovoltaic System. For the requirements on newly constructed and detached ADU, see Section 9.3.5 Accessory Dwelling Units.

[49] CEC: California Energy Demand Forecast, 2020-2030 Baseline Forecast – Mid Demand Case, accessed August 17, 2021.

[50] The capacity of all interconnected PV systems in San Diego are from the California Distributed Generation Statistics NEM Currently Interconnected Data Set (current as of October 31, 2020), download date: January 25, 2021.

Table 31 Behind-the-meter PV Capacity and Estimated Electricity Generation

Year	San Diego*		SDG&E Planning Area**	Historical Ratio of Electricity Generation from PV (San Diego to SDG&E)
	PV Capacity (MW)	Estimated Electricity Generation (GWh)	Estimated Electricity Generation (GWh)	
2016	223	391	1,136	34%
2017	271	475	1,427	33%
2018	333	584	1,731	34%
2019	401	702	2,084	34%
			Average	34%
*Estimated electricity generation based on PV capacity and 20% capacity factor. **California Energy Demand 2020-2030 Revised Forecast mid-demand case California Distributed Generation Statistics 2021, CEC 2021, Energy Policy Initiatives Center 2021.				

For future years, the electricity generation and capacity of behind-the-meter PV systems in the City are estimated based on the PV generation in CEC's mid-demand forecast for SDG&E's planning area, and the average ratio of PV generation in the City to that of SDG&E's planning area from 2016-2019 (34%). Because of California's solar programs, policies and mandates, the estimated PV capacity in 2030 in San Diego is projected to be 881 megawatts (MW). It is assumed the PV capacity from State programs will have an annual increase of 2.7% (the increase from 2029 to 2030) beyond 2030 due to the lack of statewide PV projections. The trend of behind-the-meter PV in the City is shown in Figure 8.

Energy Policy Initiatives Center (EPIC)
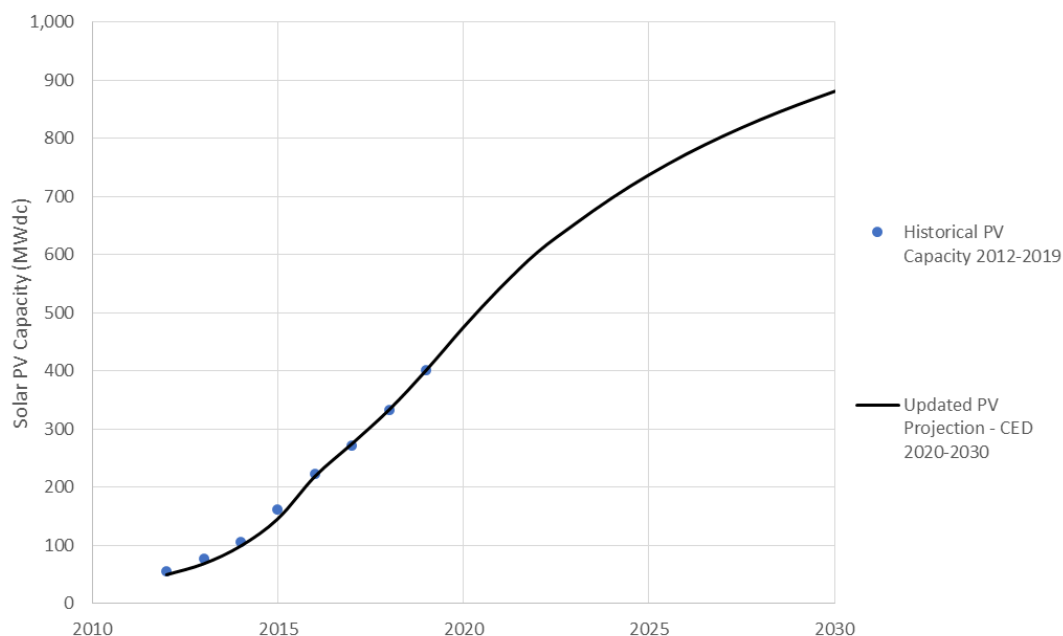
Source:
Historical capacity: California Distributed Generation Statistics, Oct 2020
Updated PV projection: California Energy Demand 2020-2030 (CEDU2020), mid-demand scenario
The projections do not include impact of CAP measures.
Energy Policy Initiatives Center, University of San Diego, 2021

Figure 8 Behind-the-meter PV Historical and Projected Trend in San Diego (2012–2030)

The emissions reductions from all State and City CAP measures that increase behind-the-meter renewable supply are calculated in Section 7.1.1 and shown in Table 32 below.

Table 32 Key Assumptions and Results for California Solar Policies, Programs, and Mandates

Year	California Solar Polices, Programs, and Mandates	
2030	Projected Behind-the-meter PV Capacity (MW)	881
	Projected Emissions Reduction (MT CO_2e)	393,665
2035	Projected Behind-the-meter PV Capacity (MW)	1,007
	Projected Emissions Reduction (MT CO_2e)	457,840
Solar policies, programs, and mandates include the impact of the PV mandates from the 2019 Building Energy Efficiency Standard. The projected capacity and emissions reductions based on current conditions, the future impact of State policies and programs, and CAP assumptions. Energy Policy Initiatives Center 2021		

7.4.3   California Energy Efficiency Program

In September 2017, the California Public Utilities Commission (CPUC) adopted energy efficiency goals for ratepayer-funded energy efficiency programs (Decision 17-09-025); these went into effect in 2018. The adopted energy saving goals for SDG&E's service territory are given in the Decision on an annual basis

from 2018 to 2030.[51] The sources of the energy savings include, but are not limited to, rebated technologies, building retrofits, behavior-based initiatives, and codes and standards.[52]

To evaluate the impact of the energy efficiency program on San Diego, the total energy savings in SDG&E's service territory by 2030 are allocated to the City using a ratio of the City's natural gas and electricity demand to those of SDG&E's entire service territory. The 2019 ratios are 59% for electricity and 77% for natural gas.[53] SDG&E's service territory electricity and natural gas savings were allocated accordingly to San Diego, as shown in Table 33.[54]

Table 33 Estimated Energy Savings from California Energy Efficiency Program

Year	Electricity Savings* (GWh)		Natural Gas Savings (Million Therms)	
	SDG&E Service Territory	Allocation of Savings to San Diego	SDG&E Service Territory	Allocation of Savings to San Diego
2030	3,349	1,354	56	39
*Include transmission and distribution losses. SDG&E service territory savings are the cumulative savings after 2019 (baseline year) based on the 2018–2030 annual saving goals in CPUC Decision 17-09-025. Energy Policy Initiatives Center 2021				

The utility's energy efficiency goal is not estimated by the CPUC beyond 2030; therefore, it is assumed the electricity and natural gas savings in 2035 from energy efficiency programs will be the same as in 2030. Emissions reductions from electricity savings are calculated by multiplying the electricity savings by the citywide GHG emission factor for electricity, discussed in Section 7.1.1 (GHG Emission Factor for Electricity) and shown in Table 25 (2019 and Projected 2030 and 2035 GHG Emission Factor for Electricity in San Diego). As the renewable and zero-carbon content in electricity increases, the emissions reduction from the electricity portion of the energy efficiency program decreases. Emissions reductions from natural gas savings were calculated using the natural gas savings amount and natural gas emission factor. Table 34 summarizes the energy savings and GHG emissions reductions in the years 2030 and 2035.

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[51] CPUC: Decision 17-09-025, Adopting Energy Efficiency Goals for 2018–2030, accessed December 12, 2018. SDG&E's electricity service territory is larger than San Diego region. The 2021 Energy Efficiency Goals were not adopted as of September 2021.
[52] Navigant Consulting: Energy Efficiency Potential and Goals Study for 2018 and Beyond (August 2017), accessed December 12, 2018. Rebated technologies are the energy efficiency technologies from the utility's historic incentive programs, including equipment and retrofits.
[53] SDG&E's service territory demand is from California Energy Demand Forecast, 2020-2030 Baseline Forecast – Mid Demand Case, accessed August 17, 2021. SDG&E's planning area load 2016-2019. 2019 is the latest year with historical data in the demand forecast.
[54] CPUC: Decision 17-09-025, Adopting Energy Efficiency Goals for 2018–2030, accessed December 12, 2018. The 2018 and beyond goals are given on an annual basis for each year from 2018 to 2030, different from previous studies, in which the cumulative goals are given. The cumulative savings in 2030 are the sum of the annual savings. The 2021 Energy Efficiency Goals were not adopted as of September 2021.

Table 34 Emission Reductions from California Energy Efficiency Programs

Year	Electricity Savings			Natural Gas Savings			Total Emissions Reduction (MT CO₂e)
	Electricity Savings (GWh)	Emission Factor (lbs CO₂e/MWh)	GHG Reduction from Electricity Savings (MT CO₂e)	Natural Gas Savings (Million therms)	Emission Factor (MT CO₂e/therm)	GHG Reduction from Natural Gas Savings (MT CO₂e)	
2030	1,354	73	44,947	39	0.00545	215,345	260,293
2035	1,354	50	30,480	39	0.00545	215,345	245,825

The emissions reductions are projected based on CAP assumptions and future impact of State policies and programs.
Energy Policy Initiatives Center 2021

7.4.4 Federal and California Vehicle Efficiency Standards

As discussed in Section 7.3 (Common Assumptions and Methods for Calculating On-Road Transportation Emissions Reductions), CARB's EMFAC2021 model includes all key federal and State regulations related to tailpipe GHG emissions reductions for both light-duty and heavy-duty vehicles that were in place through 2020.

Table 35 summarizes the key assumptions and results. The GHG emissions reductions are the projected reduction amount in the years 2030 and 2035 only, not the sum of the annual reductions from the 2019 baseline year to 2030 or 2035.

Table 35 Key Assumptions and Results for Federal and California Vehicle Efficiency Standards

Year	Projected BAU City VMT* (Million miles per year)	BAU Projection – With No Policy Impact after 2019		With Impact of Adopted Statewide Policies		Emissions Reduction (MT CO₂e)
		Average Vehicle Emission Rate* (g CO₂e/mile)	Emissions from On-Road Transportation (MT CO₂e)	Average Vehicle Emission Rate (g CO₂e/mile)	Emissions from On-Road Transportation (MT CO₂e)	
2030	14,839	363	5,384,491	343	5,085,028	299,463
2035	15,378	361	5,555,177	317	4,871,620	683,557

*BAU projections are based on the service population increase in the City, and does not include the impact of SANDAG's draft 2021 Regional Plan **Despite the absence of additional policies and programs to increase vehicle efficiency, the BAU average vehicle emission rate decreases with natural fleet turnover as new vehicles replace old vehicles.
The emission rates and emissions reductions are projected based on CAP assumptions and future impact of State policies and programs used in the CARB EMFAC2021 model.
Energy Policy Initiatives Center 2021

7.5 SANDAG 2021 Regional Plan Actions

SANDAG, the transportation planning agency in San Diego region, released the draft 2021 Regional Plan in May 2021. The draft 2021 Regional Plan is a 30-year plan combining the Regional Transportation Plan (RTP), Sustainable Communities Strategy (SCS), and Regional Comprehensive Plan. The 2021 Regional Plan must comply with specific state and federal mandates, including an SCS, per Senate Bill 375

(Steinberg, 2008), that achieves greenhouse gas emission reduction targets set by CARB.[55] The Regional Plan has not yet been adopted by the SANDAG Board, therefore, the City VMT provided in this section is the impact of the draft Regional Plan, and may differ from the impact of the final Regional Plan.

The avoided VMT – the difference between the projected BAU City VMT and the City VMT with the impact of the draft 2021 Regional Plan - is converted to GHG emissions reductions using the average vehicle emission factors given in Table 29 (Average Vehicle Emission Rate in the City of San Diego). The GHG emissions reductions in 2030 and 2035 are shown in Table 36.[56]

Table 36 Key Assumptions and Results for SANDAG 2021 Regional Plan Actions

Year	Projected BAU City VMT* (Million miles per year)	City VMT with Impact of SANDAG Draft 2021 Regional Plan (Million miles per year)	VMT Avoided (Million miles per year)	Average Vehicle Emission Rate (g CO_2e/mile)	GHG Emissions Reduction (MT CO_2e)
2030	14,839	13,148	1,690	318	537,519
2035	15,378	12,965	2,413	273	659,643
*BAU projections are based on the service population increase in the City, and does not include the impact of SANDAG's draft 2021 Regional Plan. The emission rates and emissions reductions are projected based on CAP assumptions and future impact of State policies and programs used in the CARB EMFAC2021 model. Energy Policy Initiatives Center 2021					

7.6   CAP Strategies and Measures

The following section describes the methods used to estimate the GHG reductions from achieving goals established for local CAP strategies and measures, which are organized into the following five strategies:

- Strategy 1: Decarbonization of the Built Environment

7.6.1.1   Measure 1.3 Decarbonize City Facilities

The goal of Measure 1.3 is to phase out 50% of the city facilities' natural gas use by 2030 and 100% by 2035. Emissions reductions were calculated using the natural gas savings and the natural gas emission factor discussed in Section 7.2. The GHG emissions reductions in 2030 and 2035 are shown in Table 44.

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[55] SANDAG: Draft 2021 Regional Plan (May 2021).
[56] The 2035 VMT was provided by SANDAG to the City of San Diego (Sep 2021). SANDAG Activity Based Model 2+ Release v14.2.1, Draft 2021 Regional Plan Networks, Policies, and Assumptions, Growth Forecast 14.38, Year 2035, Reference Scenario 206, February 2021. The 2030 VMT were interpolated linearly between 2019 and 2035.

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Table 44 Key Assumptions and Results for Measure 1.3 Decarbonize City Facilities

Year	Projected Natural Gas Use at City Facilities* (Million therms/year)	Natural Gas Savings (%)	Natural Gas Savings (Million herms/year)	Natural Gas Emission Factor (MT CO_2e/Therm)	Emissions Reductions (MT CO_2e)
2030	5.5	50%	2.8	0.00545	15,149
2035	6.0	100%	6.0	0.00545	32,639

*Business-as-usual natural gas use is projected based on the 2019 city facilities natural gas use (4.7 million therms) and a 1.5% annual increase
The projections are based on current status, future impact of State policies and programs, and CAP assumptions.
Energy Policy Initiatives Center 2021.

- Strategy 2: Clean & Renewable Energy
- Strategy 3: Mobility & Land Use
- Strategy 4: Circular Economy
- Strategy 5 Resilient Infrastructure and Ecosystems

7.6.2 Strategy 1: Decarbonization of the Built Environment

7.6.2.1 Measure 1.1 Decarbonize Existing Buildings

The goal of Measure 1.1 is to phase out 45% of remaining city-wide natural gas use (after Measure 1.2 and Measure 1.3 as described in the two sections below) by 2030 and 90% by 2035. Emissions reductions were calculated using the natural gas savings and the natural gas emission factor discussed in Section 7.2. The GHG emissions reductions in 2030 and 2035 are shown in Table 37.

Table 37 Key Assumptions and Results for Measure 1.1 Decarbonize Existing Buildings

Year	Projected Natural Gas Use* (Million therms/year)	Natural Gas Savings (%)	Natural Gas Savings (Million herms/year)	Natural Gas Emission Factor (MT CO_2e/Therm)	Emissions Reductions (MT CO_2e)
2030	378	45%	170	0.00547	931,661
2035	389	90%	350	0.00547	1,915,290

*Business-as-usual projected natural gas use includes the savings from Measure 1.1 and Measure 1.2
The projections are based on current status, future impact of State policies and programs, and CAP assumptions.
Energy Policy Initiatives Center 2021.

7.6.2.2 Measure 1.2 Decarbonize New Development

The goal of Measure 1.2 is to adopt all-electric reach codes starting in 2023 at new residential and commercial developments in the City.

For residential developments, based on a CEC cost-effectiveness study for the 2019 residential reach code (the Study), the cost-effectiveness of a code-compliant all-electric home compared with a code-compliant mixed-fuel (electricity and natural gas) home varies by Climate Zone. Table 38 shows the natural gas savings of an all-electric home prototype compared to a mixed-fuel home prototype in

Climate Zone 7, where the majority of the City of San Diego is located. Table 38 also shows the added electricity demand required to offset the increased demand. [57]

Table 38 Key Assumptions of All-Electric Homes (Single-Family and Multi-Family)

All-Electric Home Type	Single-Family	Multi--Family
Natural Gas Savings Compared with Mixed-Fuel Home (Therms per unit)	196	110
Additional Electricity Added Compared with Mixed-Fuel Home (kWh per unit)	674	51
Based on prototype homes in Climate Zone 7, all-electric home with efficiency and PV option. California Energy Codes & Standard Reach Codes Team 2019.		

SANDAG projected the number of new single-family and multi-family units in the City, as described in Section 2.2. Assuming 10% of the new homes will be exempt from the requirement due to various limitations, the emissions reduction from natural gas savings, and emissions added from additional electricity use, are shown in Table 39 and Table 40.

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[57] The package is cost-effective based on both On-Bill and Time Dependent Value (TDV) methodologies. California Energy Codes & Standard Reach Codes Program: 2019 Cost-effectiveness Study: Low-Rise Residential New Construction, July 2019 version, accessed August 20, 2019. This study is the latest reach code cost-effective study, however, it is based on the 2019 Energy Code, the new 2022 Energy Code will be effective starting 2023.

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Table 39 Emissions Reduction from Natural Gas Savings due to Measure 1.2 Decarbonize New Development (Residential)

Year	Single-Family Homes		Multi-Family Homes		Total		
	Number of New All-electric Homes subject to Reach Code after 2023*	Natural Gas Savings due to All-Electric Reach Code (Therms/home/year)	Number of New All-electric Homes subject to Reach Code after 2023*	Natural Gas Savings from All-Electric Reach Code (Therms/home/year)	Total Natural Gas Savings (Million Therms/year)	Natural Gas Emission Factor (MT CO$_2$e/Therm)	Emissions Reductions from Natural Gas Savings (MT CO$_2$e)
2030	3,349	196	54,004	110	6.6	0.00545	36,100
2035	5,192	196	88,112	110	10.7	0.00545	58,609

*Assumes 10% of homes will be exempt from this requirement due to limitations.
The projected natural gas savings and emissions reduction are the projections under the CAP, based on current status, future impact of State policies and programs, and CAP assumptions.
Energy Policy Initiatives Center 2021.

Table 40 Emissions Added from Additional Electricity Use due to Measure 1.2 Decarbonize New Development (Residential)

Year	Single-Family Homes		Multi-Family Homes		Total		
	Number of New All-electric Homes subject to Reach Code after 2023*	Electricity Added due to All-Electric Reach Code (kWh/home/year)	Number of New All-electric Homes subject to Reach Code after 2023*	Electricity Added due to All-Electric (kWh/home/year)	Total Electricity Added (MWh/year)	Electricity Emission Factor (lbs CO$_2$e/MWh)	Emissions Added from Additional Electricity Use (MT CO$_2$e)
2030	3,349	674	54,004	51	2,257	73	166
2035	5,192	674	88,112	51	3,499	50	180

*Assume 10% of homes will be exempt from this requirement due to limitations.
The projected electricity use and emissions added are the projections under the CAP based on current status, future impact of State policies and programs, and CAP assumptions.
Energy Policy Initiatives Center 2021.

The net 2030 and 2035 emissions reductions from Measure 1.2 new residential construction are shown in Table 41.

Table 41 Results for Measure 1.2 Decarbonize New Development (Residential)

Emissions Reduction from All-Electric Homes	GHG Emissions Reduction in 2030 (MT CO$_2$e)	GHG Emissions Reduction in 2035 (MT CO$_2$e)
Emissions Reduction from Natural Gas Savings	36,100	58,609
Emissions Added from Additional Electricity Use	-166	-180
Net Emissions Reduction due to All-Electric Homes	35,934	58,429
The emission reductions are the projections under the CAP, based on current status, future impact of State policies and programs, and CAP assumptions. Energy Policy Initiatives Center 2021.		

For non-residential developments, data on non-residential new constructions by building types (e.g., retail, offices) are not available. The emission reductions are calculated based on avoiding 100% of new

natural gas use after 2023. Assuming that 15% of the new non-residential construction will be exempt from the requirement due to various limitations or building type restrictions, the emissions reduction from natural gas savings are shown Table 42.

Table 42 Results for Measure 1.2 Decarbonize New Development (Non-Residential)

Year	New Non-Residential Natural Gas Use Subject to the requirement in the Target Year* (Million therms/year)	Natural Gas Savings (%)	Cumulative Natural Gas Savings due to Reach Code after 2023 (Million Therms/year)	Natural Gas Emission Factor (MT CO_2e/Therm)	Emissions Reductions (MT CO_2e)
2030	0.5	100%	1.0	0.00545	29,395
2035	0.8	100%	4.6	0.00545	50,131

*Projected natural gas use in new commercial development in the target year 2030 and 2035, assume 15% of development will be exempt from this requirement due to limitations
The projections are based on current status, future impact of State policies and programs, and CAP assumptions.
Energy Policy Initiatives Center 2021.

The total 2030 and 2035 emissions reductions from Measure 1.2, both residential and non-residential, are shown in Table 43.

Table 43 Results for Measure 1.2 Decarbonize New Development

Emissions Reduction from Measure 1.2	GHG Emissions Reduction in 2030 (MT CO_2e)	GHG Emissions Reduction in 2035 (MT CO_2e)
Emissions Reduction from Measure 1.2 - Residential	35,934	58,429
Emissions Reduction from Measure 1.2 – Non-Residential	29,395	50,131
Total Emissions Reduction	65,329	108,559

The emission reductions are the projections under the CAP, based on current status, future impact of State policies and programs, and CAP assumptions.
Energy Policy Initiatives Center 2021.

7.6.2.3   Measure 1.3 Decarbonize City Facilities

The goal of Measure 1.3 is to phase out 50% of the city facilities' natural gas use by 2030 and 100% by 2035. Emissions reductions were calculated using the natural gas savings and the natural gas emission factor discussed in Section 7.2. The GHG emissions reductions in 2030 and 2035 are shown in Table 44.[58]

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[58] 2019 city facilities natural gas use was reported in the 2020 CAP Annual Report. The 1.5% annual increase is the same assumption as in the 2015 CAP and confirmed by City staff.

Table 44 Key Assumptions and Results for Measure 1.3 Decarbonize City Facilities

Year	Projected Natural Gas Use at City Facilities* (Million therms/year)	Natural Gas Savings (%)	Natural Gas Savings (Million herms/year)	Natural Gas Emission Factor (MT CO_2e/Therm)	Emissions Reductions (MT CO_2e)
2030	5.5	50%	2.8	0.00545	15,149
2035	6.0	100%	6.0	0.00545	32,639

*Business-as-usual natural gas use is projected based on the 2019 city facilities natural gas use (4.7 million therms) and a 1.5% annual increase
The projections are based on current status, future impact of State policies and programs, and CAP assumptions.
Energy Policy Initiatives Center 2021.

7.6.3   Strategy 2: Clean & Renewable Energy

7.6.3.1   Measure 2.1: Citywide Renewable Energy Generation

As discussed in Section 7.4.1, SB 100 (100 Percent Clean Energy Act of 2018) adopts a 60% RPS for all of California's retail electricity suppliers by 2030 and 100% zero-carbon electricity by 2045. Measure 2.1 assumes that SDCP, launched in 2021, would increase the renewable and zero-carbon electricity beyond the current RPS mandates for target years, to 100% renewable and zero-carbon by 2030.

Based on SDCP's implementation plan, 95% of SDG&E's residential and non-residential bundled customers' electric load would be supplied by SDCP.[59] SDG&E DA customers, whose electric load is supplied by other retail electric suppliers, will stay with their current electric suppliers and not participate in SDCP.

As previously explained in Section 7.4.1 and Table 27 Attribution of Emissions Reductions to Supplies that Increase Renewable Supply in San Diego), because SDCP is required to comply with the State's RPS mandates, a portion of the total emissions reduction from Measure 2.3 is credited to the State's RPS compliance. The remaining emissions reduction beyond RPS compliance is allocated to local Measure 2.3. The allocation of GHG emissions reduction in 2030 and 2035 from this measure to the State and the City is shown in Table 45.

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[59] SDCP: Community Choice Aggregation Implementation Plan and Statement of Intent (December 9, 2019). Proposed Resource Plan 2021-2030. SDCP has a goal to achieve a 100% renewable portfolio by no later than 2035. Several member jurisdictions in SDCP have CAPs with 100% by 2030 renewable energy goal.

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Table 45 Key Assumptions and Results for Measure 2.1: Citywide Renewable Energy Generation

Year	State or City Action	Total for SDCP	SDCP - Complying with RPS	SDCP - Above RPS (Measure 2.1)
2030	Projected Renewables and Zero Carbon (%)	100%	60%	40%
	Emissions Reduction (MT CO$_2$e)	1,719,193	1,031,516	**687,677**
2035	Projected Renewables and Zero Carbon (%)	100%	73%	27%
	Emissions Reduction (MT CO$_2$e)	1,930,487	1,409,255	**521,231**

*Calculated in Table 27.
The emissions reduction is the projection under the CAP, based on CAP assumptions and future impact of State policies and programs.
Energy Policy Initiatives Center 2021

7.6.3.2 Measure 2.2: Increase Municipal Zero Emissions Vehicles

At the time of municipal vehicle replacement, the City plans to convert vehicles to EVs or other types of ZEVs and continue to use renewable diesel for the eligible heavy-duty vehicles. The vehicle conversion goals by target year are shown Table 46.[60]

Table 46 Key Assumptions for Measure 2.2: Increase Municipal Zero Emissions Vehicles

Vehicle Type	% of Total Gasoline Use from Each Vehicle Type*	% of All Vehicles to be ZEVs by 2030	% of All Vehicles to be ZEVs by 2035
Car	23%	75%	100%
LDV	52%	50%	75%
MDV and HDV	25%	50%	75%
HDV	N/A	50%	75%

LDV: light-duty vehicles, MDV: MEDIUM-duty vehicles, HDV: heavy -duty vehicles
*The percentages of fuel use are calculated based on average annual fuel use of each vehicle type and the total number of vehicle in each vehicle type
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Assuming the municipal fleet gasoline use does not increase from the baseline year 2019, the GHG emissions reductions in 2030 and 2035 are shown in Table 47.[61]

Table 47 Results for Measure 2.2: Increase Municipal Zero Emissions Vehicles

Year	Projected Gasoline Use* (gallons)	Gasoline Reduction (%)	Gasoline Reduction (gallons)	Gasoline Carbon Intensity (g CO$_2$e per gallon)	Emissions Reduction (MT CO$_2$e)
2030	2,268,104	56%	1,265,465	8,726	11,042
2035	2,268,104	81%	1,832,491	8,726	15,990

*Assumes that gasoline use is the same as in 2019.
The emissions reduction is based on the projection under the CAP assumptions.
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[60] Average annual fuel use of each vehicle type and the total number of vehicle in each vehicle type were provided by City Fleet Department.

[61] Gasoline carbon content is based on CARB statewide GHG inventory. The 2019 fleet gasoline use reported in the 2020 CAP Annual Report.

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7.6.3.3 Measure 2.3: Increase Electric Vehicle Adoption

The goal of Measure 2.3 is to increase the percentage of e-VMT of all miles driven by LD VMT to 16% by 2030 and 25% by 2035. Assuming the additional e-VMT will replace the miles driven by vehicles with combustion engines of the same model years, the average vehicle emission rates in the San Diego region (Table 28) were adjusted to derive a San Diego specific average vehicle emission rate, as discussed in Section 7.3.1.2. Table 48 summarizes the key assumptions and results.

The GHG emissions reductions are the projected reduction amount in the years 2030 and 2035 only.

Table 48 Key Assumptions and Results for Measure 2.3: Increase Electric Vehicle Adoption

Year	Projected BAU City VMT* (Million miles per year)	With Impact of Adopted Statewide Policies		With Impact of Measure 2.3		Emissions Reduction (MT CO$_2$e)
		Average Vehicle Emission Rate** (g CO$_2$e/mile)	Emissions from On-Road Transportation (MT CO$_2$e)	Average Vehicle Emission Rate (g CO$_2$e/mile)	Emissions from On-Road Transportation (MT CO$_2$e)	
2030	14,839	343	5,085,028	318	4,718,547	366,481
2035	15,378	317	4,871,620	273	4,204,162	667,458
*BAU projections include the service population increase in the City, but not the impact of SANDAG's draft 2021 Regional Plan **Calculated in Section 7.4.4 Federal and California Vehicle Efficiency Standards The emission rates and emissions reductions are projected based on CAP assumptions and future impact of State policies and programs used in the CARB EMFAC2021 model. Energy Policy Initiatives Center 2021						

7.6.4 Strategy 3: Mobility & Land Use

7.6.4.1 Measure 3.1: Safe and Enjoyable Routes for Pedestrians and Cyclists

The goal of Measure 3.1 is to (1) increase the walk mode share of all San Diego residents' trips to 19% by 2030 and 25% by 2035; and (2) increase the bicycle mode share of all San Diego residents' trips to 7% by 2030 and 10% by 2035.

SANDAG projected the walk and bicycle mode share for 2030 and 2035, as well as the average trip length, with the impact of the draft 2021 Regional Plan. The mode shares and trip length, as shown in Table 49 and Table 50, are used as baseline assumptions. The avoided VMT is converted to GHG emissions reductions using the average vehicle emission factors, discussed in Section 7.3.1 (GHG Emission Factor for On-Road Transportation). The GHG emissions reductions in 2030 and 2035 are shown in Table 49 and Table 50.[62]

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[62] Mode share and trip length by SANDAG to City of San Diego (Sep 2021). SANDAG Activity Based Model 2+ Release v14.2.1, Draft 2021 Regional Plan Networks, Policies, and Assumptions, Growth Forecast 14.38, Year 2035, Reference Scenario 206, February 2021. The 2030 mode share was interpolated linearly between 2019 and 2035. Absent final regional plan trip data not yet released, emissions reductions are based on a percentage of residents taking one alternative mode roundtrip daily in place of an equivalent amount of vehicular travel.

Table 49 Key Assumptions and Results for Measure 3.1: Safe and Enjoyable Routes for Pedestrians and Cyclists (Pedestrian)

Year	San Diego Residents	Walk Mode Share		Additional Residents Who Walk to Destinations	Trip Length* (Miles per round trip)	VMT Avoided by Walking** (Million miles per year)	Average Vehicle Emission Rate (g CO₂e/mile)	Emissions Reduction (MT CO₂e)
		Baseline * (%)	Target (%)					
2030	1,552,815	13%	19%	104,439	1.4	53	318	16,699
2035	1,599,353	14%	25%	179,174	1.4	90	273	24,629

*Baseline walk mode share and trip length were model outputs from the SANDAG ABM2+ and draft 2021 Regional Plan **Assumes 347 weekdays to year and one resident re takes one round trip per weekday
The emissions reduction is projected based on CAP assumptions and future impact of State policies and programs used in the CARB EMFAC2021.
Energy Policy Initiatives Center 2021.

Table 50 Key Assumptions and Results for Measure 3.1: Safe and Enjoyable Routes for Pedestrians and Cyclists (Cyclists)

Year	San Diego Residents	Bicycle Mode Share		Additional Residents Bicycling to Destinations	Trip Length* (miles per round trip)	VMT Avoided by Bicycling** (million miles per year)	Average Vehicle Emission Rate (g CO₂e/mile)	Emissions Reduction (MT CO₂e)
		Baseline * (%)	Target (%)					
2030	1,552,815	1.4%	7%	80,343	7.1	198	318	63,024
2035	1,599,353	1.6%	10%	134,471	7.1	332	273	90,686

*Baseline bicycle mode share and trip length were model outputs from the SANDAG ABM2+ and draft 2021 Regional Plan **Assume 347 weekdays to year and one resident re takes one round trip per weekday
The emissions reduction is projected based on CAP assumptions and future impact of State policies and programs used in the CARB EMFAC2021.
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The total 2030 and 2035 emissions reductions from Measure 3.1, both from pedestrian and cyclist, are shown in Table 51.

Table 51 Results for Measure 3.1: Safe and Enjoyable Routes for Pedestrians and Cyclists

Emissions Reduction from Measure 3.1	GHG Emissions Reduction in 2030 (MT CO₂e)	GHG Emissions Reduction in 2035 (MT CO₂e)
Emissions Reduction from Increasing Walk Mode Share	16,699	24,629
Emissions Reduction from Increasing Bicycle Mode Share	63,024	90,686
Total Emissions Reduction	79,722	115,315

The emissions reduction is projected based on CAP assumptions and future impact of State policies and programs used in the CARB EMFAC2021.
Energy Policy Initiatives Center 2021.

7.6.4.2 Measure 3.2: Increase Safe, Convenient, and Enjoyable Transit Use

The goal of Measure 3.2 is to increase the mass transit mode share of all San Diego residents' trips to 10% by 2030 and 15% by 2035. Similar to Measure 3.2, SANDAG projected the transit mode share in 2030 and 2035, as well as the average trip length, with the impact of draft 2021 Regional Plan. The avoided VMT is converted to GHG emissions reductions using the average vehicle emission factors,

discussed in Section 7.3.1 (GHG Emission Factor for On-Road Transportation). The GHG emissions reductions in 2030 and 2035 are shown in Table 52.[63]

Table 52 Key Assumptions and Results Measure 3.2: Increase Safe, Convenient, and Enjoyable Transit Use

Year	San Diego Residents	Mass Transit Mode Share		Additional Residents Using Transit to Destinations	Trip Length* (miles per round trip)	VMT Avoided by Use of Transit** (million miles per year)	Average Vehicle Emission Rate (g CO₂e/mile)	Emissions Reduction (MT CO₂e)
		Baseline * (%)	Target (%)					
2030	1,552,815	4.5%	10%	91,450	16	512	318	162,866
2035	1,599,353	5.4%	15%	153,060	16	857	273	234,351
*Baseline transit mode share and trip length were model output from SANDAG ABM2+ and draft 2021 Regional Plan **Assume 347 weekdays to year and one resident re takes one round trip per weekday								
The emissions reduction is projected based on CAP assumptions and future impact of State policies and programs used in the CARB EMFAC2021.								
Energy Policy Initiatives Center 2021.								

7.6.4.3   Measure 3.3: Increase Telecommuting

The goal of Measure 3.3 is to achieve 4% and 6% VMT reduction citywide by implementing telecommute policies and programs in the City.

The citywide 2030 VMT reduction is equivalent 116,000 commuters switch to fully telecommute or 292,000 commuters switch to telecommute 2 days a week; and the 2035 VMT reduction is equivalent 180,000 commuters switch to fully telecommute or 450,000 commuters switch to telecommute 2 days a week. The VMT reductions are estimated based on 50% of the commuter VMT reduction achieved during the COVID Stay-At-Home Order (March to December 2020) and 75% of this commuter VMT. During March to December 2020, the weekday VMT region-wide on freeways was 22% lower than during the same period in 2019.[64] Assuming 35% of the freeway VMT is during peak commute period (6am to 10am and 3pm to 7pm on weekdays).[65]

The avoided VMT is converted to GHG emissions reductions using the average vehicle emission factors, discussed in Section 7.3.1 (GHG Emission Factor for On-Road Transportation). The GHG emissions reductions in 2030 and 2035 are shown in Table 53.

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[63] Mode share and trip length provided by SANDAG to the City of San Diego (Sep 2021). SANDAG Activity Based Model 2+ Release v14.2.1, Draft 2021 Regional Plan Networks, Policies, and Assumptions, Growth Forecast 14.38, Year 2035, Reference Scenario 206, February 2021. The 2030 mode share was interpolated linearly between 2019 and 2035. Absent final regional plan trip data not yet released, emissions reductions are based on a percentage of residents taking one alternative mode roundtrip daily in place of an equivalent amount of vehicular travel.

[64] SANDAG: Highway Hot Spots & Volumes Tracker.

[65] CalTrans: Performance Measure System (PeMS). 2019 Data. VMT during peak commute period does not mean all VMT are commute VMT.

Table 53 Key Assumptions and Results Measure 3.3: Increase Telecommuting

Year	Projected BAU City VMT* (million miles per year)	VMT Reduction by Increasing Telecommute (%)	VMT Avoided by Telecommuting (Million miles per year)	Average Vehicle Emission Rate (g CO_2e/mile)	Emissions Reduction (MT CO_2e)
2030	14,839	4%	570	318	181,205
2035	15,378	6%	886	273	242,177

*BAU projections are based on the service population increase in the City, and does not include the impact of SANDAG's draft 2021 Regional Plan.
The emission rates and emissions reductions are projected based on CAP assumptions and future impact of State policies and programs used in the CARB EMFAC2021 model.
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7.6.4.4 Measure 3.4: Reduce Traffic Congestion to Improve Air Quality and Trip Length

The goal of Measure 3.4 is to install 13 new roundabouts by 2030 and an additional 7 (20 total) by 2035. The effect of roundabouts on fuel reduction depends on the traffic volume and size of the intersections on the arterials. Based on a study of small roundabouts with similar sizes, the annual fuel savings per roundabout is around 19,000 gallons.[66] As vehicles get more efficient and the number of ZEVs increases, the fuel savings per intersection in 2030 and 2035 would be less than in previous years. Assuming the same gallons of annual fuel savings per roundabout could be realized in future as in the CAP baseline year, the increase in vehicle fuel efficiency would lead to fuel savings of approximately 14,000 gallons in 2030 and 12,000 gallons in 2035.[67] The associated GHG emissions reductions in 2030 and 2035 are shown in Table 54.

Table 54 Key Assumptions and Results for Measure 3.4: Reduce Traffic Congestion to Improve Air Quality and Trip Length

Year	Number of New Roundabouts	Increase in Vehicle Fuel Efficiency after Baseline Year	Equivalent Fuel Savings per Intersection (Gallons per year)	Fuel Savings for All Intersections (Gallons per year)	GHG Emissions for Fuel* (lbs CO_2e/gallon)	GHG Emissions Reduction (MT CO_2e)
2030	13	28%	14,100	180,765	18.5	1,519
2035	20	38%	12,122	242,437	18.5	2,037

*Emissions per gallon of fuel use for an average vehicle in the San Diego region, regardless of fuel type, vehicle type, or fuel economy.
Increase in vehicle fuel efficiency is based on the decrease of the average vehicle emission rate in the City of San Diego.
The emission rates and emissions reductions are projected based on CAP assumptions and future impact of State policies and programs used in the CARB EMFAC2021 model.
Energy Policy Initiatives Center 2021.

7.6.4.5 Measure 3.5: Climate-Focused Land Use

The goal of Measure 3.5 and Measure 3.6 combined is to achieve additional an 8% VMT reduction per capita by 2030 and 15% by 2035, through land use or parking reform policies. The VMT per capita used

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[66] Varhelyi: The Effects of Small Roundabouts on Emission and Fuel Consumption: A Case Study (2002). The study estimated the traffic volume of the intersection and the fuel consumption before and after the roundabout. The traffic volume is 23,500 vehicles per day and the fuel savings are approximately 144 kg per day after the roundabout installation.

[67] The average vehicle emission rate in 2030, 289 g CO_2e/mile, is 40 percent less than that in 2012, 483 g CO_2e/mile, as discussed in Section 4.4.

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here is calculated based on the City O-D VMT divided by San Diego residents, which may be different from the VMT per capita used for other planning analysis. The avoided VMT is converted to GHG emissions reductions using the average vehicle emission factors, discussed in Section 7.3.1 (GHG Emission Factor for On-Road Transportation). The GHG emissions reductions in 2030 and 2035 are shown in Table 55.

Table 55 Key Assumptions and Results Measure 3.5: Climate-Focused Land Use and Measure 3.6: Vehicle Management

Year	Per Capita VMT Reduction (%)	Per Capita VMT Reduction* (Miles per capita weekday)	VMT Avoided** (Million miles per year)	Average Vehicle Emission Rate (g CO_2e/mile)	Emissions Reduction (MT CO_2e)
2030	8%	2.0	1,075	318	341,724
2035	15%	4.0	2,214	273	605,185
*The baseline 2016 VMT per capita is 26.6 miles per capita per weekday **347 weekdays per year The emission rates and emissions reductions are projected based on CAP assumptions and future impact of State policies and programs used in the CARB EMFAC2021 model. Energy Policy Initiatives Center 2021					

7.6.4.6   Measure 3.6: Vehicle Management

The GHG emissions reductions from Measure 3.6 are combined with Measure 3.5 and discussed in Section 7.6.4.5.

7.6.5   Strategy 4: Circular Economy

7.6.5.1   Measure 4.1 through Measure 4.4

The goal of Measure 4.1 through Measure 4.4 is to achieve: (1) 82% waste diversion rate by 2030 and 90% waste diversion by 2035, and (2) 85% landfill gas capture by 2030 and 90% landfill gas capture by 2035. The 82% waste diversion rate would result in 3 pounds per person per day (PPD) waste disposed in landfills in 2030, and the 90% waste diversion rate would result in 1.7 PPD waste disposed in 2035.

The City has not conducted a waste characterization study recently; therefore, the 2012 waste composition is used and held constant through the CAP horizon.[68] The emissions avoided from increasing the waste diversion rate is the difference between the waste category BAU emissions and the solid waste emissions using the target diversion rates and corresponding PPD waste amounts. Table 56 summarizes the key assumptions and results.

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[68] Recent State actions include organic waste recycling, which may reduce the mixed waste emission factor in future years.

Table 56 Key Assumptions and Results for Measure 4.1 through Measure 4.4

Year	Waste Disposed at Landfills from San Diego			Landfill Gas Capture Rate	Emissions with Targeted Diversion Rate (MT CO₂e)	Business as Usual Emissions (MT CO₂e)	GHG Emissions Reduction (MT CO₂e)
	lbs/person/day	short tons/year	MT/year				
2030	3.0	844,498	766,115	85%	87,587	302,855	215,268
2035	1.7	490,362	444,848	90%	34,626	311,931	277,305

Emissions from waste are calculated based on the mixed waste emission used in Section 3.2.4, oxidation rate (10%), and the waste capture rates. The projected emissions reductions are based on the CAP assumptions.
Energy Policy Initiatives Center 2021.

7.6.5.2   Measure 4.5 Capture Methane from Wastewater Treatment Facilities

The goal of Measure 4.5 is to capture 95% of the methane from the City's wastewater treatment facilities by 2030. The biogenic emissions, as described in Section 3.2.6, are from the methane captured. Table 58 summarizes the key assumptions and results.

Table 57 Key Assumptions and Results for Measure 4.5 Capture Methane from Wastewater Treatment Facilities

Year	Methane Capture Targets (%)	Biogenic GHG from Wastewater (MT CO₂e)	Emissions Reduction (MT CO₂e)
2030	95%	27,854	26,461
2035	95%	28,688	27,254

The projected emissions reductions are based on the CAP assumptions.
Energy Policy Initiatives Center 2021.

7.6.6   Strategy 5 Resilient Infrastructure and Ecosystems

7.6.6.1   Measure 5.1 Carbon Sequestration through Restoration

The goal of Measure 5.1 is to restore salt marsh land in the City, 693 acres total by 2035. The carbon sequestration potential is based on the acreage of salt marsh and the carbon burial rate per acre.[69] Table 58 summarizes the key assumptions and results.

Table 58 Key Assumptions and Results for Measure 5.1 Carbon Sequestration through Restoration

Year	Salt Marsh Land Restored* (Acres)	Carbon Burial Rate** (MT CO₂ per acre)	Carbon Sequestration (MT CO₂)
2030	347	1.17	406
2035	693	1.17	812

*Assume the restoration starts in 2025 **Converted from 79 gram C per m² to MT CO₂ per acre
Callaway et al 2012, Energy Policy Initiatives Center 2021.

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[69] Callaway et al: Carbon Sequestration and Sediment Accretion in San Francisco Bay Tidal Wetlands (2012).

7.6.6.2   Measure 5.2 Increase Tree Canopy

The goal of Measure 5.2 is to increase the urban canopy to 28% by 2030 and 35% by 2035. The tree canopy cover in the City currently (2015-2019 period) is 13% based on a LiDAR study.[70] The carbon sequestration potential is based on the potential canopy cover and the CO_2 absorption rate per acre.[71] Table 59 summarizes the key assumptions and results.

Table 59 Key Assumptions and Results for Measure 5.2 Increase Tree Canopy

Year	Canopy Cover Target (%)	Targeted Canopy Cover (Acres)	CO2 Sequestered Rate* (MT CO_2 per acre)	Carbon Sequestration (MT CO_2)
2030	28%	53,125	1.56	82,806
2035	35%	65,625	1.56	102,290
Brown et al 2004, Energy Policy Initiatives Center 2021.				

7.6.6.3   Measure 5.3 Increase Local Water Supply and Reduce Water Dependence

The goal of Measure 5.3 is to provide 33,000 acre-feet of local water supply from the PureWater project Phase 1 and 2 by 2030, and 93,000 acre-feet by 2035. The local water supply will replace imported raw water purchases from SDCWA. The emissions avoided are calculated based on the difference between upstream energy intensity and PureWater water treatment energy intensity (tertiary treatment), and the difference between the statewide electricity emission actors and the SDCP emission factors. Table 60 summarizes the key assumptions and results.[72]

Table 60 Key Assumptions and Results for Measure 5.3 Increase Local Water Supply and Reduce Water Dependence

Year	Pure Water Supply (AF)	kWh Avoided with PureWater – Upstream*	Local Electricity Use Added from PureWater Supply** (kWh)	Net Emission Reduction (MT CO_2e)
2030	33,600	58,965	39,415	9,910
2035	92,960	163,137	109,048	18,507
*SDCWA untreated water upstream energy intensity is 1,755 kWh per acre-foot (Section 3.2.5), the electricity emission factors are 371 lbs CO_2e/MWh in 2030 and 250 lbs CO_2e/MWh **PureWater energy intensity (tertiary treatment) is 1,173 kWh per acre-foot, the electricity used for PureWater is assumed to be zero-emissions (100% renewable or carbon-free electricity from SDCP) Energy Policy Initiatives Center 2021.				

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[70] City of San Diego: Urban Tree Canopy Assessment.

[71] Brown et al: Baseline Greenhouse Gas Emissions and Removals for Forest, Range, and Agricultural Lands in California (2004). The same assumption as used in 2015 San Diego CAP.

[72] The PureWater energy intensity was provided by City staff and PureWater supply in 2030 and 2035 were reported in the City's 2020 Urban Water Management Plan.

Energy Policy Initiatives Center (EPIC)

EQUITABLE ENGAGEMENT IN THE CITY OF SAN DIEGO

Best Practices and Lessons Learned for Engaging Communities of Concern

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Executive
Summary

Embedding equity in climate planning means learning from the past to make the future better for all, especially for those who have been traditionally left out. By dedicating a substantial financial investment and partnering with statewide nonprofits and local community-based organizations, the City of San Diego expanded its capacity and tapped into the expertise of San Diego's community leaders to uplift the voices of **more than 700 residents** who traditionally would not have participated in the city's planning efforts. Though messy at times, this effort resulted in new partnerships and engagements, which illuminated the experiences of vulnerable populations living in San Diego's Communities of Concern. The outreach and engagement plans, uniquely developed and led by various community-based organizations, included a set of meaningful activities to meet traditionally under-engaged residents "where they are" and provided a safe environment where education and learning could take place. The process not only resulted in valuable information and community input that will help ensure the City's Climate Action Plan update is centered around equity, it helped increase trust and understanding between the City of San Diego and some of the community-based organizations that work within the City's Communities of Concern.

It must be noted that this engagement effort was not flawless. Timelines and COVID restrictions played a critical role in the outcomes. At the onset of the opportunity, the community-based organizations expressed the desire for more time to understand and strategize about the objectives of this effort. They also needed needed additional capacity to navigate complex contracting and payment processes. Due to COVID-19 restrictions, many of the community-based organizations were already committed to other community support activities and were searching for new ways to connect with their communities since in person gatherings were no longer an option.

In an effort help the community-based organizations navigate these challenges, the Institute for Local Government (ILG) and the Greenlining Institute developed four virtual roundtable discussions. Though not a part of the original scope of work, these small group discussions provided a venue for the community-based organizations to discuss techniques and approaches to the work, strategize and problem-solve in real time and share honest views about past engagements and investments in San Diego's Communities of Concern. The conversations that took place during these discussions not only supported the engagement work of the community-based organizations, it supported trust-building between the City and community partners.

While this ambitious effort resulted in increased engagement to support a more equitable climate action planning process, it revealed that there is more work to be done. Establishing trust and authentically engaging Communities of Concern will require continued dedication and investment from all parties involved. Committing ongoing resources to capacity building and technical assistance to help strengthen local coordination, leadership, knowledge, skills and expertise will increase the ability of communities to work with the City of San Diego in a more authentic and sustained way. Embedding equity from the beginning and incorporating community input into policies and plans will help create more resilient communities for future generations.

Background

Building on the ILG's work leading the BOOST Program, the City of San Diego (the City) contracted with ILG to help increase public engagement around planning efforts for both its Climate Action Plan update and its first-ever Climate Resilience Plan, called Climate Resilient SD. These were separate efforts, managed by two different departments within the City of San Diego. The Climate Action Plan update is managed by the Sustainability Department and the Climate Resilience Plan is managed by the Planning Department.

While separate efforts with different budgets, both sought to address social equity and environmental justice – more commonly referred to as *climate equity*. To ensure that climate equity was at the forefront of both plans, the City wanted to ensure that traditionally under-engaged San Diegans were empowered to participate throughout the climate action planning process.

In 2019, the City developed the Climate Equity Index to identify the relative level of access to opportunity in each San Diego census tract. The updated index revealed that 88 census tracts in the City have moderate to very low access to opportunity. These areas are referred to as Communities of Concern. The City identified four Communities of Concern to target in its engagement efforts: 1) City Heights, 2) Barrio Logan, Southeastern San Diego 3) Encanto, Skyline, Paradise Hills and 4) San Ysidro, Nestor, Otay Mesa.

The City invested $200,000 ($150,000 from the Sustainability Department and $50,000 from the Planning Department) to ensure that inclusive engagement of those Communities of Concern was achieved in a focused and targeted manner. An additional in-kind contribution of approximately $25,000 was provided by ILG, thanks to generous funding provided by the California Endowment. Approximatelly $150,000 of the total funding for this effort was allocated to community-based organizations (CBOs) that have built trust with residents living within the Communities of Concern. ILG worked with five community-based organizations to develop unique engagement and outreach plans aimed at educating and engaging the identified neighborhoods in the City's climate action planning efforts. The goal of these activities was to empower the CBOs and support them, while gaining a better understanding about how climate change affects residents' lives and what strategies and topics were most important to the residents they serve. The Greenling Institute (Greenlining) served as the equity advisor for the work to ensure that equity best practices were embedded in the discussions and to provide guidance on how to co-plan with community partners.

This report is developed for the Sustainability Department and includes a summary of the activities and outcomes of the three-month engagement efforts which focused on Communities of Concern, as well as best practices, lessons-learned and recommendations aimed at building trust, capacity and resources in neighborhoods that need it most.

The Participating Partners

Casa Familiar was founded in 1973 and is a 501(c)(3), community-based organization dedicated to serving residents in South San Diego County. Originally established in 1968 under the name Trabajadores de la Raza, Casa has grown and expanded its efforts from solely serving Spanish-speaking clients in San Ysidro to providing services and programs to all South San Diego County residents. Casa Familiar is the leading service and community development organization in the community of San Ysidro, providing over 40 bilingual programs and services at six different sites in the community. Casa's approach allows the agency to adapt to community needs through a multi-faceted program and funding strategy.

Climate Action Campaign (CAC) is a nationally recognized leader on climate action in Southern California, advocating for policies, plans and programs that advance climate justice and create safe and livable communities for all. CAC educates, organizes and mobilizes, elected officials, community advocates, organizers, businesses and environmental allies around five key fights including; 100% clean energy, bikeable, walkable neighborhoods, world-class transit; all-electric homes and shade trees. With the understanding that past and present racially-discriminatory policies and practices have left communities of color to bear the brunt of the climate crisis, CAC advocates for all five fights through the lens of equity and justice.

Environmental Health Coalition (EHC) is a San Diego/Tijuana nonprofit social and environmental justice organization dedicated to empowering people, organizing communities and achieving justice for low-income communities of color. EHC is an effective, results oriented organization with a passion for social change. EHC has been making a difference in the lives of the individuals, families and communities for over 40 years. Social Change for Justice Model is a framework integrating EHC's ideology and strategies to increase their ability to achieve social and environmental justice goals. The model incorporates all aspects of the EHC structure and method of work recognizing the critical importance and integration of three core strategies: community organizing, policy advocacy and leader empowerment.

Mid-City CAN is comprised of residents of the Mid-City neighborhood who care about making a lasting impact in their community. The organization gathers around the top issues residents care about, forming teams of volunteers. Mid-City CAN helps organize these teams to accomplish their goals. Their mission is to create a safe, productive and healthy community through collaboration, advocacy and organizing. Mid-City CAN takes a unique approach to accomplish that mission—they work with residents and partners to drive positive change across many systems and issues. Rather than coming in as an outside force, Mid-City CAN extensively collaborates with the people of City Heights to see what they need the most in their neighborhood. The most pressing issues raised by the people themselves are then addressed through Momentum Teams, which are councils made up of residents from City Heights.

San Diego Urban Sustainability Coalition (SDUSC) was created to address systemic inequity after it became increasingly clear across various channels that Southeast San Diego's community lacked representation in important discussions about sustainability as well as opportunities to enter the green job economy. Today, it exists to bring together Communities of Concern, stakeholders and like-minded organizations through grassroots organizing to inform processes and policy, to improve the quality of life and to increase opportunities for residents of Southeast San Diego and other resilient communities.

The Greenlining Institute is a policy, research, organizing and leadership institute working for racial and economic justice. Founded in 1993, Greenlining works on a variety of major policy issues, from the economy to environmental policy, health care and many others, because economic opportunity has many parts, and they all connect. Greenlining's approach connects community leaders with policymakers, researchers and private sector leaders to design and support policies designed to open doors to opportunity, recognizing that America's racial wealth gap was created by deliberate policy choices and it will take deliberate, race-conscious choices to end it.

The Institute for Local Government is a statewide nonprofit organization with a long history of educating and building the capacity of cities, counties and special districts to work with their communities to achieve a variety of goals and objectives. With a 65-year history of serving the needs of local governments in California, ILG supports local agency leaders with tackling the state's most pressing and evolving issues including sustainability and climate resilience, housing, public engagement, workforce development and leadership and governance. ILG is closely aligned with three affiliate organizations: the League of California Cities, the California State Association of Counties and the California Special Districts Association. Together with these local government partners, ILG maintains a solid foundation for continued engagement with local leaders making it uniquely positioned to empower and educate them while providing conscious counsel and expertise.

Planning for More
Equitable Engagement

In 2020, the City of San Diego hosted Climate Action Plan update virtual forums where approximately 400 attendees discussed which climate actions they wanted to prioritize, what climate equity means to them and how climate change has already impacted them. An online survey, available from April through November 2020, asked San Diegans how they prioritized various actions the City might take and what barriers they face to implementing sustainable practices and habits in their own lives. More than 1,700 people responded to the survey. While these activities may have included responses from residents living within Communities of Concern, the City wanted to ensure greater participation rates from specific neighborhoods including City Heights, Barrio Logan, Southeastern San Diego, Linda Vista, Midway and San Ysidro. Five community-based organizations were chosen to participate in this project because of their connections and expertise with outreach and education to those living within these communities.

To honor the CBO's expertise, the City did not dictate a structured approach to the community engagement work. The goal of this effort was to empower these community-based organizations to design and implement engagement activities to ensure San Diegans facing the greatest climate impacts are robustly represented in the Climate Action Plan update. In addition to identifying an engagement strategy that was responsive to the communities they serve, the CBOs were encouraged to anticipate resource needs and ensure that equity was centered throughout the process. Each CBO developed a unique public engagement plan that would ensure representative and meaningful participation from the communities they serve. The outcome of the planning process was a list of diverse engagement events, suggestions for expanding language access and innovative approaches to collect data and feedback through a variety of events and promotional activities.

Executing Community-Based
Engagement Plans

While the CBOs are experts at educating and communicating with the communities they serve, many found it difficult to adapt the City-provided climate planning materials to be more accessible and understandable to residents living within Communities of Concern. The specific information the City provided, including technical information to help inform the strategies to include in its Climate Action Plan update, required additional training, education and translation that was not possible due to the condensed timeframe for the outreach effort. As a result, the group decided to focus on gathering answers to three key questions:

- How has the change in climate affected you and/or impacted your quality of life?

- What concerns you most about the changing climate?

- What changes do you want to see the Climate Action Plan support in your neighborhood?

The CBOs adapted those questions for their audience and tailored the messaging to align with their engagement activities. A high importance was placed on making the questions conversational and culturally competent. Some CBOs were able to expand the questions to gain a better understanding of specific concerns and better prioritize specific strategies. The community-based organizations each implemented their own strategy in the timeframe provided.

The Environmental Health Coalition's strategy consisted of three activities to encourage engagement from the Barrio Logan community. The staff hosted a virtual presentation at its Community Action Team meeting, presented a virtual workshop with Spanish interpretation and rounded off the activities with a phone banking survey in both English and Spanish. Both virtual events included breakout groups with guided discussion, note-taking and Zoom polling. For the phone banking effort, three canvassers contacted more than 750 households, which resulted in 84 connections to residents that either filled out a seven-question survey on the phone or after the call. With this engagement approach, EHC successfully reached the traditionally under represented and provided tailored education that connected the City's Climate Action Plan update to their communities' concerns about air pollution, health impacts, climate change and greenhouse gas (GHG) reduction strategies.
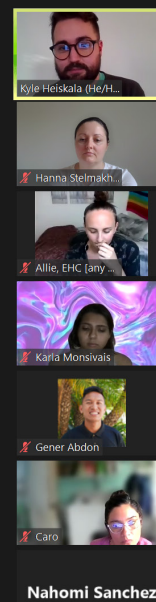
San Diego Urban Sustainability Coalition (SDUSC) hosted two virtual community conversation workshops for residents in the South East and one Climate Ambassadors' focus group with a total of 56 participants. Simultaneous Spanish translation was provided at all events. The workshop design focused on small group dialogue and encouraged engagement via the chat function. The events provided an opportunity for participants to develop a baseline definition of equity, internalize and express how climate change impacts their daily lives and hear from their neighbors about their experiences and priorities related to a changing climate.
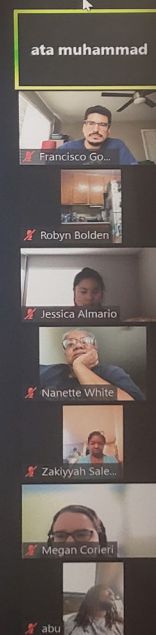
Mid-City CAN conducted phone banking and hosted two workshops, one in Spanish and one in English, to reach more than 250 residents. The phone banking included three short open-ended questions:

- How has the change in climate affected you?

- What are the most concerning aspects of this change?

- How does the change in climate impact your quality of life?

The phone banking proved to be especially effective and reached a greater number of residents without requiring a substantial time commitment. This outreach tactic provided an opportunity for the residents to talk about what is important to them with a trusted CBO partner from the comfort of their home.

Climate Action Campaign conducted 12 one-on-one phone interviews with community leaders and nine virtual presentations with community organizations and planning groups that included links to a follow-up survey. The stakeholder interviews allowed for deep dialogue about the community's concerns as well as their wants and needs, and allowed for the opportunity to discuss issues that were important to them. The presentations raised awareness about City's Climate Action Plan update and provided background education about the CAP and offered an prize drawing to encourage discussion and participation in the survey.

SHAPE SAN DIEGO'S CLIMATE PLAN
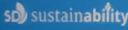
MIDWAY
—
EASTERN AREA
—
LINDA VISTA
—

The City of San Diego is updating their landmark 2015 Climate Action Plan.

Join Climate Action Campaign virtually to learn more about what this means for your community and how you can help shape it.

Or give feedback via phone/email:
info@climateactioncampaign.org
(619)419-1222

Casa Familiar surveyed residents in the San Ysidro community at several in-person food distribution events, hosted three virtual community group presentations, engaged families at the San Ysidro School District Parent Resource meeting and surveyed its Resident Leadership Academy. With the intent of meeting the community "where they are," Casa Familiar staff experimented with two different approaches at food distribution lines: the first, verbally asking each resident the questions; the second, providing a paper survey with the questions. While the first approach took longer and netted fewer overall responses, it provided the opportunity for anecdotal discussions to collect informed feedback while providing participation opportunities to traditionally under-engaged residents. Staff was able to educate and have productive conversations with residents, without asking for an additional time commitment beyond the time they were already spending standing in line.

Engagement Data
and Outcomes

Through this effort, the community-based organizations reached **762 people by initiating 26 unique engagement activities over a three-month period.** Each of the community-based organizations focused their outreach and engagement efforts on their designated Communities of Concern. The collection of demographic information, such as zip codes, was optional via surveys at workshops and other events, resulting in 30% of participants sharing this information.

Based on the demographic data collected, most participants come from six zip codes (92102, 92113, 92115, 92154, 92173 and 92105), many of which contain Communities of Concern. In addition, the community-based organizations were also able to engage a younger demographic of residents aged 18-34. Approximately 60% of those engaged identified as Hispanic. In addition, 43% indicated their annual income was less than $58,000, while 40% chose not to answer that question or left the income field blank. The available data shows that the CBOs reached diverse and traditionally under-engaged populations of the Communities of Concerns including those that identify as Hispanic, African American, youth and young adults and low- and extremely low-income residents.

ENGAGEMENT ACTIVITIES ZIP CODES

Zip Code	Percentage
N/A	2%
92105	4%
92115	6%
92154	7%
91910; 91911; 91932; 91941; 91942; 91945; 91950;…	8%
92009; 92101; 92103; 92104; 92106; 92107; 92110;…	11%
92102	12%
92173	20%
92113	29%

PARTICIPANT AGE

Bar chart showing participant age distribution:
- Under 18: ~3%
- 18-34: ~30%
- 35-44: ~17%
- 45-54: ~14%
- 55-64: ~21%
- 65+: ~14%
- N/A: ~2%

RACE/ETHNICITY

Bar chart showing race/ethnicity distribution:
- HISPANIC: 60%
- WHITE: 16%
- AFRICAN AMERICAN: 11%
- N/A: 5%
- PREFER NOT TO ANWER: 4%
- AMERICAN INDIAN: 1%
- ASIAN: 1%
- OTHER: 1%

INCOME	
<$35,000	30%
$35,000 - $58,000	13.0%
$58,001 - $93,000	9.2%
$93,000+	7.3%
N/A	22.1%
Prefer not to answer	18.4%
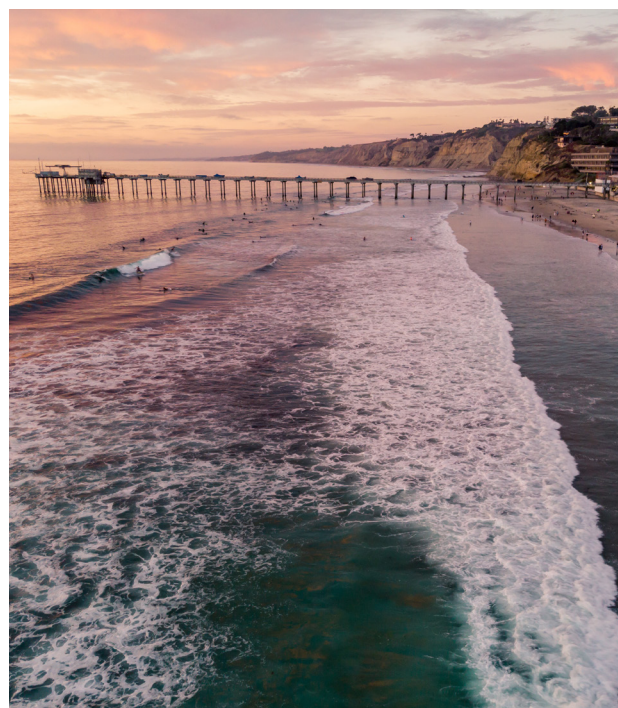
Community
Feedback

Communities of Concern Lack Green Spaces: This concern surfaced in almost all engagement events. Community members indicated they would like to see more community gardens, parks and other natural spaces to provide relief from extreme heat. They also noted that this could increase access to recreational opportunities and create community gathering spaces. Proposed solutions include:

- Increase tree canopies for shade, improved air quality and neighborhood beautification

- Create more accessible and safe public green spaces, parks and green recreational areas within the communities

- Improve San Diego's Free Trees SD Program by subsidizing the cost of maintenance to incentivize more people to participate in the program

- Fund existing and new urban gardens. Provide educational opportunities for the community to learn how to create a garden and grow fresh produce

The Current Streets are Unsafe and Inadequate for Walking and Biking:
Residents in community conversations spoke of the "auto-centric" make-up of San Diego. One noted that "the current vehicular-transit culture in San Diego does not promote more active transportation and collective modes of transport." Several residents from the San Ysidro community discussed "years of disinvestment" while residents in Midway and Linda Vista shared that "there are sidewalks and bike lanes that suddenly end," which makes them feel unsafe to walk and bike. Solutions offered include:

- Better define and promote pedestrian and cycling pathways to promote active transportation

- Make streets friendly for pedestrians, including implementing sidewalks and protected bike lanes

- Improve quality and increase frequency of bus and trolley options

- Create more comprehensive transportation infrastructure that connects Communities of Concern to job centers and amenities

- Reduce public transit cost burdens on Communities of Concern through reduced fares and low to no-cost transit passes

Climate Change and Air Pollution are Impacting Community Health: Many of the residents contacted through this engagement effort experience high levels of air pollution that is reportedly affecting their health and well-being. They attribute this condition to the high occurrence and concentration of air pollution from transportation sources like heavy-duty trucks, buses, older vehicles and nearby shipyards. In phone conversations conducted in Spanish, residents reported anxiety, depression, fear and mood changes due to the changing climate and concerns about the unknown future. Extreme heat, wildfire

and smoke resulting from wildfire were among the most mentioned concerns. In addition to the health impacts that stem from climate impacts, residents also noted financial concerns about the potential for increased cost of gas, water and electricity during heat events. Some residents noted that they do not have air conditioning available. Some proposed solutions include:

• Plant more trees to clean the air and mitigate the heat island effect

• Provide access to amenities within the community to decrease vehicle miles traveled. Amenities may include high-quality food markets, job-centers, recreation areas and high-quality parks

• Focus on projects that improve the quality of life for communities most impacted by pollution and climate change

• Offer grants for homeowners to invest in air filtration systems to keep pollution out of homes

• Create community resiliency hubs – places to escape the extreme heat and toxic air

• Promote programs to replace gas stoves with electric

> **"I just think if everyone in my neighborhood was more informed about how they could help, it would unify everyone and encourage everyone to work together."**
>
> *- A Southeast San Diego Resident*

Communities of Concern Lack the Infrastructure to be More Sustainable:
Residents say what is often characterized as blight, is really a lack of infrastructure to address more sustainable solutions in their community. Residents say lack of proper waste management infrastructure and increased disposal fees have led to litter and trash in their neighborhoods. They also say that a lack of adequate storm drains and drought tolerant landscaping increases pollution and decreases water conservation activities. Additionally, high fees for community gardens create a lack of opportunity for green spaces and the ability to address food insecurities. Residents also noted that additional charging stations and incentives for electric cars would increase community sustainability. Solutions offered include:

• Designate more commercial and recreation spaces in neighborhoods

• Provide access to healthy food options, such as promoting supermarkets like Whole Foods or Trader Joes

• Provide education and bins for composting programs

• Implement measures to reduce plastic use and promote recycling

- Make public transit more comparable to driving to encourage residents to use public transit

- Improve public transit options including faster and more frequent bus and trolley service, and more stops

- Provide more zero emission public transportation options

- Electrify city-owned trucks, buses and cars

- Create more centralized electric vehicle charging stations in residential communities

- Make transit efficient and affordable, including no-cost or lower-cost transit passes, youth bus passes, etc.

Residents Want More Access to Climate Education and Climate Solutions:
Residents noted a lack of environmental education for high school students and adults. Communities would like to learn how to be better participants and navigate decision-making systems. Solutions offered include:

- Increase reliable environmental and climate education, focusing on equity-centered engagement and solutions

- Have additional conversations about climate topics to break down barriers to accessing knowledge and participating in community dialogues

- Support residents in protecting their homes from wildfires, including brush reduction, healthy forest management and education on safety plans for wildfire prevention

- Conduct better outreach to increase residents' awareness about renewable energy such as solar installations and EV charging options

- Pilot new energy technologies (e.g., expanding the use of landfill gas or installing microgrids)

- Develop subsidized programs for rooftop solar to reduce air pollution from fossil fuels

- Promote programs that help reduce water and energy bills

- Increase job opportunities and workforce development for low-income, black, indigenous and other people of color (BIPOC) communities in the green jobs economy

- Support a green jobs training and employment program to train and employ low-income residents and youth in urban forestry, disaster preparedness, transit operations, renewable energy, etc.

> **"Our community needs to learn how to participate in the spaces where decisions are made."**
>
> *- A Southeast San Diego Resident*

Supporting Community-
Based Organizations

While not part of the original scope of work, ILG and the Greenlining Institute hosted a series of virtual roundtables that convened all five community-based organizations to enhance connections and deepen peer learning. The roundtable discussion format provided a space for the community partners to compare and adapt engagement approaches, share their concerns and discuss solutions for adapting engagement activities during the COVID-19 pandemic.

In the initial roundtable discussion, the community partners expressed concerns about the rushed timeline, difficulty reaching people during COVID-19 and the possibility that feedback from engaging the Communities of Concern would not be accurately reflected in the draft Climate Action Plan update.

In total, ILG and Greenlining hosted four community roundtables, implementing instant online polling throughout. This allowed organizers to ask probing questions that were answered through anonymous response.

Building Trust and Relationships and Learning Together

In the spirit of transparency, roundtable participants were encouraged to share honest feedback about their relationships, needs and process improvement. The roundtable discussions fostered a stronger partnership between the City's Sustainability Department and participating CBOs by creating a space for honest feedback that was welcomed and used to improve the engagement approach and process. In the three-month span of time, about 10% of the participants moved from having a "neutral" description of their relationship with the City to describing it as "good." More dramatic, was the reaction to the question of how participants would describe the engagement of community-based organizations in this particular climate action planning process. At the beginning 92% of participants categorized the engagement of CBOs as "poor," however after the three-month experience, 57% characterized it as "good" and 43% remained "neutral" or "unsure." ILG also inquired if the roundtables were helpful and if the compensation was appropriate. More than 86% found the roundtables useful, while there was more of a mixed opinion about the compensation level with no one saying it was at and appropriate level, 29% saying that is was not appropriate and 71% indicating that they were unsure.

How would you describe your relationship with the City of San Diego, Sustainability Department?

April 7, 2021	June 7, 2021

April 7, 2021
- Excellent - 10%
- Good - 50%
- Neutral - 40%
- Poor - 0%
- Not sure - 0%

June 7, 2021
- Excellent - 0%
- Good - 71%
- Neutral - 29%
- Poor - 0%
- Not sure - 0%
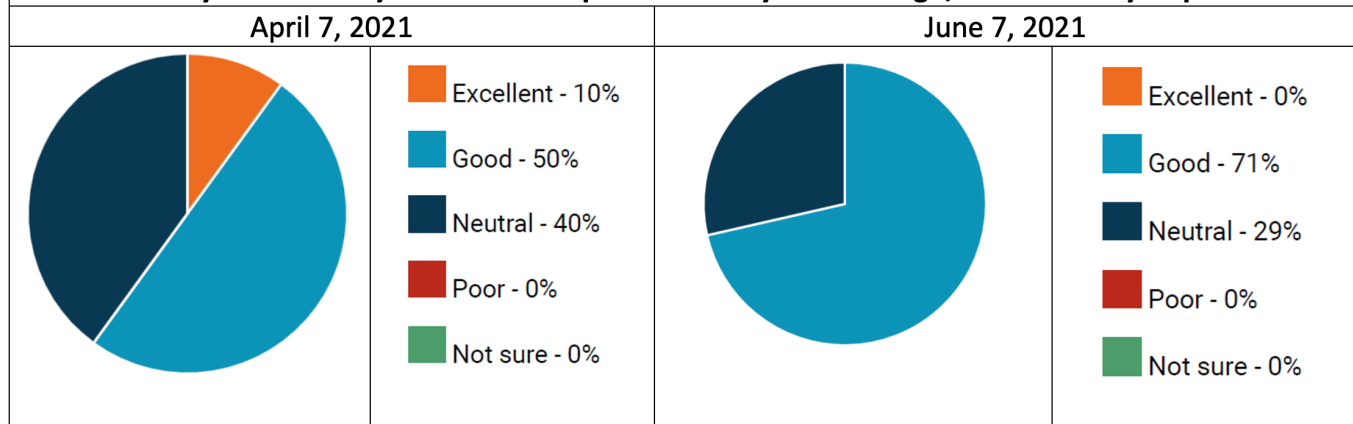
How would you describe the engagement of the CBOs in this climate planning process?

April 7, 2021	June 7, 2021

April 7, 2021
- Excellent - 8%
- Good - 0%
- Neutral - 0%
- Poor - 92%
- Not sure - 0%

June 7, 2021
- Excellent - 0%
- Good - 57%
- Neutral - 14%
- Poor - 0%
- Not sure - 29%
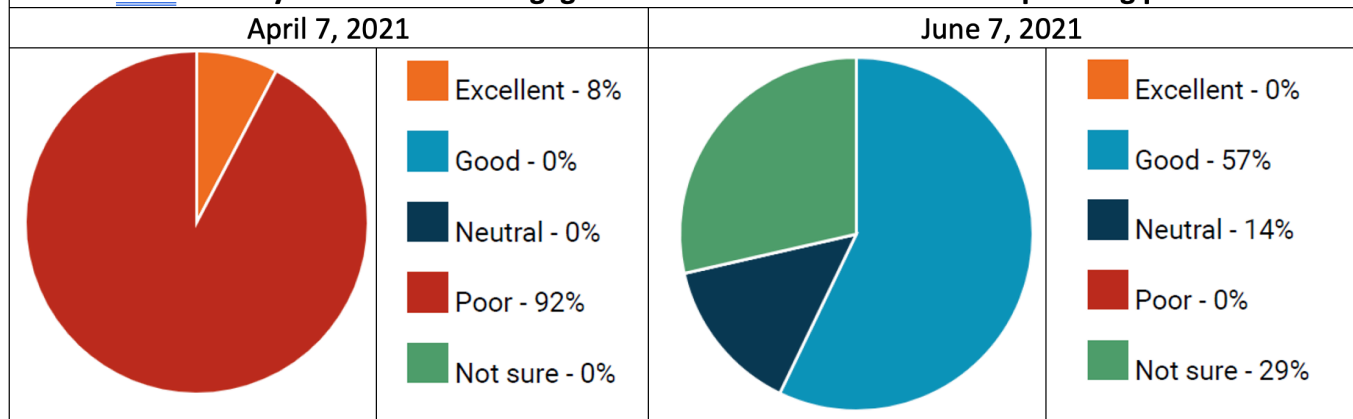
Were the roundtables helpful?

- Yes - 86%
- No - 0%
- Not sure - 14%
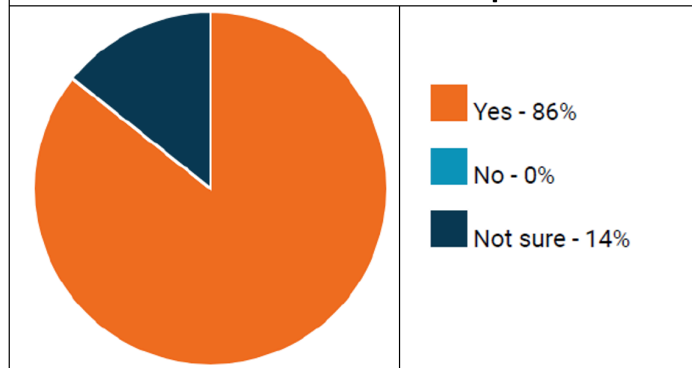
Was the compensation appropriate?

- Yes - 0%
- No - 29%
- Not sure - 71%
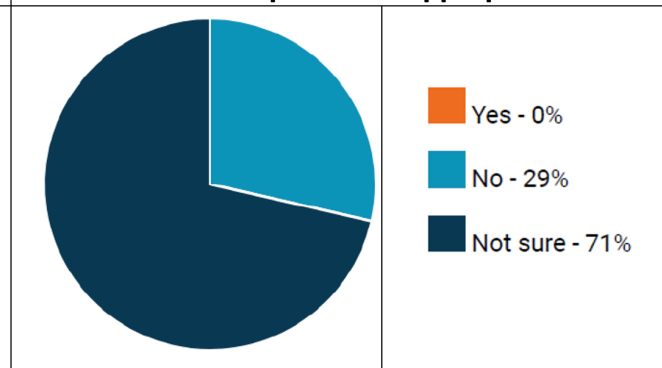
At the last roundtable, the CBOs were asked to reflect on their overall experience of participating in the first such effort of its kind for the City. While the process was at times "messy" and "stressful," CBO staff acknowledged the value of the educational and learning opportunities that allowed them to experiment with various engagement approaches to reach under-engaged and underserved populations during unprecedented COVID-19 times. Even though community-based partners described the process as "experimental" and "stressful," when asked whether the City should consider this type of engagement approach again, 100% of the CBO polling participants gave an affirmative response.
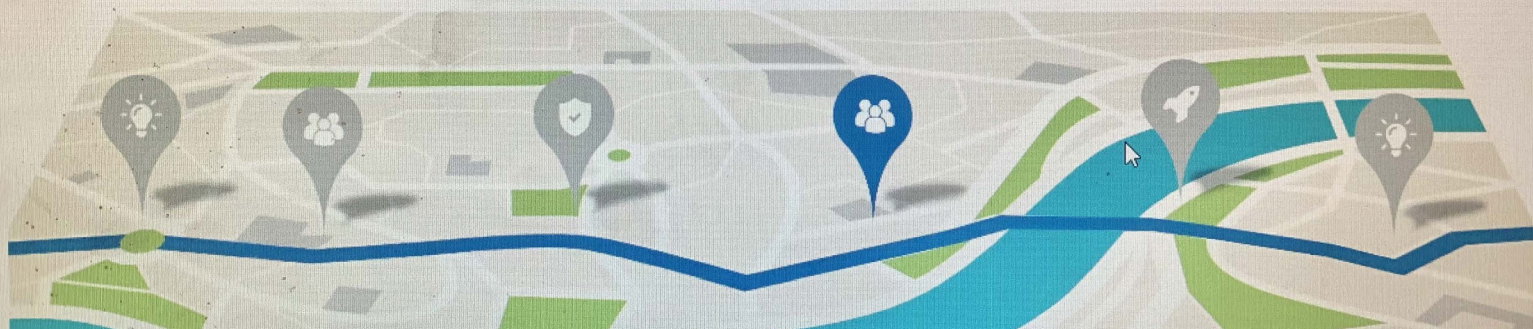
Best Practices, Lessons
Learned and Recommendations

Out of a desire to constantly learn and improve processes and share lessons learned, the City of San Diego's Sustainability Department asked ILG and the Greenlining Institute to summarize the promising practices and key learnings from this effort. As a result of these findings, ILG has provided additional recommendations for the City of San Diego to consider future engagement efforts with its Communities of Concern.

Best Practices

Provide Time and Opportunities to Build Partnerships and Refine Engagement Efforts

Engagement efforts involving Communities of Concern must start in tandem with traditional City-wide outreach efforts and continue for a longer duration of time. Local governments should think about how they can engage with the community, share power during the engagement process and develop individual activities that empower community members and organizations to co-lead.

A substantial investment of time and resources is needed to build this foundation. It is incumbent on the local government agency to show the commitment, dedicate the resources and "make the case" for why CBOs should partner with them and why the CBOs should invest their time and energy in this effort. Furthermore, local agencies must demonstrate how they will be accountable for the agreed upon outcomes.

The roundtable discussions implemented in this process allowed the partners to explore the opportunity, further define their commitment to the process and pivot approaches in response to the outcomes of their efforts and the dynamic responses from the communities they serve.

Constantly evaluating the outcomes and being flexible to pivot the approach is key to further learning and building relationships. Accountability and transparency are necessary to encourage continued partnerships and trust-building.

Build Outreach Efforts With the Community, Not For the Community

In Communities of Concern, engagement is often viewed as a means of gathering consent for initiatives supported by those with wealth and power, rather than a vehicle for shared decision-making power with the community. For residents to exercise their voice equitably, local governments must fundamentally change the way they think about engagement and make transformative changes in long-standing customs, assumptions and institutions. This means moving conversations away from those that foster polarization and towards those that build relationships and trust, foster mutual accountability and strive for understanding within the community.

While is no simple strategy for centering equity in local government planning or projects, community-based organizations can be helpful in developing a process that makes sense for the community. The key to ensuring that this process is based in equity is to "operationalize it," which means making sure equity considerations are present and consistent from the beginning, and throughout the process. This means equity must be evident in the goals, vision, values, process design, implementation and evaluation. Community partners must be present and in consult throughout the process as well.

Community-based organizations are experts in understanding the communities they serve, but even with proper compensation, they may not have the capacity or resources to activate an elaborate engagement campaign by themselves. Understanding the needs and capacity issues of your partners will be important for a successful process.

Meet People Where They Are

Technologies like video conferences and online surveys are great tools, but simply moving planned content to an online platform is not going to be effective for engaging residents who are already left out of traditional approaches. Many segments of communities do not have access to the internet or do not feel comfortable using social media or online forums. Furthermore, climate action strategies may not be top of mind for many residents trying to navigate the complications of COVID-19 or just trying to get through the day of work, school and getting kids to extracurricular activities.

To authentically engage Communities of Concern, local governments must truly understand their values and priorities so that they are sensitive and thoughtful in the way they present information, ask questions and implement engagement activities. Ensuring that the engagement is not only in the preferred language of the community, but is presented in a culturally competent manner and by a trusted partner is key. It's also important to understand how competing priorities and day-to-day responsibilities may impact engagement. Many community-based organizations in this process experienced great success in engaging residents through word-of-mouth marketing campaigns, visually pleasing and easy to understand flyers and old-fashioned telephone calls.

Show Respect and Provide Compensation for Lived Experience

In many cases, "disadvantaged" communities are considered so because institutions have spent decades taking away their advantages. Asking these communities who are already experiencing the burdens from decades of exclusionary planning to come up with solutions to address the issues is not only unfair, it is, at times, offensive. Local governments and community-based organizations should focus on eliciting feedback and compensating residents for information regarding their lived experiences. Throughout the process, organizers should emphasize and help community members understand the value of their experiences as important data for planning and decision-making efforts. Their stories and experiences are qualitative data that should carry weight in how plans are developed and projects are implemented.

Climate action planning relies heavily on quantitative data and strategies, which is anything that can be counted or measured. However, if local governments are to plan for more equitable communities, an emphasis should also be placed on qualitative data and strategies that can acknowledge and uplift the lived experience of the most vulnerable communities.

Be Vulnerable, Authentic and Accountable

The willingness to elicit honest feedback, acknowledge past mistakes and dedicate oneself to mutual accountability is key to making sure that the process and outcomes can withstand political and social changes of a community. Acknowledging that no one person or institution has all of the answers and developing an honest commitment to partner will go a long way. Moreover, sharing power and responsibility builds trust among stakeholders because it makes real the promise that all stakeholders are seen as valuable and equitable partners in creating the community.

Lessons Learned

Timing is Everything

Local governments have a lot on their plates and are often going from one planning effort to another in order to meet state mandates and local objectives. While this seems normal for City staff, it can often be a major barrier when trying to engage the community or other partners who often have less capacity or other commitments of their own. A timeline needs to be developed in partnership with community-based stakeholders to ensure that it is reasonable and practical. As with all planning, the timeline should account for all aspects of the project from contracting, strategizing, creating educational resources, promotion, implementation and reporting. Timelines should allow generous opportunities to test and refine tactics and for CBOs to connect with their own networks to broaden their reach. Furthermore, timelines should take into account other factors such as holidays, vacation and school schedules as well as other planning efforts or events occurring in the area and how this effort will take away time from other activities in which the CBO is engaged. If there are too many other things occurring at the same time, your engagement event will not receive the proper attention or interest from the residents you are hoping to reach.

An Easier Contracting Process is Important

Community-based organizations are often staffed with a small group of hard-working people who have multiple responsibilities and obligations. Because of this, contracting is often cumbersome and time consuming. Furthermore, the contract requirements from most local governments are often extremely demanding. Local governments should consider implementing a special process for forming partnership agreements with community-based organizations with less complicated legal and insurance requirements.

A One Time Investment Is Not Enough

Engagement activities help create and maintain a community that is educated, aware, motivated and fulfilled. Engagement processes should be designed to provide opportunities for residents to take part in the conversation, to learn and to work with others, not just provide input. In communities with a long history of environmental and other injustices, it will take time to rebuild relationships and trust. While planning efforts provide a great opportunity for more intense engagement, engagement itself should be consistent and ongoing to truly be effective.

Many of the community members involved in this experience shared the desire for continuous education and engagement on climate and resilience topics. Community-based organizations can be great partners in this effort, but it is incumbent on the local government to invest in the partnership in a sustained manner. Local governments should not only seek to implement community engagement efforts when they need feedback, but rather develop a collaborative approach that continues to engage the community on an ongoing basis and in a way that helps build knowledge and understanding.

Compensation is Important Not Only for Community-Based Organizations, but for the Residents They Serve

While providing compensation to community-based organizations is necessary to account for their time and efforts, it is equally important to compensate community members for their time and efforts. Many of the CBO partners in this effort used funding to award raffle prizes or compensate community members for the time they spent sharing their experiences and answering the questions. Fairly compensating community members for their time and lived experience can help support equitable inclusion and participation by easing the financial constraints to engage. Working with community-based organizations to develop fair and consistent compensation that fits within the local government's budget will help set expectations for ongoing engagement possibilities.

Recommendations for the City of San Diego

Focus on Building the Capacity of Community Based Organizations for More Sustainable Outcomes

Community-based organizations are partners, not consultants. They should be compensated and engaged as a trusted community partner, not paid to provide specific services for specific planning efforts or project implementation. While ILG recognizes the tight budgets and ongoing demands of local governments, we recommend that the City of San Diego prioritize ongoing investments in their local community-based organizations. This will help the City build capacity to continually develop community networks and accessible educational materials that foster a more sustainable and mutually beneficial partnership throughout the implementation of the Climate Action and Climate Resilience Plans.

Build Trust Through Ongoing Communications and Sustained Engagement

The initial investment of time and financial resources to engage Communities of Concerns increased the favorability and trust between the community-based organizations, the City and its residents. For this to continue to grow, it will be important for community members to see their feedback represented in the Climate Action Plan update. The City must make a concerted effort to communicate engagement outcomes to the communities, specifically, how the City has incorporated feedback and proposed solutions from the Communities of Concerns into the Climate Action Plan update.

It is also important for the community to understand the timelines, short-term and long-term impacts and accountability measures in place to ensure that the implementation of the plan is centered around equity while benefiting historically excluded Communities of Concern. To realize the benefits of involving the community in the climate planning process, trust and long-term relationships must be developed and maintained over time. ILG recommends that the City of San Diego develop a communications plan to report back on progress, maintain relationships with residents and other stakeholders and explore additional engagement and collaboration opportunities around the implementation of plans. Specifically, the City may also consider developing a Community Advisory Committee to oversee and monitor the implementation of the Climate Action Plan Update and Climate Resilience Plan.

Coordinate Communications about Climate, Resilience and Sustainability Efforts

While fundamentally different, the Climate Action Plan update and the Climate Resilience Plan have similar implications to those living in Communities of Concern. To avoid confusion, streamline engagement opportunities and avoid engagement fatigue, ILG recommends that the City departments work diligently to develop a more coordinated budget, process and staffing to support climate and planning efforts, specifically those with which the City hopes to center in equity. This will be important as the City develops its Environmental Justice Element and implements other planning efforts such as the Parks for All Plan. Coordinating the outreach, implementation and communications about the outcomes of these plans will help the City find efficiencies in budgets and staffing. Moreover, it will help the City build more meaningful relationships with the community and increase trust and transparency in the process.

Final Reports from the
Community-Based Organizations

Engagement in Communities of Concern Report
June 30, 2021

Resident Engagement and Feedback

What were the common concerns or themes throughout all of your engagement events?

Bikeable-Walkable Neighborhoods and Safe Streets
- Residents are concerned their communities are too autocentric and unsafe for walking and biking. This is especially true at night, due to speeding cars and inadequate infrastructure.
- Residents in Midway and Linda Vista shared that there are sidewalks and bike lanes that suddenly end, which makes them feel unsafe to walk and bike.

Shade Trees and Neighborhood Nature
- Residents are concerned with the lack of green space and parks to enjoy.
- Residents in Eastern Area identified a lack of shade trees as a major concern, and want the City to explore more equitable ways to plant and maintain neighborhood trees.

Community Blight and Pollution
- Residents are concerned about the lack of resources allocated to waste management and fighting community blight.
- Residents have concerns about the lack of storm drains to fend off flooding and pollution, and drought tolerant landscaping for water conservation.

Social Equity
- Residents want the City to further center social equity, and address a lack of environmental education for highschool students in their communities.

What were common suggestions from the community throughout all of your engagement events?

Bikeable-Walkable Neighborhoods and Safe Streets
- Build safer sidewalks and protected bike lanes that are well lit and connect to transit lines when street repairs are completed.

Shade Trees and Neighborhood Nature
- Create tree canopies for shade, pollution filtration and enhance their neighborhood's quality of life.
- Create more public green space and parks where the community can congregate.
- Alleviate the cost burdens associated with watering the trees they receive from the City's "Free Tree SD" program, which keep residents from participating in the program.
- Allocate more resources to developing urban gardens, and educating the community on agriculture/growing food.

Community Blight and Pollution
- Develop infrastructure in centralized, local areas of neighborhoods to the clean community's air and water.
- Develop subsidized programs for rooftop solar to reduce air pollution from fossil fuels.

World Class Transit and Transportation Justice
- Make public transit more comparable to driving and encourage residents to use public transit, the community suggest that the City improve public transit options including faster and more frequent service, and more stops.
- Create more centralized Electric Vehicle (EV) charging stations in communities.

Process Feedback
Please provide your feedback on the engagement contract, process and/or support from the City of San Diego's Sustainability Department, the Institute for Local Government, the Greenlining Institute:

- Were expectations clearly stated (verbally and in your contract)?
  - Yes, expectations were clearly communicated.
- Were the roles of ILG/City/Greenlining clear in this process? If not, please explain.
  - Initially, ILG/City/Greenlining roles were unclear. However, after the first CBO roundtable and the project progressed, roles became more clear.
- Were you clear on your role? If not, please explain.
  - Yes, we were clear on our role.
- Please provide any additional feedback on the process and support that will help with future efforts?
  - We recommend the City create accessible and relevant presentation materials and other collateral for community members to receive authentic feedback and engagement.
  - We recommend the City give community-based and place-based organizations more time to prepare and execute outreach efforts, as it takes a lot of time to conduct meaningful and inclusive outreach.
  - We suggest that the City provide more funding/compensation for the lived experiences of community members to share feedback; paid community focus groups that reflect a neighborhood's demographics would be ideal.
- Was there enough support and resources provided? Please explain.
  - Yes there was enough support and resources provided. Specifically, we really appreciated ILG's post-event summary and reporting templates, the City's CAP materials, and Greenlining's insights on accessible and inclusive outreach strategies.
- Do you believe that your communities are being fairly represented through this process? If not, why and what is needed to improve the engagement?
  - We received a majority of our community feedback through presenting at Community Planning Groups and Community Councils. However, the majority of

these groups tend to be made up of specific demographics that may not represent the concerns and ideas of the entire community.
  ○ More time, resources, and in person outreach can provide more in-depth community knowledge and feedback on City projects, programs and initiatives.
- Were there any hurdles that were difficult to overcome in the process?
  ○ Covid-19 restrictions played a significant role in limiting our ability to conduct outreach. Although we were able to drop off flyers and conduct phone interviews, some communities clearly need more direct and in person outreach to provide the City with meaningful feedback.

Final Reflections
- Do you have any advice for CBOs doing climate outreach in communities of concern?
  ○ CBOs must always take into account barriers these communities face. Communities of Concern are predominately made up of working class folks, elderly residents, non-English speakers, and Black, indigenous and people of color who may not have access to a computer or laptop, reliable internet, or have the time to attend an online workshop. We did a lot of outreach through social media and email, met with community leaders and organizations, held community meetings at different times, and distributed flyers in targeted areas, but were unsuccessful in connecting with some community members this way. We suggest CBOs attend and engage with residents in-person at their homes, businesses and neighborhood events, and meet community members where they are at instead of inviting them to where CBOs are.
- What is needed to have CBOs participate in the similar process in the future?
  ○ If feasible, we suggest the City offer CBOs budget for community stipends, opportunity drawings, or other financial incentives for people who are sharing their lived experiences. We decided to give an opportunity drawing late in the process to boost attendance for our presentations and give back to the community. We think we could have reached a wider audience had we offered this incentive from the beginning.
- Anything else you want to share that was not captured in these questions?
  ○ The one on one interviews we conducted with community and organization leaders provided us with really great, in depth feedback. For feedback and outreach strategies, we suggest the City and CBOs include community leaders that are well connected to their neighborhoods and experts on the issues pertaining to their communities.

Engagement in Communities of Concern Report

Resident Engagement and Feedback

- What were the common concerns or themes throughout all of your engagement events?
  - The lack of green spaces throughout the community
  - Wildfire smoke during wildfire season
  - Safety/usability of pedestrian and cycling pathways
  - Accessibility to current EV & renewable energy alternatives
  - The current vehicular-transit culture in San Diego should does not promote more active transportation and collective modes of transport
- What were common suggestions from the community throughout all of your engagement events?
  - For EV and solar power incentive programs – better outreach so the residents interested are aware of these opportunities
  - Safer and cleaner streets (more lighting, walkable sidewalks, greenery) will promote more active transportation
  - More trees within the community will result in cleaner air and less heat island effect
  - Access to opportunities within the community will lead to less need for miles traveled – this includes anything from jobs to high quality food markets to recreation areas & centers

Process Feedback

Please provide your feedback on the engagement contract, process and/or support from the City of San Diego's Sustainability Department, the Institute for Local Government, the Greenlining Institute:

- Where expectations clearly stated (verbally and in your contract)?
  - Were the roles of ILG/City/Greenlining clear in this process? If not, please explain.
    - Yes, in the discussions it might have not been as clear that the city/ILG/Greenlining would only provide a loose structure on the surveying/feedback collection. This is not necessarily a negative thing since it allows for the material to be adapted for each community, but due to the short timeline and this being the first time this approach was used by our organizations it was also challenging.
  - Were you clear on your role? If not, please explain.
    - By the most part, yes. It wasn't completely clear from the start that Casa Familiar would have to create the educational & outreach materials (infographics, flyers, surveys, etc.)
  - Please provide any additional feedback on the process and support that will help with future efforts?
    - A longer timeline would've allowed the creation of better material and to reach a higher number of community stakeholders.
    - A more centralized effort to make the material more relatable for the community members. As mentioned before, it is important to adapt surveys and materials for the needs of each particular community, but since there was a

rushed timeline, it would have been helpful if there was a survey that had already targeted communities of concern as the primary audience. The survey that we were using as template seemed focused on capturing a broader San Diego audience. For any future feedback collection in communities of concern, it could be helpful to first create a survey that takes into consideration that in these communities there is usually a blind/barrier that makes residents first think of urgent/immediate needs regarding food/shelter security, safety, and road conditions before thinking of the long term effects of climate change.

- The roundtables were a great way to offer different perspectives and approaches to the work. This was especially useful to learn about the best practices and lessons learned from other organizations to take into consideration when carrying out our own outreach.
- Was there enough support and resources provided? Please explain.
  - The support from ILG/City/Greenlining was adequate but due to the crammed timeline, there was not enough time to take advantage of all of it
- Do you believe that your communities are being fairly represented through this process? If not, why and what is needed to improve the engagement?
  - It was a good approach that needs to become citywide practice in order for the community and our organizations to offer meaningful feedback
- Where there any hurdles that were difficult to overcome in the process?
  - Covid-19 obviously added a clear barrier in order to do our usual canvassing and broad community workshops outreach, but we managed to use the food distributions caused by Covid-19 to our advantage.

Final Reflections

- Do you have any advice for CBOs doing climate outreach in communities of concern?
  - The best way to receive community feedback is to provide some education on the topic while making it relatable to the community member on how it impacts them directly and indirectly before asking them to fill out a survey. Focused small group discussions can also lead to better understanding concerns that community residents might originally not connect directly to climate change on their own.
- What is needed to have CBOs participate in the similar process in the future?
  - Funding and an appropriate timeframe are critical for CBO's to offer adequate feedback that is very representative of the community.
- Anything else they want to share that was not captured in these questions?

Engagement in Communities of Concern

EHC Report – June 25, 2021

Resident Engagement and Feedback

- What were the common concerns or themes throughout all of your engagement events?
  - o **Air pollution that causes respiratory issues and contributes to global warming**
  - o **Bad air quality from diesel trucks and polluting industries next to homes and schools**
- What were common suggestions from the community throughout all of your engagement events?
  - o **The community wants accountability for their feedback incorporated into the final documents and plans, mainly that air pollution contributes to climate change and the City should address it in the Climate Action Plan via a strategy.**
  - o **Focus on projects that improve the quality of life for communities most impacted by pollution and climate change like more parks and trees in the short-term and planning for electric vehicle infrastructure for trucks and buses in the medium-term.**

Process Feedback

Please provide your feedback on the engagement contract, process and/or support from the City of San Diego's Sustainability Department, the Institute for Local Government, the Greenlining Institute:

- Where expectations clearly stated (verbally and in your contract)? **Yes**
  - o Were the roles of ILG/City/Greenlining clear in this process? If not, please explain.
    - ▪ **The roles of ILG/City/Greenlining were not completely clear at the beginning of the process, but became more clear over time.**
  - o Were you clear on your role? If not, please explain.
    - ▪ **Yes, EHC was clear on our role in this process**
  - o Please provide any additional feedback on the process and support that will help with future efforts?

- **The timing was extremely rushed and there was barely enough time to pull the project together. In the future, more time is needed before outreach activities begin or CBOs like EHC will not be able to participate.**
- **The contract process was too cumbersome and a less intense agreement process in the future should be used, like an MOU instead of a contract.**
- **At the beginning of the process, a substantial amount of time was spent explaining our engagement process. In the future, it is important for the City to support how CBOs do engagement rather than trying to define how it should be done.**

- Was there enough support and resources provided? Please explain.
  - **There was sufficient support provided. The main limiting factor was timeline being rushed which prevented more outreach being done.**
- Do you believe that your communities are being fairly represented through this process?
  - **The answer to this question will depend on the final draft document and whether the feedback from community is clearly shown in the draft CAP**
- If not, why and what is needed to improve the engagement?
  - **A clear process for how to incorporate the feedback from the engagement is needed at the beginning.**
- Where there any hurdles that were difficult to overcome in the process?
  - **The short turn around was unreasonable for developing the materials for the engagement.**
  - **The CAP timeline was compounded with all of the many other government documents that are going through the process for community feedback by both the city and other government agencies like the County and Port of San Diego. There are too many things requested community feedback, which is confusing to community members.**
  - **The language used by the City and other government agencies when conducting surveys or workshops is not accessible language. It uses too much jargon and needs to be reworked by community members to make the language accessible to everyone.**

Final Reflections

- Do you have any advice for CBOs doing climate outreach in communities of concern?
  - **Trust community voices, compensate for lived experience from community members who are experts. Bring community voices into the**

      process at the start and include their priorities through-out the entire process

- What is needed to have CBOs participate in the similar process in the future?
  - o **More time and more resources to conduct adequate engagement activities. Community members reviewing the language for materials, surveys, etc and having enough time to make changes.**
- Anything else they want to share that was not captured in these questions?
  - o **Successful public engagement in Environmental Justice communities is dependent on long-standing relationships built between an organization and the community members which result in the community trusting the CBO. The City needs to invest in building the capacity of CBOs as trusted partners conducting public engagement efforts to have meaningful representation from all communities in the City's plans and projects.**

Mid-City CAN
Engagement in Communities of Concern Report

Resident Engagement and Feedback

- What were common concerns for *all* event
- What were common suggestions from the community for *all* event

Due to a very abrupt staff transition, Mid-City CAN (MCC) was not able to execute workshops as envisioned. Workshops were plagued by poor community member attendance and poor recordkeeping by the exiting staff.

By contrast, phone-banking was very successful. MCC dialed 7,424 homes in City Heights and ultimately spoke with 311 community members recording detailed insights regarding climate change. Community members provided input regarding the impact climate change has on health, household expenses, and housing. Community members listed concerns regarding respiratory, severe skin issues, and other health issues. They reported increased costs for heating, water, transportation, and cooling, associate with more intense weather.

Community members suggested that climate change also created the potential for increased job opportunities in climate industries such as soler, continued community behavior change, and opportunity for increased community education and awareness, as well as opportunities for increasing recycling, biking to work, and purchasing more sustainable products.

Detailed data may be fond here:
https://docs.google.com/spreadsheets/d/1UXOGI6o4SIOLOds9jDCapcUVbG3d45ZiJPH4Qau9zhs/edit#gid=1839269008

Process Feedback

Provide any feedback on the engagement contract, process, or support from the City of San Diego's Sustainability Department, the Institute for Local Government, the Greenlining Institute

- Where expectations clearly stated (verbally and in your contract)?
  - Were the roles of ILG/City/Greenlining clear in this process? If not, please explain.
  - *ILG/City/Greenling have been very supportive and provided good resources. There was some confusion about whether we were also expected to send community to the ILG/City/Greenling or other nonprofit workshops too. This seemed duplicitous.*
  - *Confusion about reports and contract dates. Some parts of the reports seemed repetitious. However, the templates were extremely helpful and MCC recommends this practice continue.*

- o *What was also helpful was the very sincere willingness to adapt the questions and data collection to make it more accessible to community members. Discussing climate and the CAP with community members was challenging because of climate jargon and because many community members do not know what a CAP is or completely understand the City Government's role in this.*

- o Were you clear on your role? If not, please explain.

- o *Task 5 was confusing because there were so many different workshops going on and for the reason stated under process feedback. This was exacerbated for MCC by our internal staff change and the unexpected impact on staff of positive COVID-19 cases.*
- o *The contract end date in December is a little confusing since it appears all reports and tasks are complete six months prior to the end date. We are curious about this?*
- o *Report dates were clearly written in the contract, but it was unclear how they connected to internal City dates for information.*
- o *What happens with the information, what will the City do with it next?*

- o Anything we missed?

- Was there enough support and resources provided? If not, please explain.
  - o *Yes, you were all great. Thank you so very much for everything.*

- Do you believe that your communities are fairly represented through this process? If not, why not and what is needed to improve the engagement?
  - o *MCC believes that City Heights could have been more equitably represented through a knock-on-every-door approach. The MCC databases do not contain every door, they contain a decent slice of the population, and they tend to skew toward community members who are already more engaged and a little more resourced (they have home phones, internet, etc.). However, due the up-tick in COVID-19 at the time of the project, and strict health orders, MCC limited our outreach to phone calls. The full demographic analysis is still pending due to MCC database issues as well as staff changes. MCC will froward analysis as soon as is feasible.*

- Where there any hurdles that were difficult to overcome in the process?
  - o *Community members didn't know what or why they were being asked, so this required more explaining on the phone before questions could be answered. This slowed the response rate a little because more time on the phone over set period means less dials. The impact wasn't very large and it was the right things to do so people could participate more fully.*

- *COVID-19 was a massive hurdle that limited our outreach to phone and impacted our manpower due to staff COVID infections.*
- *Sudden staff transitions impacted the workshops and recordkeeping.*
- *Old and clunky database technology.*
- *The timeline was insanely fast and very difficult to execute. In the future it would make sense for the City to start early and have an on-going strategy.*

Final Reflections

- Do you have any advice for other CBOs doing climate outreach in communities of concern?
  - *Door-to-door and in-person is more potent.*
  - *Do not sacrifice safety protocols for increased outcomes because people can get sick. MCC enforced very strict protocols and safety measures and still had staff get sick.*
  - *Most importantly, climate education and engagement cannot be periodic with large time-lapses or a one-off. Community members need to be engaged on a regular and recurring basis to develop a deep understanding of issues, build trust in government, and to participate in partnering more fully for solutions.*

- What is needed to have them participate in the similar process in the future?
  - *More on-going public education to predispose people and so people can participate more knowledgeably and fully in the process.*
  - *A door-to-door or face-to-face strategy (obviously not feasible at the time of this project for safety reasons).*

- Anything else they want to share that was not captured in these questions?
  - *MCC would like to again appreciate the ILG/City/Greenling team for everything. Thank for all your support and understanding in a very unique year. Please reach out if there are any questions anything that requires further insights.*

SDUSC

Engagement in Communities of Concern Final Report
July 28, 2021

Resident Engagement and Feedback

What were the common concerns or themes throughout all of your engagement events?

Clean Energy Infrastructure
- Community members identified a lack of opportunities to benefit from climate and environmental justice - including homeownership, participation in rooftop solar, and being historically kept out of sustainability spaces and the green jobs economy.
- Renters and tenants are concerned they will not have access to energy efficiency programs.
- Community members are concerned about barriers to accessing clean energy programs, such as solar rooftop: lack of information, lack of affordability due to high startup and maintenance costs, unable to make those decisions as renters.

Shade Trees and Recreation
- Community members identified a lack of shade trees in their communities; too many palm trees.
- Community members lack safe parks and recreational areas.
- The community identified a disparity within the City of San Diego's "Free Trees" program - the requirement to water trees is a financial burden to community members interested in getting a free tree.
- Lack of maintenance for existing parks and green spaces.

Land Use
- Lack of access to basic amenities, goods and services within neighborhoods.
- Lack of affordable or low-income housing.
- Lack of comprehensive mobility infrastructure for biking, walking, and taking transit.

Waste, Food Justice, Health Disparities
- Little to no access or information around composting, recycling, and other methods of safe and sustainable waste reduction.
- Communities concerned with lack of access to healthy foods and grocers due to historic underinvestment leading to health disparities.
- Higher rates of asthma and airborne illnesses due to fossil fuel infrastructure (cars, trucks, natural gas in homes and businesses, industrial pollution, etc.).

Equitable Access to Knowledge and Resources
- Community concern over the lack of relatable environmental and climate justice education that is community-centered and culturally competent. Our communities do not care for political jargon.

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- Community members identified a lack of supportive resources for our homeless community members.
- Erasure of traditional ecological, ancestral and indigenous knowledge in "modern concepts of sustainability."

Transportation Justice
- Lack of basic infrastructure including sidewalks, bike lanes, and safe mobility opportunities.
- Public transit infrastructure is not comprehensive and wait times are too lengthy.
- Public transit is another expense for families and individuals that burdens and is a barrier to using clean transportation options.

Good Governance
- Community members show hesitance that this process is merely to gain feedback from communities of concern, while not being intentional in incorporating communities' concerns into the Climate Action Plan update.
- Lack of accessibility or knowledge in the decision-making processes make it difficult to engage.

What were common suggestions from the community throughout all of your engagement events?

Clean Energy Infrastructure
- Increase and maintain the basic infrastructure in our communities including sidewalks and transit spaces.
- Increase job opportunities and workforce development to train and employ low-income residents and youth in the green jobs economy.
- Equitable share of benefits of energy efficiency program for renters and tenants.
- Increase in programs to allow for affordable or low-income solar installations to ensure all interested residents - homeowners and renters - can participate.
- Rooftop greenery - utilize roof space for community gardens and green spaces.

Shade Trees and Recreation
- Increase tree canopies for shade and to improve clean air and quality of living.
- Fund current and new urban gardens, and educate the community on community gardens and growing fresh produce.
- Create more accessible and safe public green spaces, parks, and green recreational areas within the communities.
- Improve San Diego's "Free Trees' Program through subsidizing the cost of maintenance, to incentivize more people to participate in the program.

Land Use
- Develop complete neighbourhoods - complete with access to everyday goods and services in local businesses within the community (i.e. healthy foods, home products, etc.) - Residents

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expressed a need to commute outside of their community for access to healthy foods and amenities.

- Increase affordable housing near job centers, transit, and transit-oriented development.
- Protect existing affordable housing and strengthen tenants' rights.

Transportation Justice

- Make streets friendly for pedestrians, including implementing sidewalks and protected bike lanes.
- Improve and increase frequency of bus and trolley options.
- Create more comprehensive transportation infrastructure that connects communities of concern to job centers and opportunities.
- Reduce public transit cost burdens on communities of concern through reduced fares, and low to no-cost transit passes.

Waste, Food Justice, Health Disparities

- Easier access to composting.
- More knowledge and accessibility to improve their ability to recycle and dispose waste in a safe and efficient manner.
- Increase access to healthy and affordable grocery options located within their communities – healthy market options are typically placed in affluent areas, leading to health disparity.
- Invest in local community gardens.
- Reduce air pollution from local industrial facilities that are concentrated in communities of concern near residential neighborhoods and schools.

Equitable Access to Knowledge

- Provide relatable environmental and climate education, focusing on equity-centered engagement and solutions.
- Decolonize politically charged jargon to make the information easier to follow. If using jargon, be ready to define them effectively.
- BIPOC communities tend to have grown up on habits of sustainable practices; allow people to share their lived experiences during these discussions and demonstrate a willingness to respect and institutionalize that knowledge.

Good Governance

- Communities of concerns need to be incorporated into the decision-making and update process of the CAP. Historic lack of action for communities of concern have made residents skeptical of this process.
- Our residents desire to be included into decision-making processes, alongside accessible opportunities for civic engagement. Make those processes and opportunities more accessible by bringing them to the communities of concerns (meet the community where they are at, not where you want them to be).

- Ensure communities of concern are at the forefront of this CAP update, who are the most vulnerable and contribute the least to the climate crisis.

Process Feedback

Please provide your feedback on the engagement contract, process and/or support from the City of San Diego's Sustainability Department, the Institute for Local Government, the Greenlining Institute:

- Were expectations clearly stated (verbally and in your contract)?
  - Yes, expectations were clearly communicated.
- Were the roles of ILG/City/Greenlining clear in this process? If not, please explain.
  - Initially, ILG/City/Greenlining roles were unclear. However, with the help of the CBO roundtables and more regular communication with partners, our roles became clearer.
- Were you clear on your role? If not, please explain.
  - Yes, we were clear on our role.
- Please provide any additional feedback on the process and support that will help with future efforts?
  - In order to receive honest feedback from community members, the City and partners should create culturally competent and accessible presentation materials. Ideally, these materials would include real situations or examples that have manifested in communities of concern.
  - Future presentations and materials should include examples relevant to the community of concern, and should remove unnecessary political jargon.
  - Any and all jargon that cannot be removed must be defined in a non-jargon manner. Provide an easy-to-use glossary or dictionary for reference could be included in outreach efforts.
  - In future outreach, CBOs will need more time to prepare and execute outreach efforts, in order to be effective and inclusive.
  - The City should provide more funding and compensation for the lived experiences of community members to share feedback.
- Was there enough support and resources provided? Please explain.
  - We found ILG's templates to be incredibly helpful.
  - The City's CAP presentation materials served as a good starting point for edits (presentations should always be adjusted to be audience-oriented).
  - We appreciated Greenlining's insights on accessible and inclusive outreach strategies.
- Do you believe that your communities are being fairly represented through this process? If not, why and what is needed to improve the engagement?

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- ○ Communities have historically been skeptical of inclusivity practices during outreach for community feedback and decision making.
- ○ More time, resources, and in person outreach can increase engagement and accessibility to this process, leading to more collective community knowledge.

- Were there any hurdles that were difficult to overcome in the process?
  - ○ Covid-19 restrictions limited our ability to conduct outreach. Though we did our best with Zoom-hosted presentations and small group discussions, ultimately, community members without internet access or lacking technological savvy were largely excluded from this process.
  - ○ Future outreach must meet the community where they are at through boots on the ground outreach and presentations within community spaces.

Final Reflections
- Do you have any advice for CBOs doing climate outreach in communities of concern?
  - ○ CBOs must always take into account barriers communities of concern face. Communities of Concern are predominately made up of BIPOC working class folks, non-English speakers, elderly, and have been historically underinvested.
  - ○ Community members may not have access to a computer or laptop, or reliable internet, or may not have time to attend an online workshop.
  - ○ CBOs should engage with residents in-person in the community - canvassing homes, at businesses and community events, and meet community members where they physically are, instead of relying on them to come to you.
- What is needed to have CBOs participate in the similar process in the future?
  - ○ If feasible, we suggest the City offer CBOs budget for community stipends or other financial incentives for people who are sharing their lived experiences.
  - ○ Further allocation for community stipends should not (or should minimally) negatively impact the budget/resources for CBOs to effectively conduct their outreach.
- Anything else you want to share that was not captured in these questions?
  - ○ Future outreach should include community leaders that are well connected to their neighborhoods and community-based experts on the issues pertaining to their communities.
  - ○ Community members firmly believe in community responsibility and collective impact in generating solutions. The City should ensure community members are included in conversations that have to do with uplifting their communities.
  - ○ Transportation and child care should also be taken into consideration when thinking about engaging with communities of concern.

ILG is humbled to be a part of this innovative and experimental process. We appreciate the City of San Diego and the California Endowment for providing the foresight and funding to support this work and this report. We hope this effort encourages other local governments to invest and engage all of their residents to ensure more equitable, sustainable and resilient communities.

The City of SAN DIEGO

Our Climate, Our Future
2020 Online Survey Results

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Introduction

The City of San Diego considers community member participation in the planning process crucial to the Climate Action Plan update. A series of public community forums and an online survey made up a large part of the City's outreach effort. The online survey, available from April through November 2020, asked San Diegans how they prioritized various environmental actions, and what barriers they faced in implementing those actions in their own lives. Over 1,700 people responded to the survey; results are described below. Continued engagement, with a focus on reaching residents in Communities of Concern, is planned for early 2021.

Participant demographics

The City was interested in feedback from all stakeholders, which included not only people who call San Diego their home but also those who work there. Respondents were asked to provide their home and work zip codes; the distribution of survey submissions in zip codes contained in the City of San Diego are displayed in Figure 1.

Figure 1. Number of survey submissions associated with City of San Diego zip codes. The left panel shows distribution of participants' home zip codes (1,663 responses displayed); the right panel shows distribution of participants' work zip codes (1,320 responses displayed)
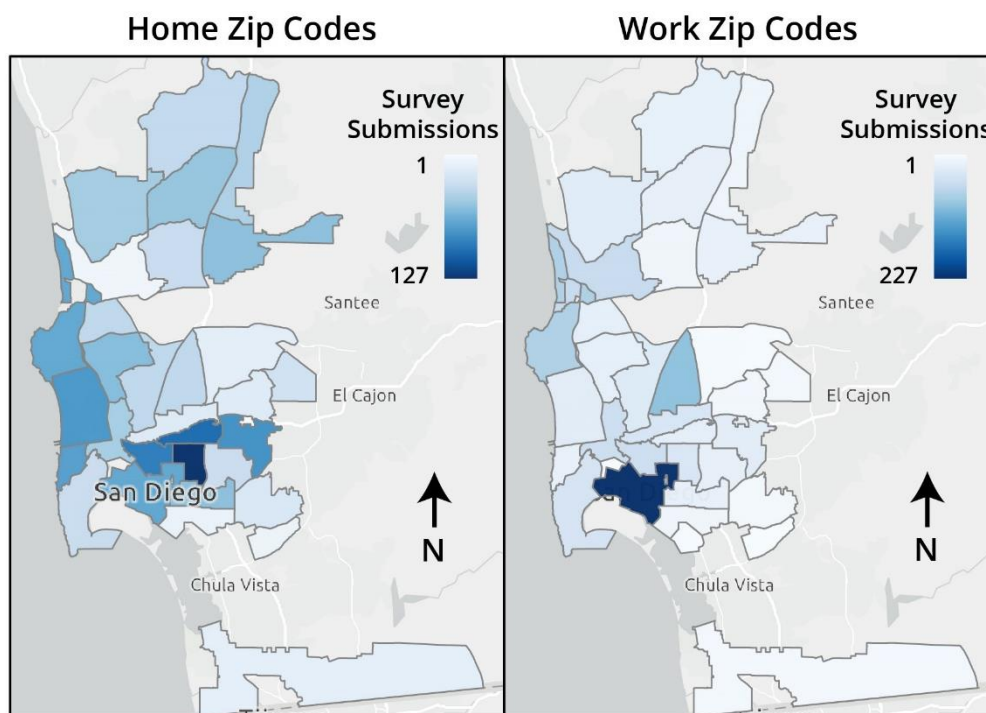
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

More than half of the survey participants were below 45 years of age (see Fig. 2); the mean age of survey respondents was 42.3 yrs. Of participants that chose to disclose their race or ethnicity, the majority selected White (see Table 1). Although participants could select as many answers as desired, only 8% of respondents selected two or more categories, whereas 92% of respondents selected a single race/ethnicity.

Figure 2. Participant Age (percentages based on 1,714 participants)
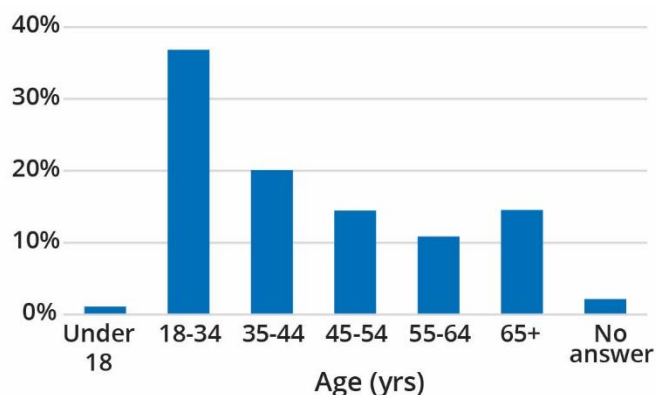
TABLE 1: PARTICIPANT RACE/ETHNICITY	
(OUT OF 1,857 RESPONSES)	
RACE/ETHNICITY	**COUNT**
American Indian or Alaskan native	22
Asian or Asian Indian	158
Black or African American	33
Hispanic	207
Middle Eastern or North African	20
Native Hawaiian or other Pacific Islander	13
White	1207
Other	11
No answer	185

Most respondents were employed in the private sector (see Fig. 3). Retired or unemployed participants were possibly included in the "No answer" category (13% of the total). Participants were approximately evenly distributed across annual income levels, with slightly larger representation in the $58K-93K range (see Fig. 4).

Figure 3. Participant Vocation (percentages based on 1,714 participants)

2
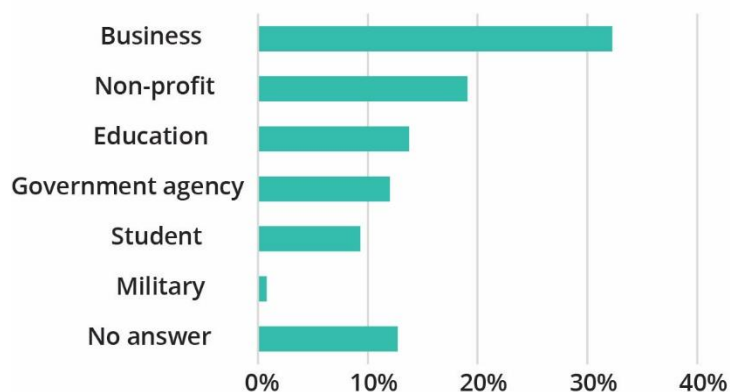
Figure 4. Participant Annual Income (percentages based on 1,714 participants)
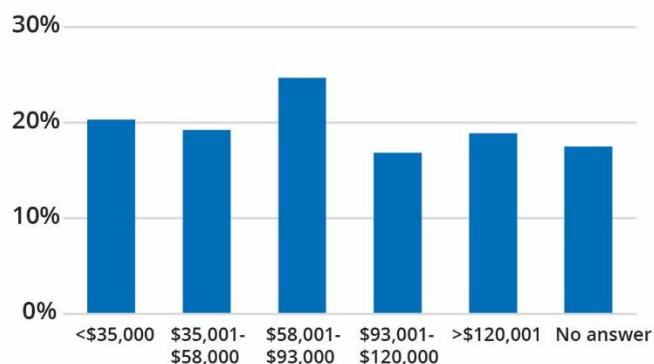
While the City is pleased with the number of participants in the online survey, it is clear from the geographic distribution of submissions as well as the responses to the race/ethnicity question that we did not engage a fully representative cross-section of the San Diego population. The relatively flat distribution of annual income (Fig. 4, above) implies that the professional class is overrepresented in this survey. These limitations should be kept in mind when interpreting the responses described below, and underscore the importance of ongoing engagement efforts, such as the public forums and targeted outreach to residents in San Diego's Communities of Concern.

Participant feedback on CAP strategies

The OCOF survey asked respondents how they prioritized the strategies set forth in the City's 2015 Climate Action Plan. Subsequent questions probed respondent support for specific actions within the Energy and Water Efficiency, Clean and Renewable Energy, Mobility, and Zero Waste strategies. Participants were asked both what actions they thought the City should prioritize, and what actions they themselves would be willing to take in service of CAP goals. Overall, respondents selected Clean and Renewable Energy as the most important strategy (38% selected), whereas Energy and Water Efficiency was the least popular strategy (8% selected, see Fig. 5). Additional participant feedback on each separate CAP strategy is presented below.

Figure 5. What Climate Action measure is the most important to you? (percentages based on 1,714 participants)
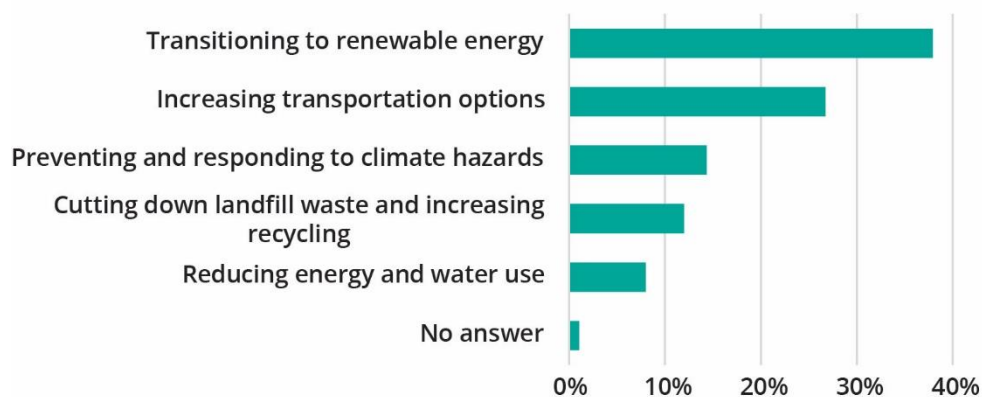
Strategy 1: Energy and Water Efficiency

The fewest number of participants (8%) thought that Energy and Water Efficiency was the most important of the City's strategies (see Fig.5, above). When asked whether they would be willing to reduce their own home energy and water use, over three quarters of participants indicated that they have already taken action to do so (see Figure 6). This is consistent with respondents rating residential buildings as those with the least opportunity to reduce energy use (see Table 2, below).

Figure 6. What actions would you take to increase energy and water efficiency? (percentages based on 1,714 participants)
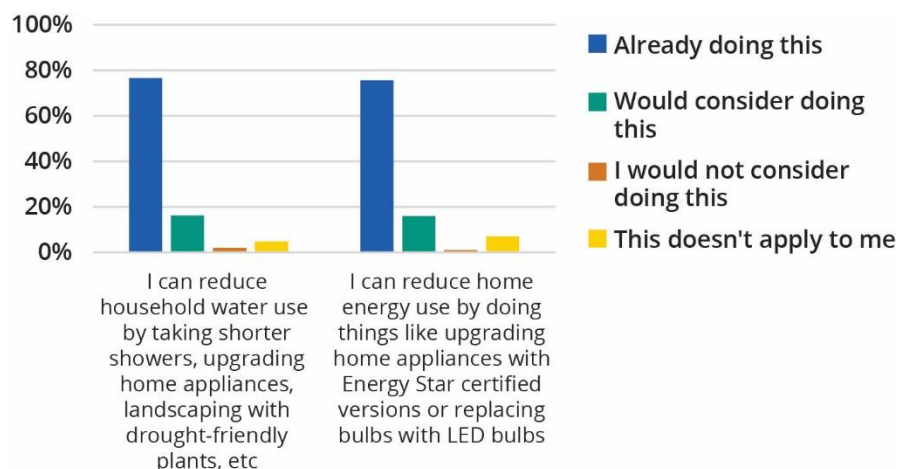
TABLE 2: WHERE DO YOU SEE THE BIGGEST OPPORTUNITY TO REDUCE ENERGY USE? (PERCENTAGES BASED ON 1,762 RESPONSES)	
BUILDING TYPE	**RESPONSE %**
Public buildings and spaces	46
Commercial/Industrial/Educational	33
Residential	14
Other	3
No answer	4

Strategy 2: Clean and Renewable Energy

Participants could choose multiple options from a list of potential actions the City could take in support of the Clean and Renewable Energy strategy. The most popular actions centered around public transportation and piloting new energy technologies (see Fig. 7). Respondents also showed an interest in increasing solar power installations through regulation, financial incentives, or subsidies (36 write-in responses), and wanted to ensure that renewable energy infrastructure was provided to our communities of concern (18 write-in responses).

Figure 7. The City is on track to provide 100% renewable electricity to residents and businesses. What other energy-saving opportunities should be prioritized by the City? (5,082 responses provided)
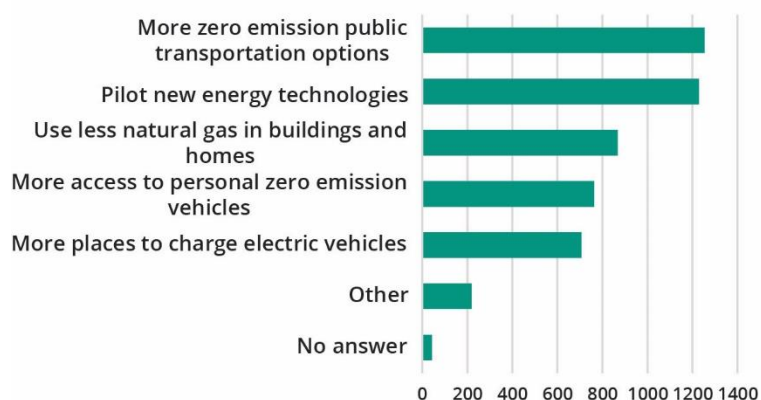
Thirty-five percent of participants indicated that they would consider installing solar panels on their own home, although an equal percentage reported that this action was not open to them. A far greater percentage of participants (64%) said that they would consider switching to an electric vehicle (Fig. 8).

Figure 8. What actions would you take in support of clean and renewable energy? (percentages based on 1,714 participants)

5
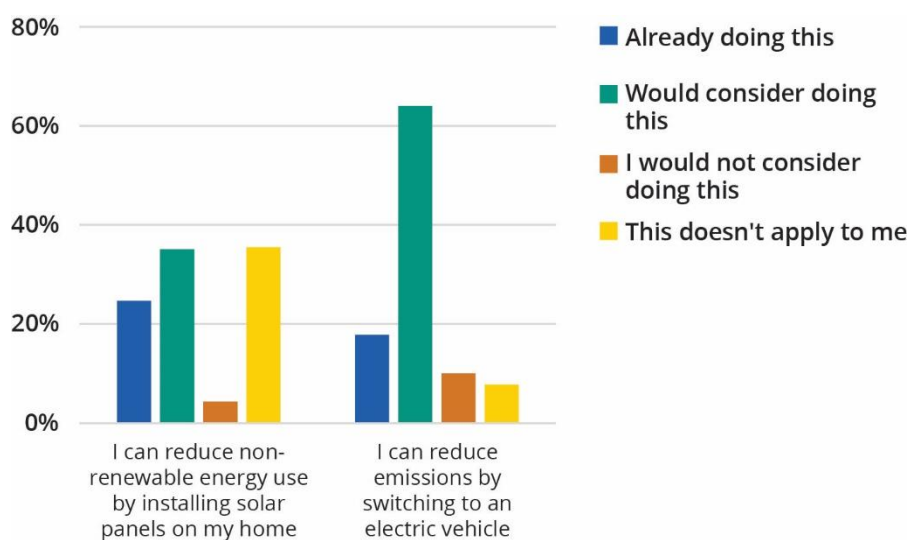
Strategy 3: Mobility

The Mobility strategy was ranked second most important by respondents (27%, see Fig. 5 above). Expanded public transportation, biking/walking, and telecommuting received broad, roughly equivalent support, but carpool/vanpool options were unpopular (see Figure 9).

Figure 9. How could the City make it easier for you to get around without your car? (4,323 responses provided)
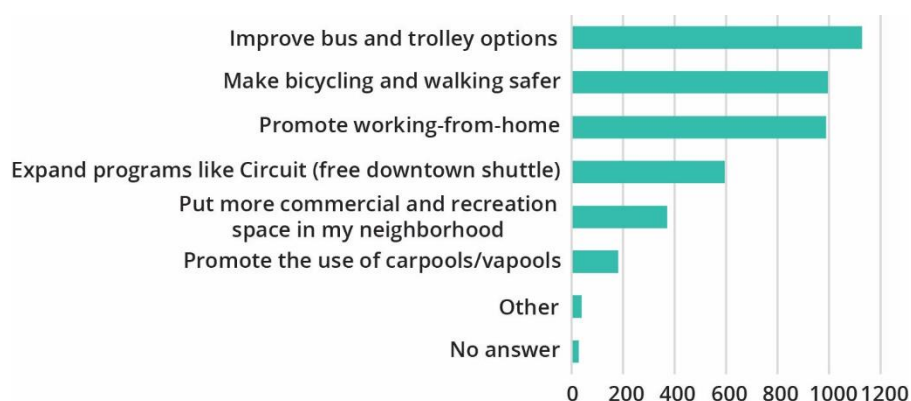
These preferences were mirrored in actions participants were willing to take themselves (see Fig. 10). Respondents were willing to consider weekly public transit and increased bicycle use, and many respondents said that they are already telecommuting at least part of the week. However, respondents were less willing overall to consider carpools/vanpools an option.

Figure 10. What actions would you take to reduce greenhouse gas emissions created by driving alone? (percentages based on 1,714 participants)
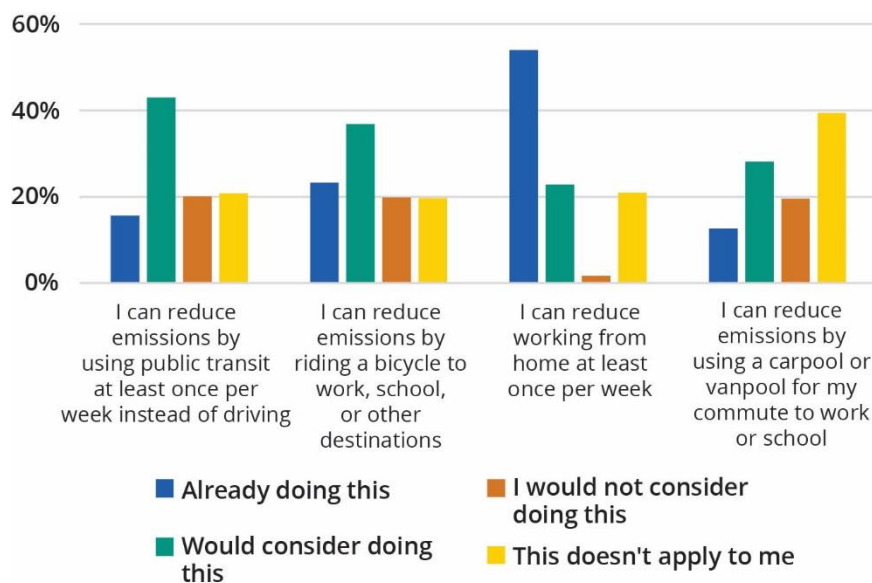
Strategy 4: Zero Waste

The Zero Waste strategy was ranked fourth most important by respondents. As with the Clean and Renewable Energy strategy, respondents overwhelmingly report that they are already taking action to reduce landfill waste, so may not perceive opportunity for further improvement there (see Fig. 11).

Figure 11. What actions would you take to reduce landfill waste? (percentage based on 1,714 participants)
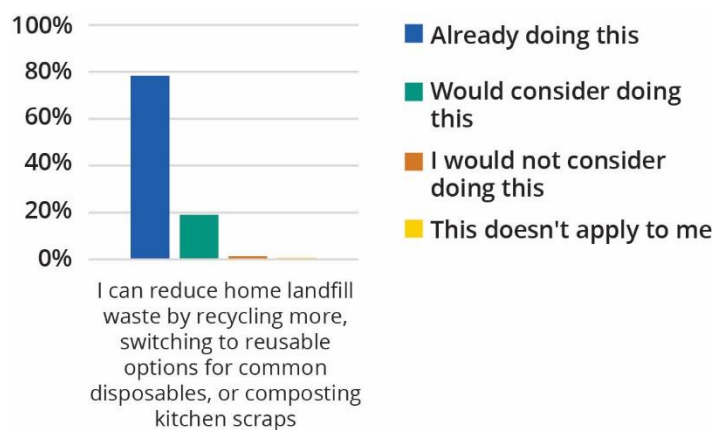
Strategy 5: Resiliency

Resiliency was ranked the third most important strategy by respondents. While there were no questions specifically addressing this strategy in the OCOF survey, when provided the opportunity to suggest additional actions to the City, respondents cited resiliency as a concern and requested actions targeting San Diego's tree canopy, wetland and native habitat restoration, and carbon sequestration (see "Additional strategies" below).

Perceived benefits and additional actions

Participants could choose multiple options from a list of perceived benefits of climate change action. Improved air quality was chosen by over 70% of respondents, and over half chose improved natural spaces. The third most popular choice, safe routes for walking and biking was cited by more than 40% of respondents (see Fig. 12).

The survey provided space for participants to write in suggestions for strategies or actions they thought the City should pursue, and more than three quarters of participants did so. Many of these comments reiterated or reemphasized measures described elsewhere in the survey and highlighted that participants' priorities were consistent throughout the survey. Suggestions were roughly separable into the same CAP strategies described above, and here again, the largest number of write-in comments centered around mobility (29% of comments) and clean and renewable energy (17%). Suggested actions with the most support within each strategy are shown in Table 3.

Figure 12. Which benefits of climate action are the most important to you? (4677 answers provided)
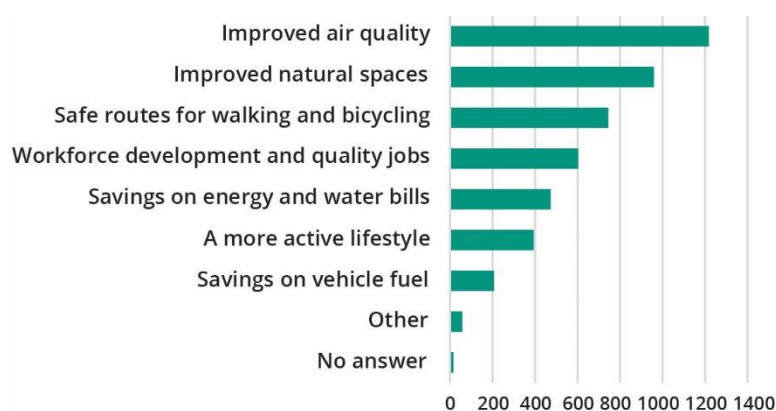
TABLE 3: ARE THERE OTHER STRATEGIES OR IDEAS YOU HAVE TO REDUCE GREENHOUSE GAS EMISSIONS IN THE CITY OF SAN DIEGO?		
(PERCENTAGES BASED ON THE 1,220 PARTICIPANTS THAT PROVIDED AN ANSWER TO THIS QUESTION		
STRATEGY	**ACTION**	**RESPONSE %**
Mobility	Expand and improve public transit	15
	Improve bike network and infrastructure	9
	Street reform	7
	Housing policies	6
	Increase number of EVs in use	5
Clean and Renewable Energy	Increase amount of renewable energy	9
	Increase EV infrastructure and use	5
	Use taxes/incentives to modify behavior	3
	Focus on residential buildings	2
	Reduce use of natural gas	2
Energy and Water Efficiency	Solar	5
	Focus on commercial buildings	3
	Focus on residential buildings	3
	Energy efficient upgrades and retrofitting	2
Zero/low waste	Increase composting/provide curbside composting	7
	Increase recycling	2
	Reduce plastic waste	2
Resilience	Expand the tree canopy	5
	Carbon sequestration/natural habitats	3
	Expand green spaces and green infrastructure	3
	Sustainable food systems	2

Awareness of (and support for) the CAP

Most survey participants (75%) reported that they were previously aware of the Climate Action Plan. When asked how participants saw themselves involved in the future of the CAP, a total of 93% replied that they wanted to be involved either through action or advocacy (see Table 4). While some participants disagreed with the entire premise of the Climate Action Plan, or opposed specific actions within it, negative feedback comprised only 1-2% of survey responses.

TABLE 4: HOW DO YOU SEE YOURSELF INVOLVED IN THE FUTURE OF THE CLIMATE ACTION PLAN? (PERCENTAGES BASED IN 1,714 PARTICIPANTS)	
ROLE	RESPONSE %
I want to work more closely with the city on achieving its goals	39
I want to take action on my own	27
I want to help spread the word about actions my friends and neighbors can take	27
I have no role	6
No answer	1

The impact of the COVID-19 health crisis on participant answers

Overall, respondents were evenly split when asked whether the COVID-19 health care crisis had influenced their answers on the survey. When examined over time, the proportion of "yes" responses increased after the first two months of the survey, but fell in November, the final month of the survey (see Fig. 13). Approximately one third of respondents reported that they have been telecommuting either part or full time due to the COVID-19 health crisis.

Figure 13. Has the current health crisis from COVID-19 had an impact on how you answered these questions? (percentages based on total number of respondents per month)
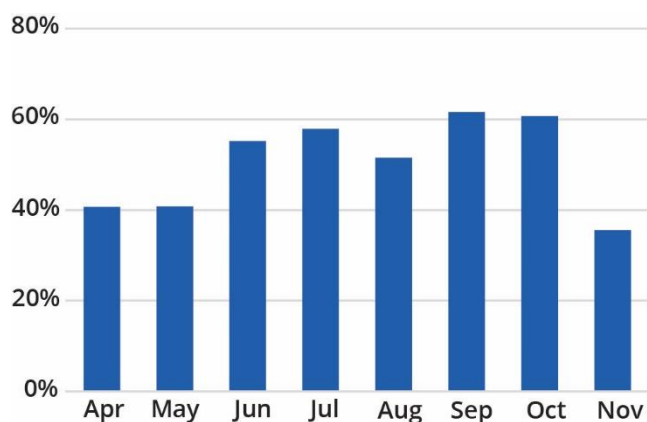
Conclusions and future directions

Participants in the "Our Climate, Our Future" online survey demonstrated that they were interested and invested in the City of San Diego's Climate Action Plan. Participants overwhelmingly expressed a willingness to take part climate actions either on their own or in partnership with the City and said that improved air quality and natural spaces would be a valuable outcome. The City's Clean and Renewable Energy and Mobility strategies were favored by respondents, who expressed a particular desire for increased investment in and availability of solar power and fewer cars on the roads. The relative unpopularity of the City's Energy and Water Efficiency strategy may be because of residents' perception that they are already conserving energy and water to the best of their ability, and that there is no room for additional savings there.

This survey did not reach a fully representative sample of San Diegans. People in upper income brackets were overrepresented, and there was a relative lack of racial/ethnic diversity. Additionally, there was a relative lack of representation from San Diego's Communities of Concern. Because the City wants the Climate Action Plan update to reflect the viewpoints, priorities, and needs of all residents, additional strategies are necessary to solicit feedback from those that this mode of communication did not reach. Different outreach efforts are currently underway, and information from those upcoming engagements will be combined with current information in order to provide a more complete picture of our communities' needs and preferences.

Our Climate, Our Future
2020 Virtual Forum Results

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Introduction

Community member participation is integral to updating the City of San Diego's Climate Action Plan. In 2020, the City hosted a series of public, virtual forums, where 447 attendees discussed which climate actions they prioritize, what climate equity means to them and how climate change has already impacted them. The forums are divided below between the first public forum, held on August 13th, and a series of public forums hosted for each City Council District in October.

First Public Forum on August 13, 2020

The City hosted the first public forum through Zoom on August 13th, 2020. This forum was targeted at advocacy groups, community-based organizations, nonprofits representing co-benefits of climate action, and the public. The forum was advertised through email, social media, the Climate Action newsletter, and traditional media. Staff created a "social media toolkit" to aid promotion through partner organizations since the City's capacity for media attention was limited due to COVID-19. Attendees registered through Zoom and could choose two breakout rooms to participate in during the forum, detailed further below.

Format

After a short introduction by City staff, participants were asked a series of questions that they would answer through Mentimeter, a live polling and engagement web tool. Answers through Mentimeter either appeared as a word cloud or as a rolling list of feedback. A total of 192 attended the forum; 116 people submitted answers via Mentimeter, and 76 chose to listen to the discussion without submitting answers. In the description of results below, percentages will be based on the number of participants that responded to the questions, rather than the total number of attendees. Participants also had the ability to give comment verbally or through the Zoom chat function during the forum.

Participant demographics

Of those participants providing demographic information, more than half of were below 45 years of age; the mean participant age was 31.5 years (see Figure 1). While it seemed that there was more representation of people in the < $100K annual income bracket, the relatively large number of participants that declined to provide their income makes it difficult to draw firm conclusions (see Figure 2). Of participants that chose to disclose their race or ethnicity, just under half selected White (45%, see Figure 3). Hispanic and Asian/Asian Indian were the two next frequent selections, and together made up 23% of the responses.

Figure 1. Participant Age (percentages based on 193 participants)
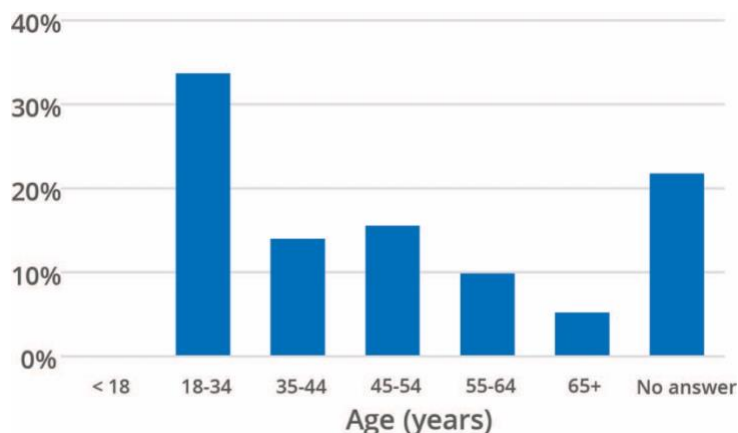
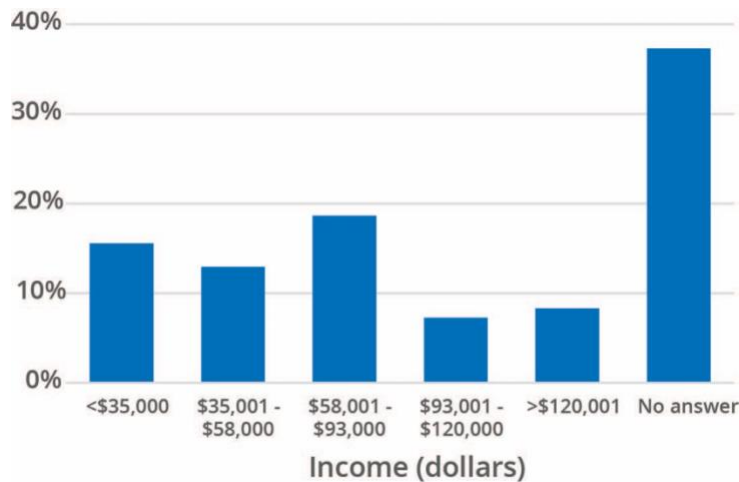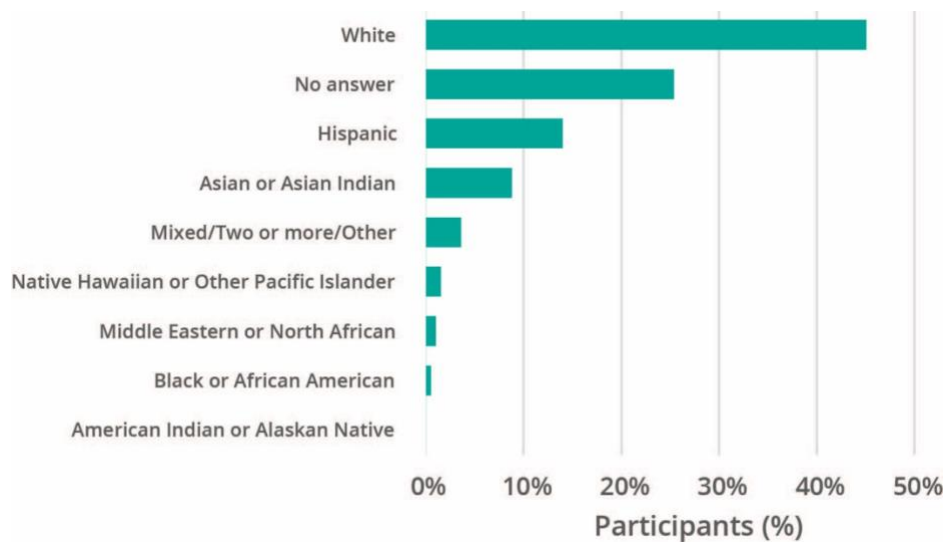**Figure 2. Participant Annual Income** (percentages based on 193 participants)

Figure 3. Participant Race/Ethinicity (percentages based on 193 participants)


Full Group Results

Three questions which established the larger themes of the forums were posed to the group as a whole before dividing into the breakout rooms. Responses from each question are shown in separate sections below.

"When you imagine a sustainable San Diego, what comes to mind?"

Participants were encouraged to type the first idea or ideas that they thought of in response to this question. Word clouds generated from the answers were displayed on-screen as a way to prompt participants to think about various issues related to climate change and sustainability (see Figure 4).

Figure 4. Word Cloud generated by Mentimeter with responses to, "When you imagine a sustainable San Diego, what comes to mind?" (from 99 responses)
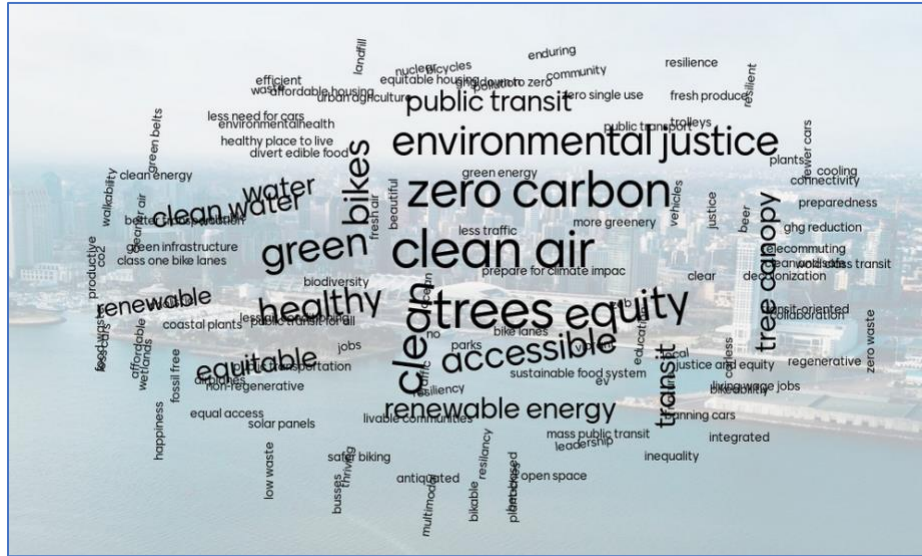
"What changes do you want to see the Climate Action Plan support in your community?"

One hundred three of the participants described actions they would like the City to take (participants could provide only one answer). While these answers were unprompted, answers could be categorized into 14 distinct topics.

TABLE 1: TOP RESPONSES TO "What changes do you want to see the Climate Action Plan support in your community?"	
CATEGORY	**PARTICIPANTS**
Better public transportation	26%
Equity	18%
Reduce food waste	6%
Active transportation	6%
Storm water pollution prevention improvements	5%
Electrification	5%
Bicycle infrastructure	5%
Expand park/green space access	5%
Organics infrastructure and programming	4%
Energy efficiency	4%
Circular economy	4%
Increase tree canopy	4%
Improve air quality	4%
Land-use planning	4%

"What climate change impacts concern you the most?"

One hundred three of the participants gave responses to the impacts of climate change that concern them the most (participants could provide only one answer). While these answers were unprompted, answers could be categorized into 14 distinct topics.

TABLE 2: TOP RESPONSES TO	
"What climate change impacts concern you the most?"	
CATEGORY	PARTICIPANTS
Sea level rise	20%
Heat	20%
Poor air quality	13%
Inequity of response/impact on CoCs	8%
Severe weather	8%
Effects on food and farming	8%
Fire	7%
Access to clean water	6%
Mass migration	4%
Ecosystem collapse	4%
Reduction in biodiversity	4%

Breakout Room Discussions

After the general discussion and the presentation, attendees were separated into breakout rooms on each CAP strategy. Participants had the opportunity to participate in two strategy-specific discussions.

The breakout rooms were facilitated by City staff. Participants gave feedback verbally or through Mentimeter. Each breakout room first gave a brief presentation on the strategy, collected demographic information, and then asked two questions of the attendees, "What actions do you feel need to be prioritized?" and "What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?" Results are presented below for each strategy, including those strategies that required multiple breakout rooms. Participants were allowed multiple answers per question. Answers were unprompted, the analysis below categorizes all the answers into the top themes. The categories are individualized to each breakout room to better reflect the separate discussions.

Energy & Water Efficiency

Twenty-three participants joined the Energy & Water Efficiency breakout discussions.

"What actions do you feel need to be prioritized?"

TABLE 3: RESPONSES TO	
"What actions do you feel need to be prioritized?"	
CATEGORY	PARTICIPANTS
Building Electrification	26%
Technical Training and Assistance	17%
Distributed Energy Resources	13%
Water Conservation and Reclamation	9%
Municipalize Energy	9%
Solar	9%

Building Energy Efficiency	9%
Coordinate With State	9%

"What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"

TABLE 4: RESPONSES TO "What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"	
CATEGORY	**PARTICIPANTS**
Outreach	32%
Renter/Multifamily Solar	16%
Community Empowerment	11%
Funding in Communities of Concern	5%
Incentivize Energy Savings	5%
Technical Assistance and Training	5%
Zoning	5%
Community Solar	5%
Emphasize and Quantify Co-Benefits	5%
Building Electrification	5%
Reduce Energy Cost	5%

Clean & Renewable Energy

Thirty-three participants joined the Clean & Renewable Energy breakout discussions.

"What actions do you feel need to be prioritized?"

TABLE 5: RESPONSES TO "What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"	
CATEGORY	**PARTICIPANTS**
Distributed Energy Resources	19%
Building Electrification	17%
Increase Electric Vehicles	16%
Increase Renewable Energy	14%
Electrify and Expand Public Transit	14%
Energy Efficiency Upgrades	12%
Outreach and Engagement	4%
Land Use Policies	2%
Prioritize Communities Of Concern	2%

"What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"

TABLE 6: RESPONSES TO "What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"	
CATEGORY	**PARTICIPANTS**
Community Engagement	29%
Educational Outreach	23%
Subsidize Solar and EV For Low-Income	14%
Workforce Training	11%
Incentivize Solar For Renters	9%
Free Energy Retrofits	3%
Grants for Energy Solutions	3%
Incentivize Electric Vehicles	3%
More Energy Storage	3%
Multilingual Communications	3%

Mobility

Seventy-five participants joined the Mobility breakout discussions.

"What actions do you feel need to be prioritized?"

TABLE 7: RESPONSES TO "What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"	
CATEGORY	**PARTICIPANTS**
Expand and improve public transit	29%
Improve bike network and infrastructure	19%
Free or reduced transit fees	14%
Increase electric vehicles	11%
Street Reform	10%
Prioritize Communities of Concern	9%
Housing Policies	8%

"What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"

TABLE 8: RESPONSES TO "What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"	
CATEGORY	**PARTICIPANTS**
Prioritize Communities of Concern	14%
Free Public Transit	9%
Faster Public Transit	6%
Reform Fare Enforcement	6%

Electrify Transit	5%
Free Youth Passes	5%
Increase Micromobility	5%
Engagement with Communities of Concern	6%
Expand Public Transit	3%
Improve Air Quality	3%

Zero Waste

Thirty-one participants joined the Zero Waste breakout discussions.

"What actions do you feel need to be prioritized?"

TABLE 9: RESPONSES TO "What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"	
CATEGORY	PARTICIPANTS
Food Recovery	16%
Reduce Waste through Policy	15%
Reduce Landfilling	14%
Increase Composting Access and Infrastructure	11%
Provide curbside composting	9%
Food Sourcing	7%
Education	7%
Prioritize source reduction	7%
Increase Recycling	5%
Reduce GHG through capture	4%
Access to Food	4%

"What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"

TABLE 10: RESPONSES TO "What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"	
CATEGORY	PARTICIPANTS
Community Empowerment	20%
Reduce Waste	20%
Increase Composting	13%
Prioritize Communities of Concern	11%
Food Sourcing	9%
Reduce Landfilling	9%
Food Recovery	9%
Increase Recycling	7%
Reduce Burdens on Communities of Concern	4%

Resiliency

Seventy-nine participants joined the Resiliency breakout discussions.

"What actions do you feel need to be prioritized?"

TABLE 11: RESPONSES TO "What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"	
CATEGORY	**PARTICIPANTS**
Land Management	11%
Expand Tree Canopy	11%
Food sourcing	10%
Coastal Land/Sea Level Rise	10%
Food system	9%
Increase Access to City/Community Engagement	9%
Expand Green Spaces	8%
Sustainable Food Access	6%
Prioritize Communities of Concern	6%
Improved Transit	6%
Reduce Waste	4%

"What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"

TABLE 12: RESPONSES TO "What can we do to reduce barriers faced by our vulnerable populations to realizing the benefits of these actions?"	
CATEGORY	**PARTICIPANTS**
Increase Access to City/Community Engagement	16%
Community Empowerment	12%
Food Access	12%
Community Outreach	11%
Expand Tree Canopy and Open Spaces	11%
Improved Transit	8%
Reduce Disparities	7%
Fund Equity	7%
Prioritize Communities of Concern	7%
Sustainable Food Systems	5%
Reduce GHG through Sequestration	3%

District-focused forums (October 8-30, 2020)

The City hosted nine separate online forums (through Zoom) between Oct.8-30, 2020. Each forum was targeted at residents in a single City Council district, although in practice people were free to attend any forum regardless of their residence. The forum was advertised through email, social media, the Climate Action newsletter, and traditional media. Sustainability staff also called and emailed organizations and businesses in each council district to advertise the forum directly to residents. Attendees signed up for the forums through Zoom's registration form, which asked if they needed language translation services or any other accommodations.

Format

After a short introduction by City staff, participants were asked a series of questions that they would answer by Mentimeter, a live polling and engagement web tool. Answers through Mentimeter either appeared as a word cloud or as a rolling list of feedback. A total of 255 attended the various forums; 134 people submitted answers via Mentimeter, and 121 chose to listen to the discussion without submitting answers. Participants also had the ability to give comment verbally or through the Zoom chat function during the forum. In the description of results below, percentages will be based on the number of participants that responded to the questions, rather than the total number of attendees.

Participant demographics

Of those participants providing demographic information, more than half of were below 45 years of age; the mean participant age was 44.0 years (see Figure 5). There was relatively equal representation across all but the highest income levels, although nearly a fourth of respondents declined to answer this question (see Figure 6). Of participants that chose to disclose their race or ethnicity, nearly half selected White (see Figure 7). Hispanic and Asian/Asian Indian were the two next frequent selections, and together made up 26% of the responses.

Figure 5. Participant Age (from 134 responses)
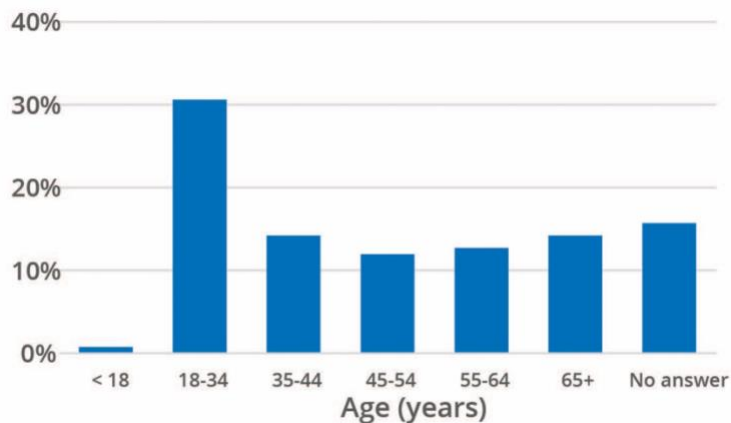
Figure 6. Participant Annual Income (from 134 responses)
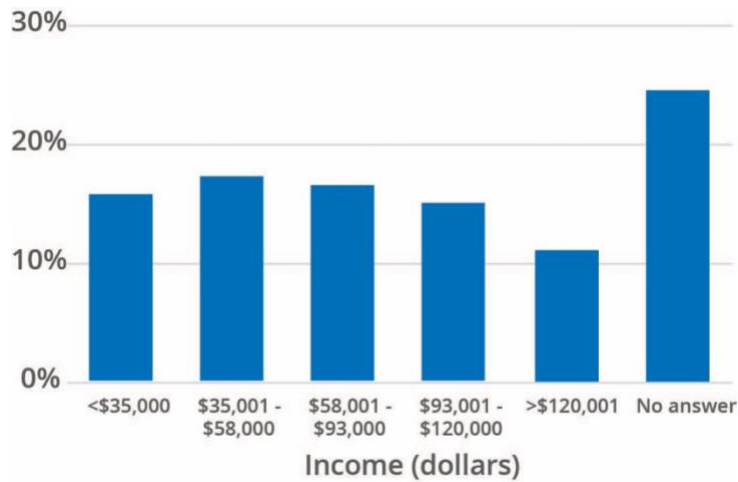
Figure 7. Participant Race/Ethnicity (from 134 responses)
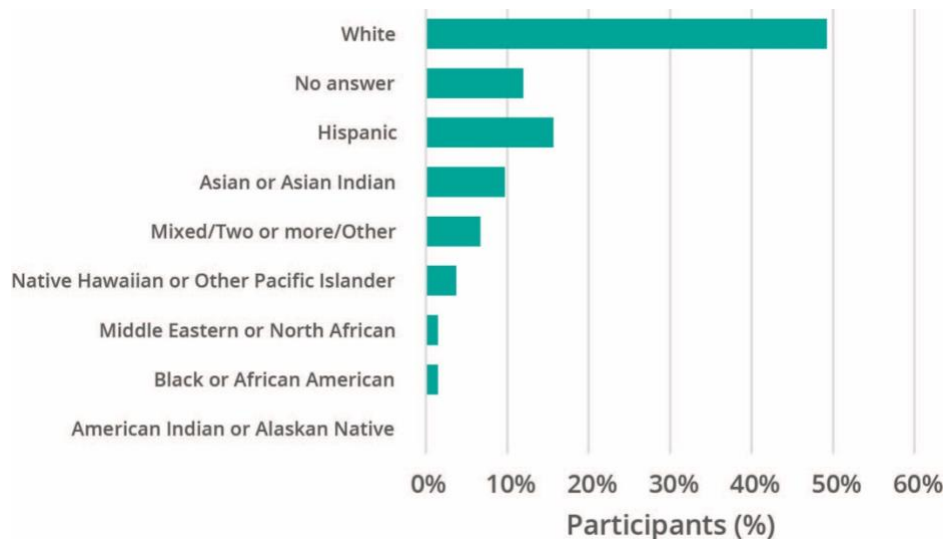
Free-association questions

At the beginning of each forum, participants were encouraged to type the first idea or ideas that they thought of in response to two different prompts. Word clouds generated from the answers were displayed on-screen as a way to prompt participants to think about various issues related to climate change and sustainability. The first question was: "When you imagine a sustainable San Diego, what comes to mind?" (see Figure 8). The second, follow-up question was: "What do we need to get there?" (see Figure 9).

Figure 8. Word cloud generated from answers to "When you imagine a sustainable San Diego, what comes to mind?" (figure created at WorldClouds.com)

Figure 9. Word cloud generated from answers to "What do we need to get there?" (figure created at WorldClouds.com)

"How have you been impacted by climate change?"

More than three fourths of the participants (102) related their own experiences of climate change. The biggest perceived impacts were of increased temperatures, wildfires, and poor air quality (see Table 13). Twenty-five percent of participants said they have been affected by heat and raised concerns around air conditioning such as increased electricity bills, the lack of A/C forcing them to leave their homes during the day, and rolling blackouts caused by energy use. Wildfires were mentioned by 22% of participants; multiple participants said they had experienced mandatory evacuations caused by wildfires, and a smaller number reported experiencing property loss. Participants that did not have direct experience with evacuation or property loss still cited anxiety caused by the frequent threat of wildfires.

Overall, participants' perception of climate change was overwhelmingly negative. While general anxiety about the impact of climate change was reported by 19% of participants (expressed as fear for the future or fear for children/grandchildren), this anxiety was also reflected in more specific ways (such as the fear of wildfire). Participants were cognizant of the connections between various climate change effects, and mentioned relationships between increased temperatures, droughts, wildfires, and poor air quality.

TABLE 13: TOP RESPONSES TO "How have you been impacted by climate change?"	
CATEGORY	**PARTICIPANTS**
Heat/Increased temperatures	25%
Wildfires	22%
Poor air quality	19%
Climate anxiety	12%
Respiratory issues	7%

"What do you want to see the Climate Action Plan support in your neighborhood?"

Nearly three-fourths (94 total) of the participants described actions they would like the City to take (participants could provide more than one answer). While these answers were unprompted, many could be categorized into the five strategies set out in the City of San Diego's current Climate Action Plan. The percentage of participants that made suggestions aligned with existing CAP strategies are shown in Figure 10 (below).

Figure 10. Preferred actions consistent with CAP strategies
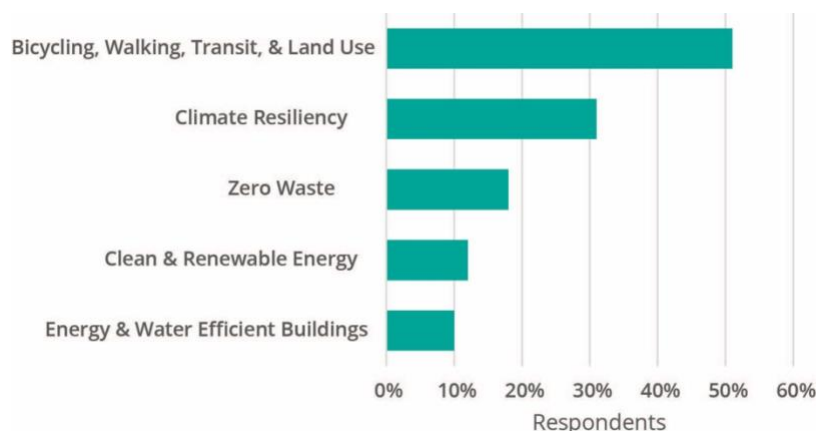
Slightly more than half of the participants wanted changes or improvements associated with the "Bicycling, Walking, Transit, & Land Use" strategy. The most frequent mobility requests centered around expansion and improvements to public transit, improved bicycle infrastructure, improved pedestrian access and safety, and free or reduced transit fees. A small number of participants specifically requested free youth transit passes.

In the "Climate Resiliency" category, participants requested more parks, better access and improvements to existing parks, tree canopy expansion, and more green infrastructure. Thirteen percent of participants called for more community gardens.

Overall, while there was a wide variety of suggestions, the majority were similar to those provided by respondents in the online CAP survey (see Table 14 for a more detailed breakdown of responses). Except for the responses described above, no one suggestion was shared by more than 10% of the participants. Thirteen percent of participants did, however, declare support for an equitable implementation of the CAP, which is expanded upon in the next section.

TABLE 14: WHAT DO YOU WANT TO SEE THE CLIMATE ACTION PLAN SUPPORT IN YOUR NEIGHBORHOOD? (PERCENTAGES BASED ON 134 PARTICIPANTS)		
STRATEGY	**ACTION**	**RESPONSE %**
Bicycling, Walking, Transit, & Land Use	Expand and improve public transit	23
	Improve bike network and infrastructure	21
	Other	13
	Pedestrian access and safety	11
	Free or reduced transit fees	10
	Street reform	8
	Zoning	8
	Walkable neighborhoods	6
	EV infrastructure	5
Climate Resiliency	Expand green spaces and infrastructure	21
	Expand tree canopy	13
	Sustainable food systems	11
Zero Waste	Increase composting	10
	Increase recycling	5
	Food Sourcing	4
	Provide curbside composting	4
Clean & Renewable Energy	Increase EVs and EV infrastructure	3
	Increase renewable energy	3
	Solar on buildings	3
Energy & Water Efficient Buildings	Building electrification	4
	Water conservation and reclamation	3

"What does climate equity look like to you?"

Only 65% of participants (87 total) responded to this question. The responses were wide-ranging, and for the most part, no response was shared by more than a few participants. One exception was on the topic of community empowerment. This was mentioned by 14% of participants, and was expressed as a desire for the City to seek input from more (and more diverse) members of the community. The other exception was an explicit ask for equity across San Diego neighborhoods; 10% of participants said that resources such as clean air, clean water, parks, transportation options, etc. should be as available in Communities of Concern as in wealthier San Diego communities. Otherwise, participants' descriptions of climate equity echoed the responses made to the previous question.

> Strengthening indigenous sovereignty by learning from and amplifying the knowledge of indigenous communities in sustainable practices. Striving for full participation of communities of concern in decision-making processes. Just transition for workers
> District 4 Forum Attendee

> Understand and remove barriers for communities of concern. Make access to climate action tools and resources easier to access. It can't be a one size fits all approach. We have to understand how the goals impact all communities
> District 6 Forum Attendee

> Prioritize retrofitting/solar/subsidies/access in the areas that can least afford it. Listen to marginalized communities and involve them in the process. Listening to Native American perspectives on climate action.
> District 8 Forum Attendee

> More opportunities in clean jobs and community education and involvement of communities of concern that have traditionally been excluded from these conversations
> District 3 Forum Attendee

Conclusion and next steps

The series of online public forums held in August and October of 2020 were designed to facilitate free-ranging discussions about climate change and the City's Climate Action plan. Despite this deliberately loose organization, several strong themes emerged from these meetings. Participants expressed anxiety about the consequences of climate change, with sea level rise, increased heat, more frequent wildfires, and poor air quality leading the list of concerns. Conversely, participants anticipate that clean air, clean water, a healthier lifestyle, and some form of social and/or environmental justice will be benefits of effectively implementing a Climate Action Plan.

Overall, participants support transformative action via the City of San Diego's Climate Action Plan. The ideal City that emerged from these discussions is one with fewer cars, more green spaces, less reliance on fossil fuel-dependent energy sources, and resources distributed equitably across neighborhoods.

The very strong participant focus on a need for better transportation options (especially affordable and widely available public transit) indicates that participants consider gasoline-powered personal vehicles to be a major contributor to climate change. While not explicitly stated, participants' strong desire for infrastructure supporting active transportation (e.g., safe pedestrian spaces, safe bicycle lanes, an expanded bicycle network) may indicate support for the Complete Communities concept.

While some individual participants suggested very specific actions (e.g., carbon caps, Youth Opportunity Passes), in general participants appear to be willing to let the City decide how to proceed so long as it meets the goals expressed here. However, participants also expressed a strong desire that the City actively engage a diverse set of

community groups as it develops its plans. Participants believe that political will and money are the crucial components for success and that the City should do better at coordinating its actions both within its own departments and across different levels of government (County, State).

Similar to the online survey conducted this same year, the racial/ethnic distribution in these forums' participant pools did not reflect the diversity in the City of San Diego as a whole. The larger number of participants that declined to provide income information makes it difficult to draw firm conclusions about economic status, but it is reasonable to infer that these forums did not reach a sizeable group of people at the lower end of the economic scale. This set of participants stressed that equity requires both an understanding of the needs of Communities of Concern through direct dialogue and community empowerment through providing a seat at the table when decisions are made. Therefore, different outreach efforts may be needed to give voice to members of our Communities of Concern. The City will continue to engage with its residents through 2021 in order to create a Climate Action Plan update that reflects the viewpoints, priorities, and needs of all.

Our Climate, Our Future

Communities of Concern

Outreach Results 2021

Table of Contents

Introduction

Background

The City of San Diego's Sustainability Department's (CoSD) initial engagement, including an online survey, 12 public forums, and community presentations, provided extensive feedback from San Diego residents. However, there was an underrepresentation of our communities of color and residents in Communities of Concern. To address the lack of engagement in our Communities of Concern, the City contracted with the Institute for Local Government to partner with local nonprofits and community-based organizations within Communities of Concern, as defined by the 2019 Climate Equity Index, to conduct targeted engagement efforts. Through this effort, the City worked with Casa Familiar, Climate Action Campaign, Environmental Health Coalition, Mid-City CAN, and San Diego Urban Sustainability Coalition (referred to collectively as CBOs throughout this document) to target various communities, including Barrio Logan, City Heights, Linda Vista, and San Ysido, among others. The Greenlining Institute was also brought on as an equity consultant to ensure the City is accountable for advancing climate equity in this effort.

The targeted engagement through a variety of methods provided the kind of ranking of priorities the CoSD has obtained from residents in the initial engagement methods. In addition, CBOs provided qualitative data about residents' priorities that would have been obscured in the more poll-based data collection. This engagement also provided information about CoC needs and concerns outside of climate action.

Participant Demographics

With CoSD's initial engagement, people in upper income brackets were overrepresented, and there was a relative lack of racial/ethnic diversity. CoSD was able to reach a much more diverse and representative participant pool by working with CBOs. The figures in this section show the CBO's demographic results in orange and CoSD's initial engagement in blue to demonstrate the initial imbalance of the engagement compared to who the CBOs were able to reach. The demographic categories were not standardized between CBOs prior to data collection, presenting challenges for normalizing the data especially in the income section.

Of those participants providing demographic information, the average participant age was 30.8 years (see Figure 1). A high number of respondents chose not to provide their income, but of those that did disclose, half reported that their annual income was less than $35,000 (see Figure 2). Of participants that chose to disclose their race/ethnicity, 60% identified as Hispanic and 9% identified as Black or African American (see Figure 3).

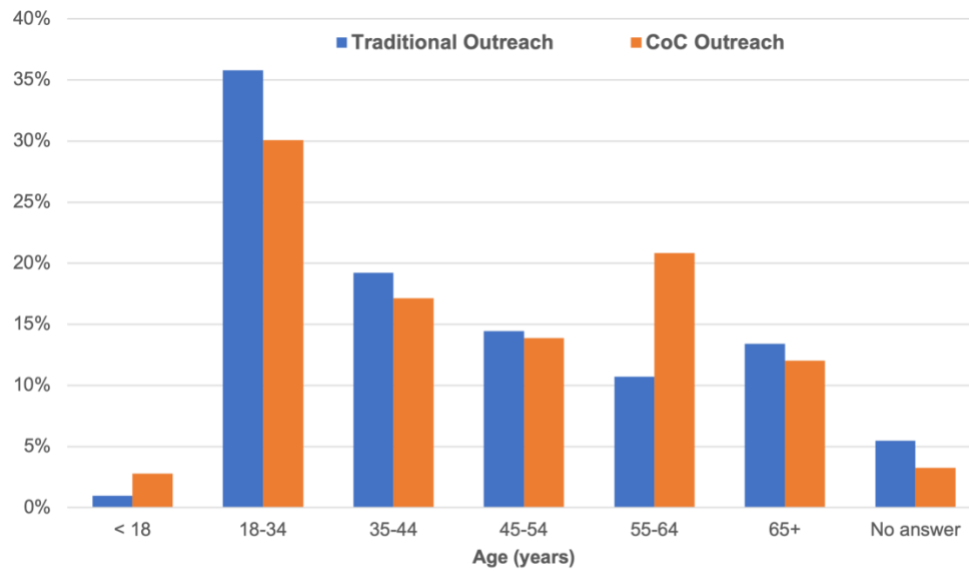**Figure 1. Participant Age** (percentages based on 219 participants)

Figure 2. Participant Annual Income (percentages based on 187 participants)
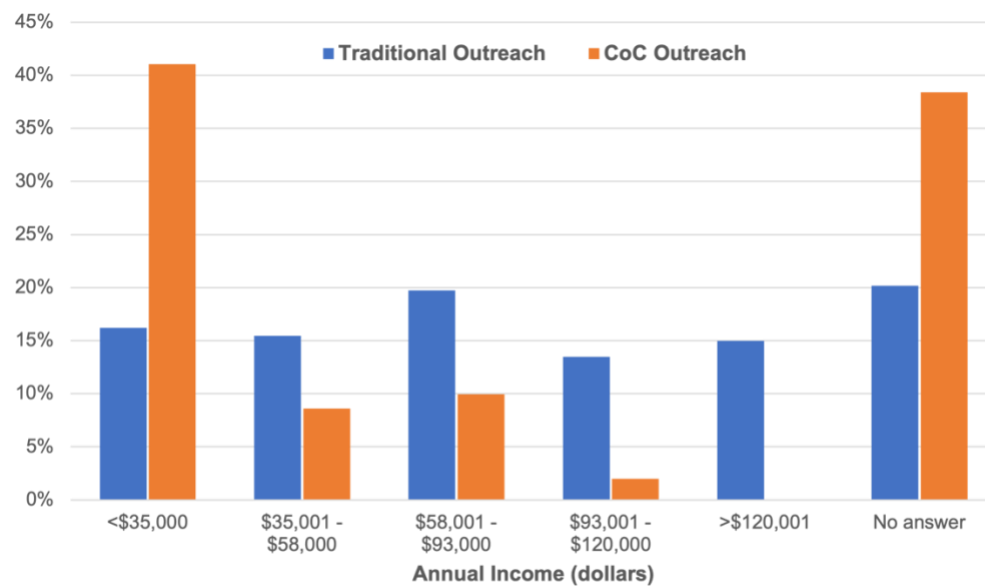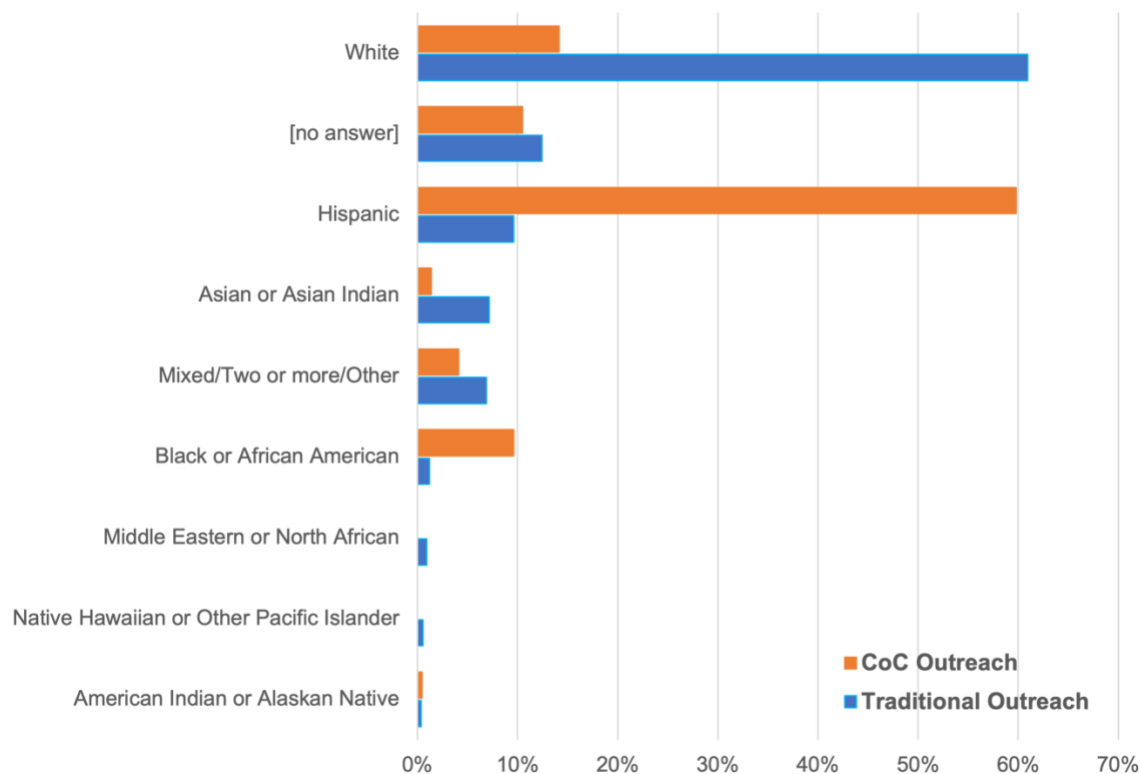
Figure 3. Participant Race/Ethnicity (percentages based on 219 participants)

For CoSD's initial engagement, interpretation was offered at select forums and the online survey was available in Spanish but very few responses were collected in any language other than English. Of those who participated in the CBO's engagement, 32% answered in Spanish (see Figure 4).

Figure 4. Participant Language (percentages based on 284 participants)
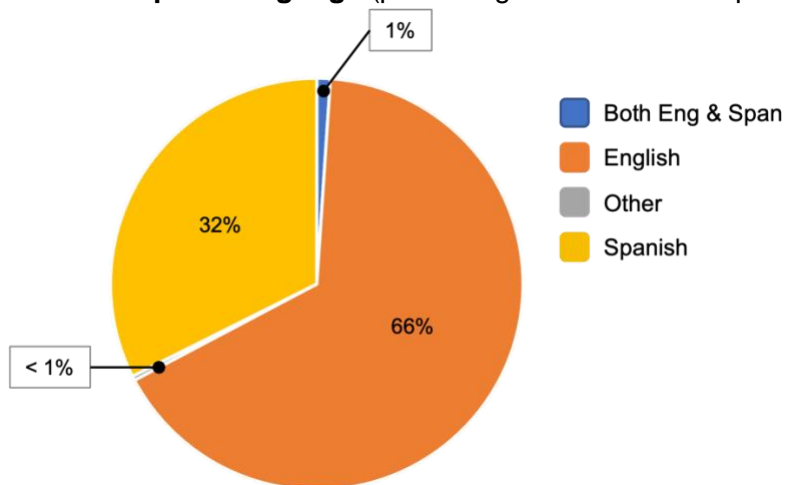
Figure 5. Participant Home Zip Codes (map based on 220 participants)

City of San Diego Climate Equity Engagement
Outreach Participation

Legend
- City of San Diego
- Zip Code Boundary

Number of Participants*
- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- > 40

*Based on 218 participants. 19 participants either did not provide their zip code or are outside of the County of San Diego.
Source: City of San Diego

Energy Policy Initiatives Center (USD), 2021
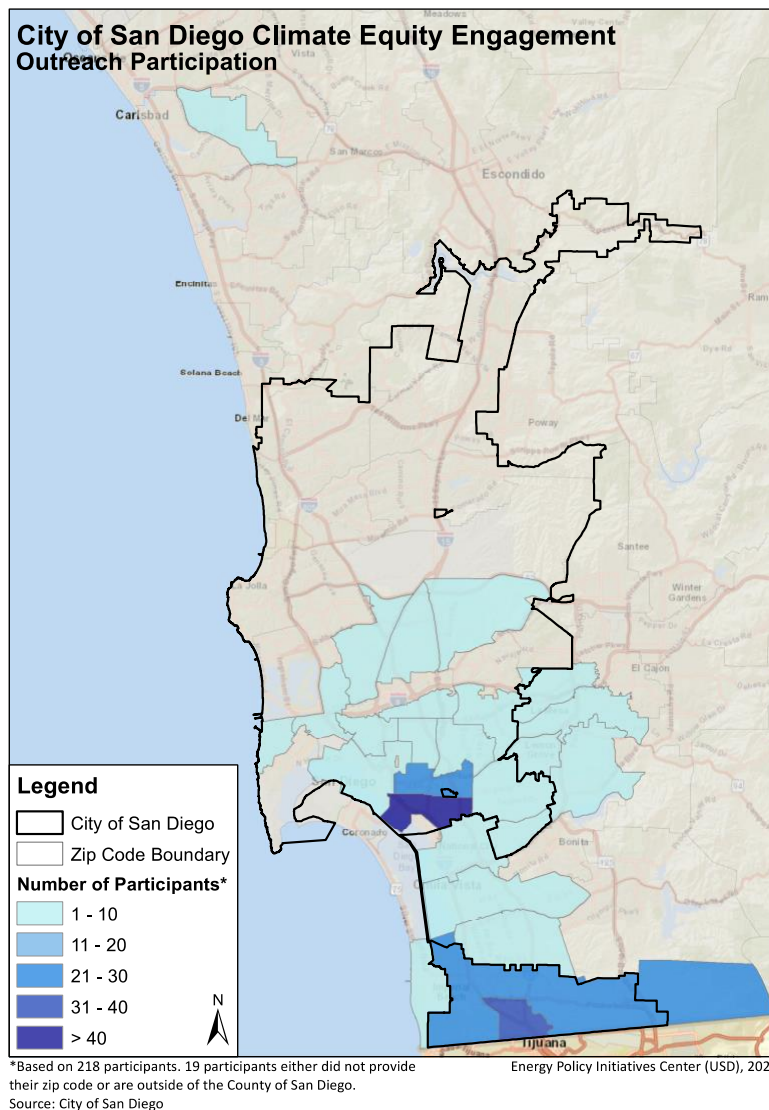
Overview (CC/CAP awareness and attitudes)

Most participants had not heard of the City's Climate Action Plan. They were, however, aware of climate change, and have already started to feel its effects (see Figure 6). It may appear from the responses that rising temperatures and rising costs are separate issues, unequal in impact, but that is partially due to slight differences in survey wording and presentation between our partner CBOs. MidCityCan aimed for a more nuanced understanding by first asking their participants "How has the change in climate affected you?" and then following up with "How did change in climate impact your quality of life?" In this case, the most frequent response to the first question was heat/increased temperatures, and the most frequent response to the second was rising costs. This demonstrates that those two effects are closely linked in our residents'

Figure 6. "Has climate change affected your quality of life? If so, how?"

Has Climate Change affected you?

How has Climate Change affected you?	Response %
Heat/increased temperatures	24%
Health problems*/concerns	18%
Wildfires	11%
Poor air quality	10%
Severe/unpredictable weather	7%
Rising costs (electricity, water, housing, gas, etc)	7%

* Respiratory problems = 9%
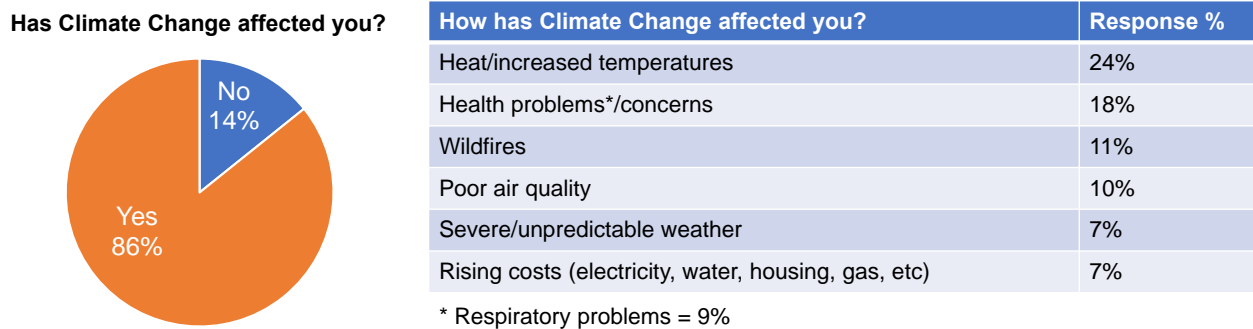
393 respondents surveyed by Climate Action Campaign, Environmental Health Coalition, SDUSC, and MidCityCan

minds. Similarly, respondents associated greenhouse gas emissions (particularly air pollutants associated with motor vehicles) with negative health effects they and their families have experienced.

During these outreach events, our partner CBOs provided information about the City's Climate Action Plan to community members, and then solicited feedback about what residents hoped to gain from climate action (see Figures 7 and 8). These answers indicated that residents want the City to provide affordable, accessible transportation solutions, improve air quality, and increase the amount of natural spaces and trees available to their communities.

Figure 7. "When you imagine a sustainable San Diego, what comes to mind?"

114 answers collected by Climate Action Campaign and SDUSD
Image generated at https://www.wordclouds.com

Figure 8. "Which of the following climate action benefits are most important to you?"
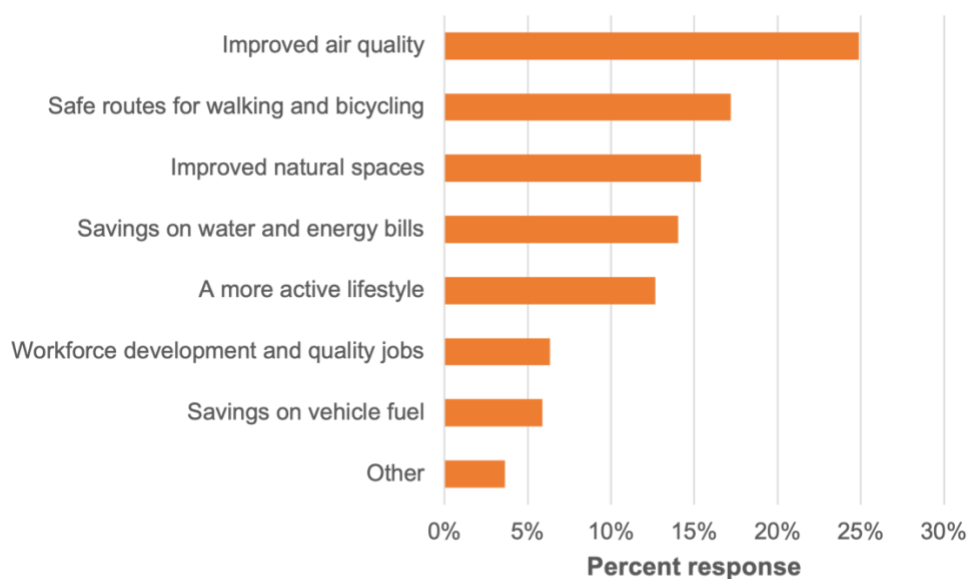
221 answers collected by Casa Familiar

Results by Community

Each CBO targeted a different set of communities with their outreach efforts. While much of the feedback was similar across communities, there were some regional differences. Portions of the CBOs' summaries are pulled from ILG's "San Diego Best Practices" report that illustrate neighborhood-specific concerns are included below. For far more information from each CBO, please refer to the complete ILG report.

City Heights (Mid-City CAN)

Residents in this community focused on the negative health impacts of climate change as well as the financial burdens imposed by more intense weather events (e.g., increased heating, cooling, water, and transportation costs). At the same time, residents were optimistic about the potential for local climate industry jobs and want to see more community education around climate issues.

Southeast San Diego (SDUSC)

Residents in this community were very aware of their historic and continued lack of access to important resources. They pointed out that their community lacks trees and green spaces, mobility infrastructure, access to safe and sustainable waste reduction methods such as recycling and composting, and basic amenities, goods, and services such as healthy and affordable food. Residents were apprehensive that they would continue to be left out as clean

energy programs are implemented elsewhere in the City because of the high financial barriers to participation, low rates of home ownership, and a lack of environmental and climate justice educational outreach efforts.

Barrio Logan & Logan Heights (Environmental Health Coalition)

Residents in these communities were primarily concerned about air quality, and advocated actions to alleviate the effects of air pollution from diesel trucks and other polluting industries. These actions included an increase of trees and green spaces, electric vehicle infrastructure, and a reduction in the number of diesel vehicle trips through their neighborhoods.

San Ysidro / Nestor / Otay Mesa (Casa Familiar)

Like the Southeast San Diego residents, residents of these neighborhoods perceived a lack of access to many resources. Similarly, they believed that clean energy and other improvements would be unavailable in their community. Another large concern centered on street safety, with residents requesting better pedestrian and cyclist infrastructure. Residents also expressed anxiety about increasing frequency of wildfires, having been impacted by those in the past.

Midway District / Linda Vista (Climate Action Campaign)

Common themes throughout these engagement events were bikeable/walkable neighborhoods and safe streets, shade trees and neighborhood nature, community blight and pollution, and social equity. Midway and Linda Vista residents called out incomplete sidewalks and bike lanes. Eastern Area residents said that the lack of shade trees is a major concern. Residents in multiple neighborhoods said that the financial burden of watering the trees available from the City's Free Tree SD program was a barrier to participation. Residents also wanted environmental education to be available in their local high schools.

Results by Strategy

Energy & Water Efficiency

Participants saw public buildings and spaces as the most promising targets for more energy efficiency (see Table 1). Perhaps because of the concerns around the rising costs of energy (see Fig. 6, above), residents selected their own homes, rather than other commercial or industrial buildings, as the next best target for increased efficiency. Residents indicated that they are already doing all they can to conserve energy (such as using LED bulbs and more efficient appliances), but that many improvements are out of their reach (such as other appliance upgrades or installing solar systems).

Table 1. "The City is working to reduce energy use in all buildings. Where do you see the biggest opportunity for more energy efficiency?"

Answer	Percent of total answers
In public buildings and spaces (e.g. libraries, recreation centers, City Hall)	56%
Residential buildings/In my home	35%
Commercial/Industrial/Educational buildings	4%
Other	3%
Older buildings	2%
New construction	1%

107 answers collected by Casa Familiar, Climate Action Campaign, and SDUSC

The two most frequently reported barriers to completing energy upgrades were prohibitive cost and that the respondents did not own their residence (see Figure 9).

Figure 9. "What is stopping you from completing energy upgrades?" (Climate Action Campaign and SDUSC, 89 total answers)
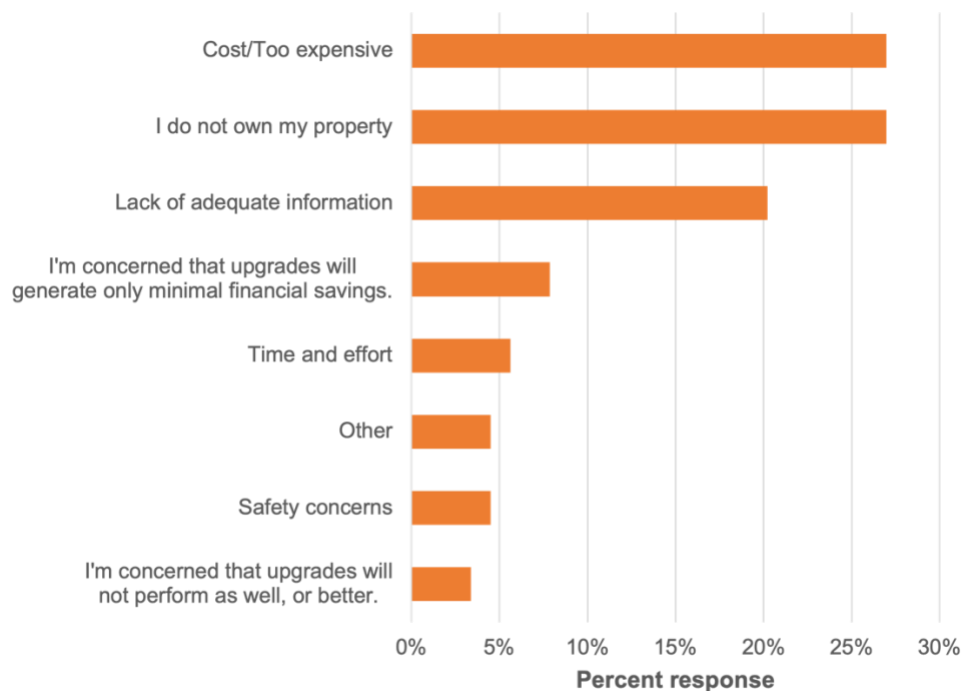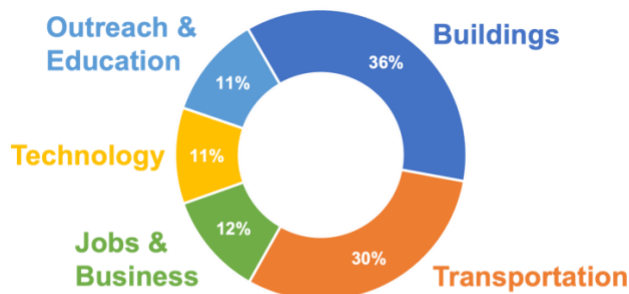

89 answers collected by Climate Action Campaign and SDUSC

Renewable Energy

Respondents indicated that the City should prioritize energy-saving projects in the transportation and building sectors (see Figure 10). Within those broad categories, respondents ranked individual strategies as seen in Table 2 (next page).

Figure 10. "The City is on track to provide 100% renewable energy electricity (solar, wind, etc.) to residents and businesses. What other energy-saving opportunities should the City prioritize?"

405 answers collected by Casa Familiar, Climate Action Campaign, and SDUSC

Mobility

San Diego's Communities of Concern repeatedly highlighted issues surrounding transportation and mobility during these outreach events. As seen in Figure 8 above, 6% of respondents hoped that savings on vehicle fuel would be one benefit from climate action. More than that, however, respondents from every community urged the City to provide more access to public transportation (both through availability and affordability) and to make streets in their communities safer for walking and cycling. Figures 11-13 show respondents' attitudes towards transportation mode shift.

Out of 44 respondents surveyed, 25% said they did not own or have regular access to a car [Climate Action Campaign and SDUSC]

Table 2. Ranked list of energy-saving opportunities, top answers per category (Casa Familiar, Climate Action Campaign, SDUSC; 405 answers)

Buildings	
Provide solar installation rebates for homeowners and renters; Make City-subsidized solar incentive programs accessible	9%
Use less natural gas in buildings and homes for cooking, heating, and cooling	8%
Support community-owned solar options that allow renters and neighbors to financially benefit from shared solar energy installations	5%
Update building code to require that new buildings be all-electric. Retrofits should support future electrification.	5%
Transportation	
More zero emission public transportation options	13%
More access to personal zero emission vehicles	11%
More places to charge electric vehicles	6%
Jobs & Business	
Support a green jobs training and employment program to train and employ low-income residents and youth in energy efficiency and renewable energy jobs	6%
Promote a business-oriented efficiency and renewable energy program to help small and local businesses save money and be cleaner and more efficient	6%
Outreach & Education	
Increase educational opportunities to low-income and historically oppressed communities in regards to solar and clean energy options	6%
Energy efficiency for renters: Ensure landlords and tenants equitably share benefits of energy efficiency	6%
Technology	
Pilot new energy technologies (i.e., expand the use of landfills gas, install micro-grids)	11%

Figure 11. "How could the City of San Diego make it easier for you to get around without your car?"
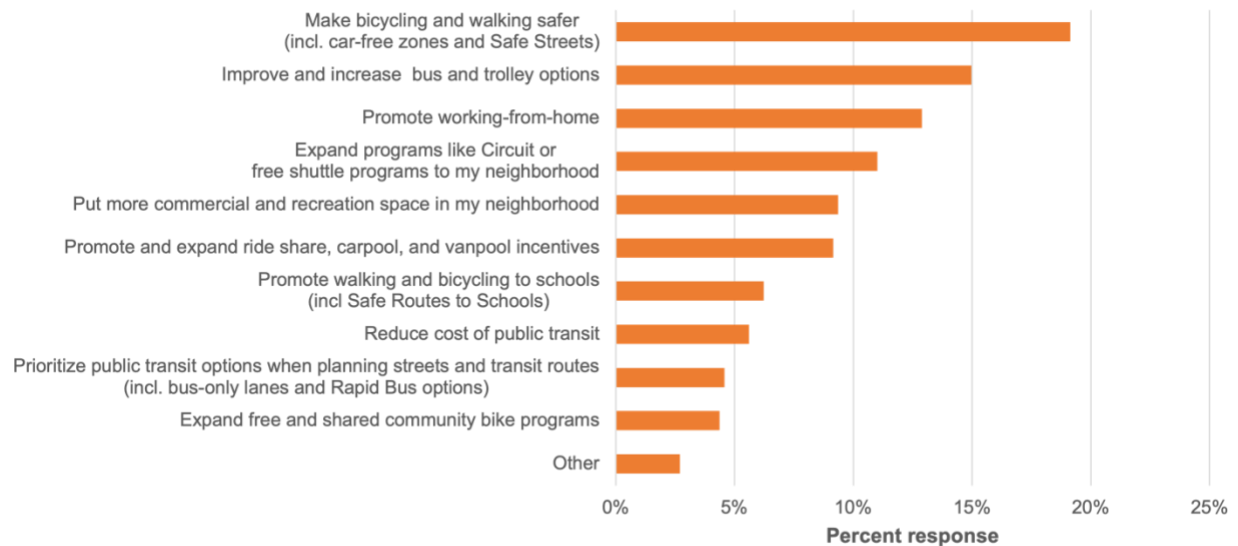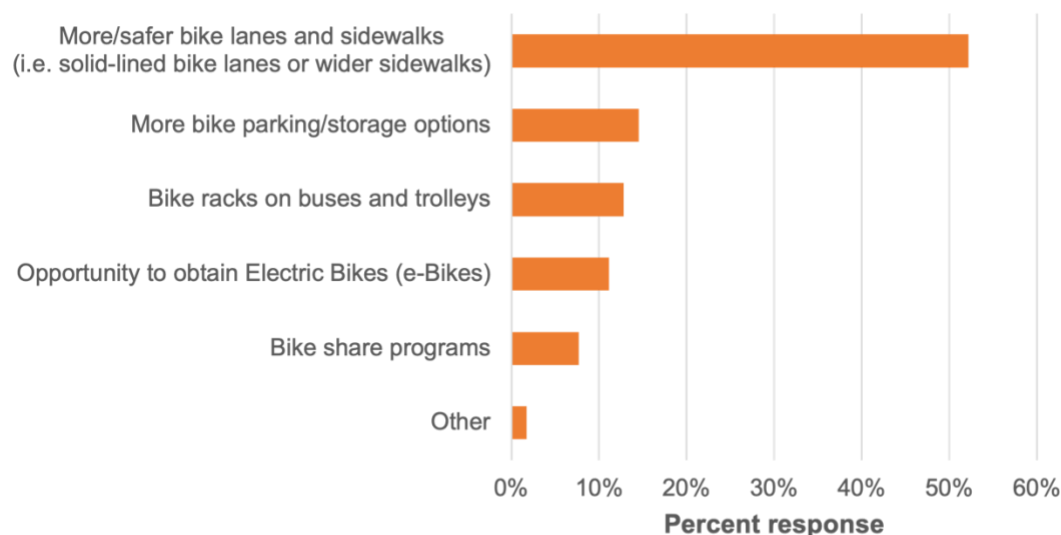

481 answers collected by Casa Familiar, Climate Action Campaign and SDUSC

Figure 12. "What would encourage you to use public transit more often?"
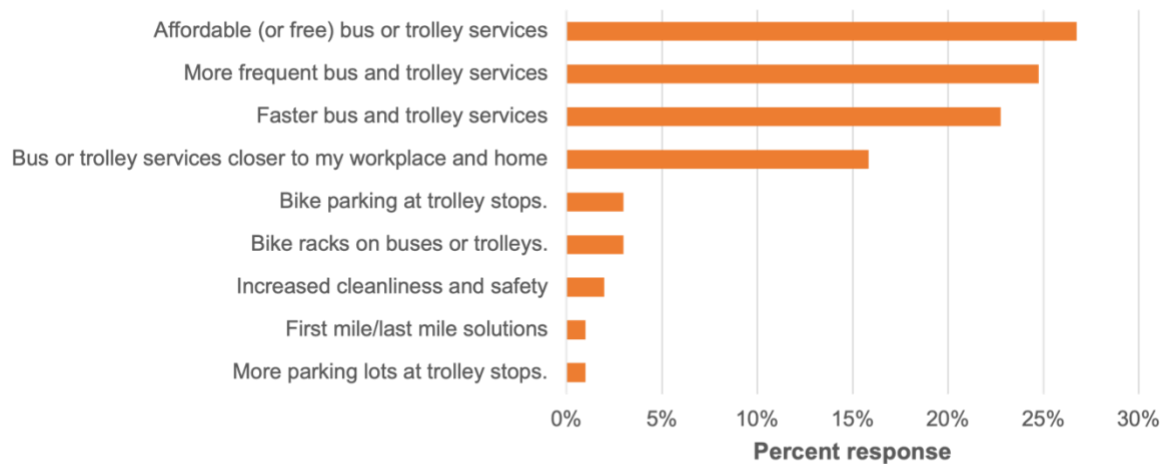
101 answers collected by Climate Action Campaign and SDUSC

Figure 13. "What would encourage you to bike or walk more often?" (Climate Action Campaign and SDUSC; 117 answers)

117 answers collected by Climate Action Campaign and SDUSC

Climate Action Campaign asked, "If it takes one hour to charge an electric vehicle, where should vehicle charging stations be installed to help people switch from gas to electric cars?" The most consistent answer (a third of respondents) was in shopping centers/commercial centers.

Solid Waste & Consumption

This strategy was not directly addressed by polling but was referenced by some participants during outreach events. Here there were calls for more recycling, especially of compost. There were also calls for waste reduction from restaurants and industries.

Resilient Infrastructure & Ecosystems

Every Community of Concern expressed a strong desire for more trees and green spaces. Respondents saw the connections between parks and trees and other climate action benefits. For example, respondents pointed out that having more public places to congregate and better local parks and recreation centers would prevent people from having to drive longer distances to areas with better public amenities. Respondents envision trees as part of the solution for improved air quality and climate change mitigation, as a buffer between freeways and homes, as a way to cool sidewalks improving walkability and bikeability, and as a contributor to neighborhood beautification.

SDUSC surveyed 31 people and found:

- *71% felt that there are not enough shade trees in their neighborhood*
- *70% showed positive interest in participating in the City's Free Tree program*

Another recurring theme through some of the engagement events centered around food and food systems. Respondents noted limited access to healthy, affordable food in their own communities, and reported food insecurity issues. In discussion during outreach events, participants requested urban agricultural resources from the City, including community education materials and resources for community gardens.

"Do you have access to a garden or space to grow your own food?"

NO 32%

YES 52%

16% SOMETIMES
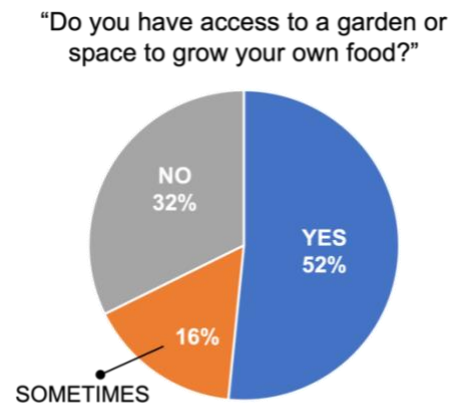
31 respondents surveyed by SDUSC

Conclusion

The engagement work done by the Institute for Local Government (ILG) and other local Community Based Organizations demonstrates how to elevate voices from communities within our City that are less commonly heard. This valuable work was effortful and time-consuming; a full accounting of lessons learned and suggested best practices for future engagement is documented in the ILG final report. These recommendations should inform the City of San Diego's future community outreach efforts.

This work shows that San Diego's Communities of Concern are already directly experiencing negative impacts of climate change. Previous outreach efforts showed that San Diegans in other communities are experiencing climate anxiety but fewer direct impacts. This dichotomy should motivate the City to prioritize climate justice and equity in its climate mitigation and adaptation efforts. The City intends to center equity in its Climate Plan Update, and the CoC feedback featured in this document is critical to that effort. The City will attempt to create strategies that address the resident concerns, priorities, and requests relayed here. We acknowledge that this is merely the starting point, however, and that continued dialog with residents in our Communities of Concern will be needed to guide this process.