Centre City Development Corporation

Item No. 8

DATE ISSUED: September 29, 2011

ATTENTION: **Committee on Land Use and Housing, Agenda of October 5, 2011**

SUBJECT: Presentation of Centre City Green, downtown's sustainability master plan.

REQUESTED ACTION: That the Committee on Land Use and Housing ("Committee") receives an informational presentation on Centre City Green (CCG), downtown's sustainability master plan.

STAFF RECOMMENDATION: Centre City Development Corporation ("Corporation") staff recommends that the Committee receive an informational presentation on CCG.

SUMMARY: Centre City Green is the sustainability master plan for downtown that is comprised of planning guidance that acts as a supplement to the Downtown Community Plan (DCP). Centre City Green identifies long-term goals and policies to meet sustainability standards and proposes a voluntary Green Building Incentive Program, a Green Street's Program Concept to expand sustainability to the public realm, and a revised Transportation Demand Management Plan.

BACKGROUND

CCG advances the Visions and Goals of the DCP and the Objectives of the Centre City Redevelopment Project by:

- Implementing the goals and policies of Section 5.8 Sustainable Development of the DCP,
- Ensuring that development in downtown is guided by sustainable practices, and
- Meeting the goals of regional and state mandates to reduce carbon emissions

In September 2010, the Corporation Board of Directors adopted CCG and its implementation actions that include: 1) long-range goals and policies; 2) Green Building Incentive Program with proposed amendments to existing Centre City Planned District Ordinance (CCPDO) incentive programs; 3) Green Street's Program Concept; and, 4) a Revised Transportation Demand Management Plan.

In July 2011, the Corporation adopted the Submittal Manual with its submission requirements for the Green Building Incentive Program for: (1) the Performance Path that allows owners to select an existing voluntary green building rating system (Leadership in Energy and Environmental Design (LEED) or California Green Building Standards (CALGreen) Tier 1 and 2); and, (2) the Prescriptive Path that allows owners to select from a menu of green building options.

DISCUSSION

CCG implements the goals and policies of the DCP with a long-range sustainability master plan that identifies Sustainability Indicators with goals and policies that are intended to shape and guide downtown's growth through 2030.

1. Long Range Goals and Policies

A comprehensive review of existing planning documents that affect the greater San Diego region was conducted, including the goals and policies of the DCP and recent State Senate and Assembly Bills, Executive Orders, regional planning documents and environmental issues since the adoption of the DCP, to understand how the Corporation can best engage and interact with the greater governance of the region. This process identified a number of policy guidelines, programs, indicators, and metrics that provide a solid basis for CCG. Staff engaged a broad range of Corporation stakeholders in a discovery process, and asked participants to provide their vision of a preferred future for downtown. The combination of outreach and research helped create eight Sustainability Indicators and preliminary metrics to augment the DCP goals and policies. Each chapter of the DCP was then reviewed based on consistency with the Indicators, highlighting the consistent DCP goals and policies while identifying additional areas for improvement. A series of key opportunities that support the chapter's intent, and drive sustainability, were identified as the starting point for future capital and policy decisions for eight out of the 14 DCP chapters that relate to buildings and the spaces in-between.

2. Green Building Incentive Program

CALGreen defines requirements in energy, water and materials efficiencies and no longer makes it necessary to encourage building operations that will be "market standard", and will be updated every five years, regulating Tiers that are currently identified as guidelines. CALGreen provides a strategy for CCG to incentivize measures that are above and beyond CALGreen, such as Tiers One and Two and its LEED equivalents. CCG also identifies "market opportunities" for mid- to high-rise building efficiencies that are not specified in the Code, and incentivizes selected "green" design features that are based on Assembly Bill 32 (AB 32) Scoping Plan, addressing peak energy loads and water conservation.

The two paths to achieve CCG Incentives can be summarized as the following:

> Performance Path: allow owners to demonstrate a high level of whole-building sustainability by achieving a targeted level of performance in an existing voluntary green building rating program, such as CALGreen Tier One and Two and its LEED equivalents.

Prescriptive Path: allow owners to select from a menu of options that improve performance in one or more Sustainability Indicator(s). Each prescriptive measure is assigned a point value that represents the extent of Indicator impact for the particular building type being entitled, such as mixed-use residential, hotel and office. The incentives earned depend upon the combined point total of the measures selected by the owner.

Incentive Structure:

CCG defines a framework of three levels of performance resulting from measures associated with CALGreen Tiers, LEED and selected building measures based on points accrued. The incentive structure has been coordinated with the DSD's Sustainable Development and Incentive Program (Council Policy 600-27). The incentive structure will require an amendment to the CCPDO in order to activate the CCG program. The three levels of performance are as follows:

Centre City Green Incentives

Performance Level	Prescriptive Requirements	Performance Requirements	New Construction Incentives*
Entry	None	All Projects Must Meet CalGreen Mandatory	None
1 Green	25-44 CCG Points	CalGreen Tier 1	Public Recognition from CCDC*
2 High Performance Green	45-59 CCG Points	CalGreen Tier 2 or LEED Silver	1.0 FAR Bonus*
3 Signature Green	60+ CCG Points	LEED Gold or higher	2.0 FAR Bonus*

* Additional City of San Diego DSD Incentives may apply.

Green Building Incentive Manual - Submittal Manual:

The Corporation adopted the Submittal Manual and its submission requirements for the Green Building Incentive Program on July 27, 2011. The Corporation and Development Services Department (DSD) staff developed the Submittal Manual to facilitate the efficient coordination between the applicant, the Corporation and the City of San Diego ("City"). The Submittal Manual provides descriptions and submission requirements for each Performance and Prescriptive Path option.

The Submittal Manual includes a checklist, in Excel format, that serves as both a documentation process and as a means to verify performance of the project. The Checklist records the approach

(such as CALGreen Tier 2, LEED or selected building measures), determines the tier ranking and then identifies what information needs to be supplied by the applicant at two stages of review for both the City and the Corporation.

A CCG Building Incentive Program Sheet (CCG-1) will be incorporated into the Schematic Design/Concept Development and Building Permit sets and will include the Checklist and all required documentation, with a signature stamp area from the architect or engineer and sign-off boxes by the Corporation and DSD. Before final occupancy permits are issued, the second phase of field inspection approval will verify if the project incorporated the measures into the completed project. Locating the information in a consistent manner will allow both the City and the Corporation to ensure projects are meeting the Entitlement Phase Agreement.

Amendments to existing FAR bonus programs:

Centre City Green proposes amending the CCPDO's FAR bonus program for Eco Roofs to allow a greater bonus (0.5) for Eco Roofs that are accessible to the building's occupants. CCG proposes that the Eco-Roof FAR bonus can still be pursued separately from the CCG Program as an incentive-based aesthetic and open space goals, but at a reduced FAR bonus that is to be capped at .50 FAR.

3. Green Street's Program Concept

The DCP emphasizes "public realm" enhancement that includes designated Green Streets envisioned as an essential element and integral to the open space system – as connectors to the waterfront, Balboa Park, downtown activity centers, proposed parks and plazas, and as continuous recreational bicycle paths. CCG defines the Green Street's Program Concept and framework for future capital improvements, starting with a "baseplan" two-lane street configuration with widened sidewalks and a bicycle lane, with possible overlays of various green elements that address multiple Sustainability Indicators as pilot project concepts, such as low-impact development (LID) features that include storm water management systems, locally based streetscape materials with high recycled content, and energy efficient pedestrian street lights.

For developments that are located along designated Green Streets, a menu of streetscape "enhancement options" have been defined that are intended to become part of the next Streetscape Manual. The applicant would be required to achieve a minimum of 20 points from a menu of options that are intended to provide for flexibility per building type.

4. Revised Transportation Demand Management Plan

In order to reduce single occupant vehicle trips, the PDO currently requires that all commercial

and hotel projects containing more than 50,000 square feet achieve a minimum of 24 points by selecting a number of Transportation Demand Management options. Based on input from stakeholders, CCG updates the menu of options to provide for alignment with new standards and green building rating systems, such as LEED.

CONCLUSION:

Corporation staff recommends that the Committee receives an informational presentation on CCG.

COMMUNITY OUTREACH AND PUBLIC PARTICIPATION EFFORTS:

None. This is an informational presentation. CCG was unanimously recommended for approval by the Centre City Advisory Committee (CCAC) and was approved by the Corporation in September 2010.

Respectfully submitted,

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Attachment: A – Centre City Green
B – CCG Submittal Manual

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SAN DIEGO DOWNTOWN SUSTAINABILITY PLAN

Centre City green

Centre City Development Corporation

ADOPTED SEPTEMBER 2010

ATTACHMENT A

Centre City Development Corporation

The completion of this report could not be possible without the direction and guidance offered by the collective whole. Specifically, Paladino and Company would like to thank the following groups for their endless support and hours of commitment for Centre City Green.

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Table of Contents

0 Executive Summary I

1 Long Range Goals and Policies 1-1

1.0 Overview 1-1
1.1 Defining Sustainability 1-6
1.2 Indicator Goals & Policies 1-16
1.3 Planning & Implementation Strategy 1-33
1.4 Planned District Ordinance Analysis 1-53
1.5 Revised Sustainability Incentive Programs 1-54
1.6 Revised Transportation Demand Management Plan 1-55

2 Green Streets Pilot Project and Program 2-1

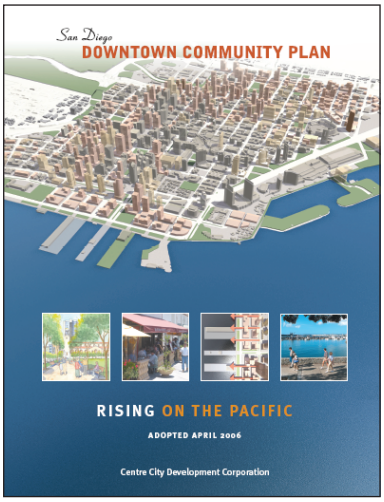
2.1 Overview 2-2
2.2 The Green Street Base Plan 2-4
2.3 Design Elements 2-4
2.4 Pilot Project Concept Plans 2-7
2.5 Streetscape Manual Improvements 2-12

A

Appendices A-1

Appendix A: Green Building Incentive Program - Submittal Manual A-A
Appendix B: Best Management Practices Report A-B
Appendix C: Stakeholder Report A-C
Appendix D: Indicator Report A-D
Appendix E: Centre City Green Entitlement Scorecard A-E
Appendix F: Indicator Alignment Table A-F
Appendix G: References and Baseline Data A-G

Downtown Community Plan

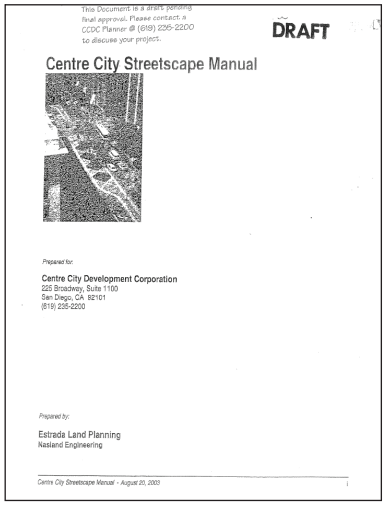


Provides long range goals and policies for downtown

Section 1
Long range goals and policies: Supplement to DCP

Section 2
Green Streets Program: Expands DCP descriptions, defines concepts and goals

Centre City Streetscape Manual

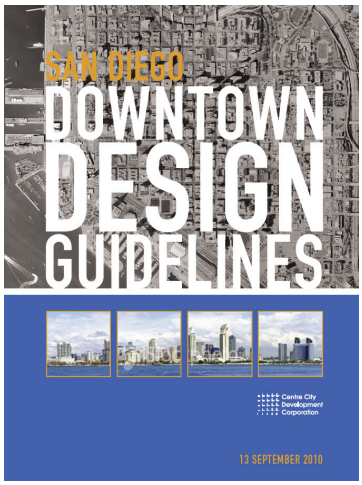


Provides design standards for off-site improvements within the public right of way

Green Streets enhancements at designated streets

Provides general descriptions of Sustainability Indicators, green building design guidelines and a description of the Green Streets program

Downtown Design Guidelines



Provides design standards and guidance

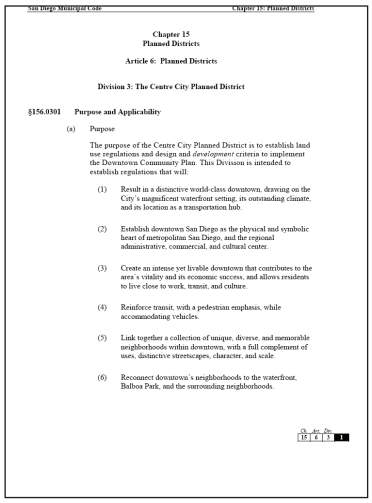
Submittal Manual
(updated periodically)

Green Building Incentive Program Framework

Updates the 2006 Centre City PDO: Revisions to Transportation Demand Management Plan, Eco-Roof and Urban Open Space FAR Bonus Programs

City of San Diego 600-27 Green Building Incentive Program is fully coordinated with Centre City Green's Program.

Planned District Ordinance



San Diego Municipal Code — Chapter 15: Planned Districts

Chapter 15
Planned Districts

Article 6: Planned Districts

Division 3: The Centre City Planned District

§156.0301 Purpose and Applicability

(a) Purpose

The purpose of the Centre City Planned District is to establish land use regulations and design and *development* criteria to implement the Downtown Community Plan. This Division is intended to establish regulations that will:

(1) Result in a distinctive world-class downtown, drawing on the City's magnificent waterfront setting, its outstanding climate, and its location as a transportation hub.

(2) Establish downtown San Diego as the physical and symbolic heart of metropolitan San Diego, and the regional administrative, commercial, and cultural center.

(3) Create an intense yet livable downtown that contributes to the area's vitality and its economic success, and allows residents to live close to work, transit, and culture.

(4) Reinforce transit, with a pedestrian emphasis, while accommodating vehicles.

(5) Link together a collection of unique, diverse, and memorable neighborhoods within downtown, with a full complement of uses, distinctive streetscapes, character, and scale.

(6) Reconnect downtown's neighborhoods to the waterfront, Balboa Park, and the surrounding neighborhoods.

Provides development regulations for downtown

SAN DIEGO

DOWNTOWN SUSTAINABILITY PLAN

Executive Summary
September 2010

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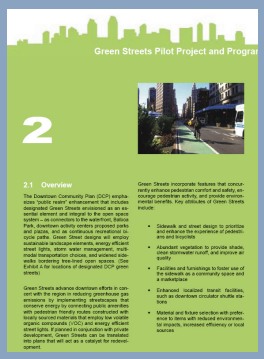
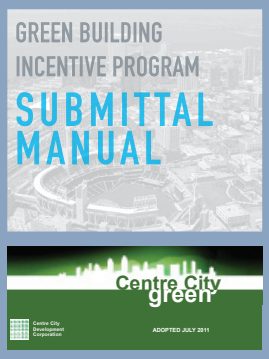
Section 1: Long Range Goals and Policies



Section 2: Green Streets's Pilot Project and Program



Green Building Incentive Program Submittal Manual

Overview

Centre City Green is the sustainability master plan for downtown San Diego. The plan employs an integrated long-term sustainability strategy that addresses both the building and the public realm spaces in-between.

Centre City Green acts as a supplement to the Downtown Community Plan (DCP) and identifies long-term goals and policies that meet local, regional and statewide mandates. It includes a voluntary Private Development Incentive Program that incentivizes measures beyond the code, a Green Street's Program Concept to expand sustainability to the public realm, and expands the current Transportation Demand Management Plan for commercial development by adding more program options.

Centre City Green was created by the Centre City Development Corporation (CCDC), which facilitates downtown redevelopment on behalf of the City of San Diego. The plan was adopted on September 29, 2010 and is the product of more than two years of citizen engagement and inter-agency coordination.

Doing Our Share

As the heart of the San Diego region, downtown has the opportunity to lead as a model for sustainability. For example, the typical downtown resident today uses 15% less energy, 50% less water, and travels 60% fewer vehicle miles than his or her suburban counterpart.

Indicator	Comparison	Downtown Metric	Suburban Metric	Reference
Energy	Uses roughly 15% less energy consumed per SF of space	High Rise Residential = 31 kBtu/sq.ft./yr	Low Rise Residential = 36 kBtu/sq.ft./yr	CEC CA Commercial End-Use Survey data for SDG&E service area, 2006 and CEC Residential Appliance Saturation Survey, 2003
Water	Uses roughly 50% less water	20,400 gallons / year / occupant	41,400 gallons / year/ occupant	Calculated using CALGreen methodology and CA code requirements for indoor and irrigation uses
Mobility	Travels 60% less vehicle miles	6.3 VMT per capita per day	19.8 VMT per capita per day	The Urban Structure and Personal Travel: An Analysis of Portland, OR Data and Some National and International Data, T. Keith Lawton, Director, Travel Forecasting, Transportation Department, City of Portland, Oregon

Table 0.1 Comparison of a resident living downtown to a resident living in suburban context. A resident who lives and works downtown can have significant savings in energy, water and carbon impacts.

Centre City Green is focused on making downtown buildings more sustainable. Since buildings are responsible for approximately 40 percent of total energy use, building guidelines, measures and incentives have been developed as part of Centre City Green to assure that downtown grows sustainably in the future. Though the program is currently focused on new construction, many of the new green building technologies are equally applicable to existing structures. Future programs may be developed to incentivize green renovations to older buildings.

Some of the key findings from Centre City Green confirm that downtown has a strong foundation of sustainability. Specifically, the report found:

- The mixed-use density of downtown contributes positively to all of the Sustainability Indicators.
- As compared to suburban development, downtown uses less energy and water, has a more efficient use of materials and promotes a more dynamic/livable streetscape.
- Downtown's excellent access to multiple public transportation options

allows residents and workers to significantly reduce vehicle miles traveled (VMT) and dependence on single occupancy vehicles, resulting in substantial carbon savings for the region.

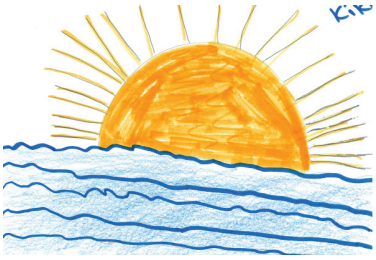
- There are significant opportunities to incentivize water and energy savings in both new and existing buildings.

- Sustainability can have a substantial impact in the spaces in-between buildings. The upgrade of the Streetscape Manual based on the key Sustainability Indicators provides the opportunity to make significant progress in areas of energy, water and urban mobility.

Centre City Green was informed by the best practices of other North American cities of similar size and, ideally, will serve as a model for other metropolitan areas and communities in the San Diego region and beyond.

Green Building Program Element	Chicago	Los Angeles	San Francisco	New York City	Seattle	Austin	San Diego: Centre City Green
Addresses State policies regarding climate change and water conservation				X			X
Supports local long range community planning documents and General Plans	X		X	X	X	X	X
Addresses streetscapes and the spaces between				X		X	X
Provides incentives for new construction	X	X	X		X	X	X
Works with the US Green Building Council's rating program (LEED)	x	x	x	x	x	x	x
Works with the State Green Building Codes (CALGreen)				x			x
Contains incentive options based on building type	x						x
Point system awarded for optional measures	x					x	x
Multiple incentive levels based on performance	x					x	x
Provides tools to calculate savings and determine incentives						x	x

Table 0.2 Comparison to other Top-of-Class sustainability plans. When compared to other programs, Centre City Green offers flexibility for the applicant with options that fit the building type. In addition, Centre City Green offers long range planning to meet regional and state mandates and addresses the public right-of-way.



"San Diego Today and Tomorrow"
Artwork provided by Monarch School, San Diego

Policy Background

The Downtown Community Plan (DCP) estimates downtown's population to grow from the current 30,000 residents and 75,000 jobs to 90,000 residents and up to 165,000 jobs projected by 2030. As buildings are estimated to consume approximately 40 percent of total energy use, guidelines, measures and incentives are being developed with the City of San Diego that assures downtown's growth is shaped by appropriate sustainable and energy efficient measures that meet regional and state regulatory policies.

Centre City Green advances the Visions and Goals of the (DCP) and the objectives of the Centre City Redevelopment Project by:

- Implementing the goals and policies of Section 5.8 Sustainable Development of the Downtown Community Plan;
- Ensuring development in the downtown are guided by sustainable practices; and
- Meeting the goals of regional and State mandates to reduce carbon emissions.

During the last four years, the State of California adopted significant legislation that affects the way cities operate. In September 2006, the State of California enacted Assembly Bill 32, the Global Warming Solutions Act of 2006 (AB 32), which requires the state to adopt regulations to require the reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with this program. The bill required the California Air Resources Board (CARB) to adopt a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions levels in 1990. This reduction limit is specified to be achieved by 2020. Each local jurisdiction will be required to develop a plan to meet this target.

Under AB32, local and regional jurisdictions will be required to develop plans by January 2011 outlining how they intend to meet carbon emissions targets. Subsequent bills signed into law, most notably Senate Bill 375 (SB 375), will require local metropolitan planning agencies to prioritize higher densities that are located adjacent to transit facilities.

Other policies have informed the development of Centre City Green including the San Diego Association of Government's (SANDAG) Regional Comprehensive Plan (2004) and Climate Action Strategy Plan (2010); the City of San Diego's General Plan Conservation Element; and CALGreen (California's new green building code) that includes new code restrictions for all new construction in January 2011 have also been incorporated into this planning effort.

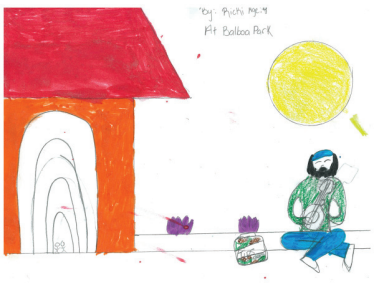
Centre City Green Planning Process

Through a competitive process, CCDC selected a consultant team led by Paladino and Company to assist in the development of Centre City Green. Paladino and Company is a nationally recognized leader in the green building industry. The firm has been engaged with the U.S. Green Building Council since its inception, wrote the LEED 2.0 Reference Guide, and has consulted on more than 500 sustainable projects. The Paladino team included subconsultants Platt Whitelaw Architects and Delorenzo Incorporated, which provided expertise in green building and sustainable landscape practice found within San Diego, and Wade Communications, which facilitated public participation.

Assembly Bill 32 (AB 32)	Senate Bill 375 (SB 375)	California Green Building Code (CALGreen)	Downtown Community Plan (DCP and PDO)	Centre City Green
Reduction of carbon (CO2) emissions to 1990 levels	Sets regional CO2 targets through the Metropolitan Planning Organization (SANDAG) - Climate Action Plan, Regional Transportation and Comprehensive Plans	California Green Building Code (CALGreen)	Planning policies and development regulations for downtown.	Sustainability Master Plan for downtown to supplement the goals and policies of the DCP 2030 build-out
CO2 levels to 1990 levels. Scoping Plan required for local jurisdictions	Sustainable Communities Strategy Plan as part of the Regional Transportation Plan	Reduction of 3 million metric tons of CO2 (projected) by 2020 20% reduction of water and 50% diversion of waste from landfills by 2020	Residential population expected to triple to 90,000 and employment is expected to double to 165,000 by 2030.	Sets sustainability indicators and metrics to measure success over time
	Travels 60% less vehicle miles		New residential development will be located less than one quarter of mile from a transit stop	Transportation Demand Management Plan (TDM) will be updated to include more choices
	Sustainable Communities Strategy Plan will plan for regional CO2 targets by reduction of vehicle miles traveled (VMT) and reduction of energy and water use		3.5 FAR (minimum) to 20.0 FAR (maximum). New development will be a minimum. ¼ miles from a transit stop and includes bus, light rail, coaster or plane.	Incentivizes energy and water measures to meet carbon reduction goals: - Peak energy loading order to maximize savings - Graywater systems - Green Street Program

Table 0.3 Policy Comparison Table: This table shows how Centre City Green aligns with existing policies, laws, and planning documents.

Centre City Green was developed within an active public process involving a broad range of local and regional stakeholders. An advisory committee comprised of downtown residents, developers, businesses, design professionals, city planners and environmental groups helped to shape the plan throughout its development. As a result, the plan represents a snapshot of the current green knowledge base in San Diego and provides an improvement path that will prepare designers, builders and facility operators for the new green economy.



"San Diego Today and Tomorrow"
Artwork provided by Monarch School, San Diego

Defining Sustainability

Downtown citizens, regional stakeholders and other public agencies helped to determine which issues uniquely define sustainability for downtown San Diego. That process was critical because different cities in different regions have unique environmental, social and economic conditions as well as unique values.

These issues form the "indicators" of downtown's progress toward sustainability:

- Energy - Measured through building energy use & greenhouse gas emissions
- Water - Measured by building & landscape water use
- Materials - Measured by recycled content materials & waste diversion
- Economic Vitality - Measured by tax increment projections in downtown
- Streetscapes - Measured by streetscape amenities & social interaction
- Healthy Spaces - Measured through pollution prevention of indoor & outdoor spaces
- Green IQ - Measured by education & communication programs
- Urban Mobility - Measured by transit accessibility

These indicators form a framework for new programs and can be used by all City of San Diego planners to develop sustainability plans in other neighborhoods, districts and areas of the city, making Centre City Green uniquely transferrable outside of downtown.

Centre City Green Organization

The Centre City Green document is organized into two sections:

1. Long Range Goals and Policies
2. Green Streets Program and Pilot Project

Centre City Green includes a voluntary Green Building Incentive Program for private development which is located in the Appendix. The program will be updated periodically.

Centre City Green proposes revisions to the 2006 Centre City Planned District Ordinance which includes a revised Transportation Demand Management Plan and updates to the Eco-Roof and Urban Open Space Programs. The revisions will be initiated sometime in mid-late 2011.

1. Long-Range Goals and Policies

Centre City Green implements the goals and policies of the Downtown Community Plan through a variety of proposed implementation actions. The following are key implementation strategies framed by the existing chapters of the Community Plan:

Chapter 3 Structure and Land Use: Develop a Private Development Incentive Program to promote innovative green building.

Chapter 4 Parks, Open Space, and Recreation: Develop East Village Green as a showcase of sustainability by incorporating the indicator goals into the programming, design and construction process.

Chapter 5 Urban Design: Develop the Green Streets Program concept.

Chapter 6 Neighborhoods and Districts: Develop Neighborhood Pilot Projects for energy and water that addresses sustainability at the block scale, such as neighborhood cogeneration facilities and/or water reuse systems.

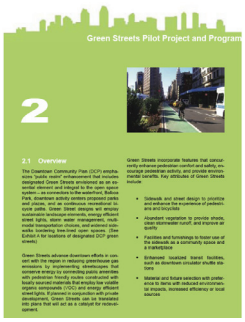
Chapter 7 Transportation: Assist in the creation of a Downtown Connector Shuttle that allows people to move within downtown once they arrive from outlying areas.

Chapter 8 Public Facilities and Amenities: Make the redevelopment of the Civic Center the centerpiece of green development.

Chapter 9 Historic Preservation: With the assistance of SDG&E, participate in creating a Building Energy Audit and Retrofit program for historical buildings, as well as significant buildings constructed before Title 24 energy savings requirements.

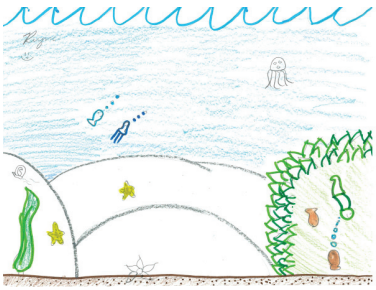
Chapter 11 Economic Development: Develop a business incubator model for creative technologies or “green” start-up enterprises to foster downtown employment.

Section 1: Long Range Goals and Policies



Section 2: Green Streets’s Pilot Project and Program

Green Building Incentive Program Submittal Manual



2. Green Streets Pilot Project and Program

Centre City Green includes a new “Green Streets” program designed to make downtown streets places for people and not just for cars.

The program will create healthier outdoor spaces that are more pedestrian and bike friendly, add more greenery, celebrate transit, use less energy and water, improve air quality and reduce storm water pollution that makes its way into the San Diego Bay.

Centre City Green defines the Green Street’s Program Concept and framework for future capital improvements, starting with a “baseplan” two-lane street configuration with widened sidewalks and a bicycle lane, with possible overlays of various low-impact development (LID) features that include storm water management systems, locally based streetscape materials with high recycled content and energy efficient pedestrian street lights.

For developments that are located along designated Green Streets, a menu of streetscape “enhancement options” have been defined that are intended to become part of the Streetscape Manual. The applicant would be required to achieve a minimum of 20 points from a menu of options that are intended to provide for flexibility per building type.

Green Building Incentive Program

At the heart of Centre City Green are new “green building” measures that will ensure buildings built in the future use less water and less energy, reduce automobile demand, and create healthy indoor and outdoor spaces for people.

With the adoption of the State’s new CALGreen building codes in January 2011, California will have some of the most stringent environmental building standards in the country. To increase performance beyond those standards, Centre City Green creates an incentive-based program based on the principal of rewarding those building owners and developers who exceed California green building standards.

Centre City Green allows applicants to earn development incentives by designing and operating buildings in ways that exceed CALGreen, which positively impact the Sustainability Indicator metrics. The program is also designed to create a green market shift that influences the design and approach of mid- to high-rise structures and the public spaces in-between buildings. Applicants can refer to the Green Building Incentive Program - Submittal Manual, which provides guidance for interested applicants.

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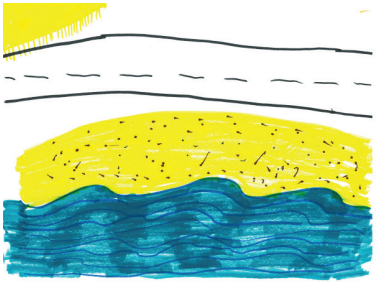
Revisions to the 2006 Centre City Planned District Ordinance



Urban Open Space Program:

- Change the required open hours to dawn - dusk rather than 6 am to 10 p.m.
- Reduce the minimum size required to 500 square feet
- Allow north-facing open space to qualify for bonus with enhanced public amenities provided

Eco-Roof Program:

- All Eco-Roofs shall be designed to be accessible to building occupants as outdoor space
- Eco-Roof should be incorporated into Centre City Green's Green Building Program as well be offered as a stand alone program with a maximum bonus of .5 FAR

- Planned for mid-late 2011 to take effect

Revised Transportation Demand Management Plan

In order to reduce single-occupant vehicle trips, the Centre City Planned District Ordinance currently requires that all commercial and hotel projects containing more than 50,000 SF achieve a minimum of 24 points through Transportation Demand Management options. Based on input from stakeholders, Centre City Green updates the menu of transportation demand management options to provide for alignment with new standards and green building rating systems including LEED.

Measuring Our Progress

Centre City Green's sustainability indicators form a framework for new programs for buildings and the spaces in-between, and can be used by all City planners to develop sustainability plans in other neighborhoods, districts and areas of the City of San Diego.

Many of Centre City Green's sustainability indicators have definable metrics for measurement that will allow CCDC to monitor its performance over time. By benchmarking our progress downtown, CCDC and the City of San Diego will be able to make incremental improvements, compare our progress with that of other peer cities and report our progress to local and regional stakeholders.

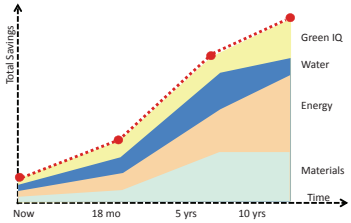


Table 0.4 Measuring Progress

SAN DIEGO DOWNTOWN SUSTAINABILITY PLAN

1. Long Range Goals and Policies

1

1.0 OVERVIEW

Centre City Green comprises planning guidance that acts as a supplement to the Downtown Community Plan (DCP) and its goals and policies for build-out by 2030. While the DCP contains goals and policies for sustainability in Chapter 5.8, recent laws, mandates, and long-range regional planning documents have established new sustainability standards and opportunities that need to be addressed. Analysis provided in this section of Centre City Green focuses on recent changes in local, regional and state policies as they relate to the DCP, by highlighting existing goals and policies that are relevant to the Sustainability Indicators or by proposing new goals and policies that meet the new regional and state standards. The analysis provided in this chapter should be considered as a Sustainability Appendix to the DCP. The analysis includes a review of existing planning documents and adopted state legislation that was carried out within an outreach process that engaged stakeholders who are affected by goals and policies that will impact the long term growth of downtown.

The first step in this process involved a comprehensive review of existing planning documents that affect the greater San Diego region, including the goals and policies of the DCP, State Senate and Assembly Bills, Executive Orders, regional planning documents and environmental issues. This effort was undertaken to understand how Centre City Development Corporation can best engage and interact with the greater governance of the region. This process identified that SANDAG's Regional Comprehensive and Climate Action Plans, as well as the City of San Diego's General Plan Conservation Element each contain a number of policy guidelines, programs, indicators, and metrics that provide a solid basis for Centre City Green.

The second step was to engage a broad range of CCDC stakeholders in a discovery process, and ask participants to provide their vision of a preferred future for Centre City. The combination of outreach and research helped create Sustainability Indicators and preliminary metrics. In total, the Indicators reflect a shared vision of sustainability by CCDC stakeholders in alignment with existing state, regional, and local governments.

The following set of eight CCDC Sustainability Indicators and Goals were developed for Downtown to augment the DCP Goals and Policies.

INDICATOR	GOALS
Energy /GHG	**Energy-G-1** 20% reduction in GHG emissions by 2020 (AB 32) **Energy-G-2** 33% green power by 2020 (EOS-14-08) **Energy-G-3** Net zero buildings by 2030 (AB 212)
Water	**Water-G-1** 70% reduction in potable water use
Urban Mobility	**Mobility-G-1** Promote transportation planning that creates downtown as a multi-modal public transit destination with easy transit access between all neighborhood centers
Materials	**Materials-G-1** 75% construction waste recycled (CALGreen) **Materials-G-2** 50% operational waste recycled (CALGreen)
Economic Vitality	**Economic-G-1** 47,700 new residents **Economic-G-2** 77,300 new jobs **Economic-G-3** 29,400 new housing units **Economic-G-4** 23,372,000 SF new non-residential development
Streetscape	**Streetscape-G-1** Make Centre City a top-of-class streetscape environment that promotes walking over all other modes of transit
Healthy Spaces	**Healthy Spaces-G-1** Develop buildings that capitalize on San Diego's temperate climate to create top-of-class healthy indoor spaces
Green IQ	**Green IQ-G-1** Develop a green knowledge base that leads the country in successful demonstration of economically viable green technologies and sound green building practices

The Sustainability Indicators developed as part of Centre City Green served as a lens to evaluate the DCP, which was reviewed to identify which of its sections currently assist in meeting the Indicator goals and to bring attention to existing policies that should be emphasized as they relate to the identified Indicators. In addition, new policies were identified to address gaps in the existing community plan to help achieve the goals for each of the Indicators. Finally, a series of key opportunities that connect Indicator goals and policies were identified that should be the starting point for future capital and policy improvements:

- Structure and Land Use:
  Develop a Private Development Incentive Program to promote innovative green building measures
- Parks, Open Space, and Recreation:
  Develop East Village Green as a showcase of sustainability by incorporating the Indicators' goals into the programming, design and construction process
- Urban Design:
  Develop the Green Streets Program as identified in the DCP
- Neighborhoods & Districts:
  Develop Neighborhood Pilot Projects for energy and water that address sustainability at the block scale, such as neighborhood cogeneration facilities
- Transportation:
  Assist in the creation of a Downtown Connector Shuttle that allows people to move within downtown once they arrive from outlying areas
- Public Facilities & Amenities:
  Make the redevelopment of Civic Center the center piece of green development
- Historic Preservation:
  Create an existing Building Energy Audit and Retrofit program to incentivize energy and water efficient upgrades
- Economic Development:
  Use sustainability as a means to increase Employment and Economic Development Strategies available to downtown building owners

The planning process for Centre City Green reviewed the Centre City Planned District Ordinance (PDO) to identify areas of improvement from a regulatory standpoint in order to support the Indicator goals. Additionally, a review of existing floor area ratio (FAR) bonus programs was conducted to identify which ones are working with the Indicator goals and which ones need revisions to increase their use by building owners or developers. Some key findings of this effort include:

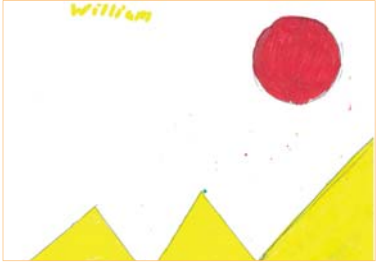
- FAR Payment Bonus Incentive:
  Increased density has significant benefits to the Sustainability

Indicators. A cost/benefit analysis should be used to update the target rate for bonus FAR.

- Urban Open Space FAR program:
  Open space improves several Indicators, such as Healthy Spaces and Streetscape, though adoption has been limited. Suggested changes attempt to provide for more flexibility that makes this incentive more attractive to implement.
- Eco-Roof Incentive program:
  This incentive promotes the adoption of green roofs to reduce the heat island effect and contributes to several Sustainability Indicators and can be incorporated into the Centre City Green Incentive Program.
- Transportation Demand Management Plan:
  This existing requirement should be updated to address SANDAG's Comprehensive Plan and Climate Action Strategy Plan to include more transportation options that will allow developers greater flexibility and improve carbon reduction.

1.1 Defining Sustainability

Contextual Analysis



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Artwork provided by Monarch School, San Diego

San Diego is subject to a growing number of state, regional, and local laws and policies. Many of these laws and policies share similar sustainability goals, such as greenhouse gas reductions, but differ in terms of timelines, means of implementation, and methods for measurement. These differences can create a confusing environment for those charged with implementation and policy development. Research was conducted on a number of key environmental governing documents to determine what the various laws and policies mean to the downtown community. Documents that were reviewed include:

- CA Assembly Bill 32 "Global Warming Solutions Act" (AB 32) (Mandatory Scoping Plan with measures): Establishes carbon emission targets for 2020 and outlines targets for all sectors, including transportation, industry and residential & commercial buildings
- California Green Building Code (CALGreen) (Mandatory): Establishes target criteria for energy, water and materials use, effective January 2011
- CA Senate Bill 375 (SB 375): Establishes criteria for the preferred location of development based on access to transit, and requires each region to create a plan to meet the AB 32 carbon reduction targets, called a "Sustainable Communities Strategy," which all of downtown exceeds
- CA Assembly Bill 1102 (AB 1102): Requires utility companies to get a third of their energy from renewable resources by 2020
- Climate Change Mitigation Check List, Office of the Attorney General: This document collects information from municipalities about actions being taken to improve on Energy, Water, Waste, Transportation and other environmental improvement areas. To see how Centre City Green addresses these, please see Appendix A

When considered as a whole, these documents paint a picture of impending challenges. Exhibit 1.1 charts actual carbon emissions (CO_2) for the San Diego Region and reduction targets established by California Legislation. All of these documents indicate a CO_2 target zone of 1990 CO_2 emission levels. The solid black dots represent the current trend in emissions as documented by each of the documents; these currently show emissions are currently trending upwards. The blue dots represent the specific targets established by California based legislation, which show a significant break from the current trend.

According to the California Air Resources Board (CARB), CALGreen, which took effect in January 2011, is estimated to reduce greenhouse emissions ($C0_2$ equivalent) by 3 million metric tons by 2020. Additionally, the provisions will reduce water use by 20 percent and divert 50 percent of construction waste from landfills. CALGreen will make significant progress towards AB 32. While CCDC currently regulates the development of buildings and sidewalks, other agencies likely need to be engaged to meet the targets outlined above within the street right-of-way. For more detail on each of these key documents, please review Section I of the BMP report found in Appendix B.

As shown in Exhibit 1.1, meeting these targets will require an integrated approach that will not be solved simply by adopting CALGreen alone. While entitlement of new buildings within downtown is the principal responsibility of CCDC, collaboration with other agencies that are responsible for the operations of transportation, existing buildings, industry and other downtown systems will be required to meet the mandates facing the San Diego region.

CCDC has a unique role in meeting these challenges, as it mainly influences the future development at the building and block scale but does not operate or have any jurisdiction over the operations of buildings, public utility or transportation systems within downtown. Exhibit 1.2a shows a typical streetscape section found in downtown.

CCDC can incentivize and promote sustainability through the documents

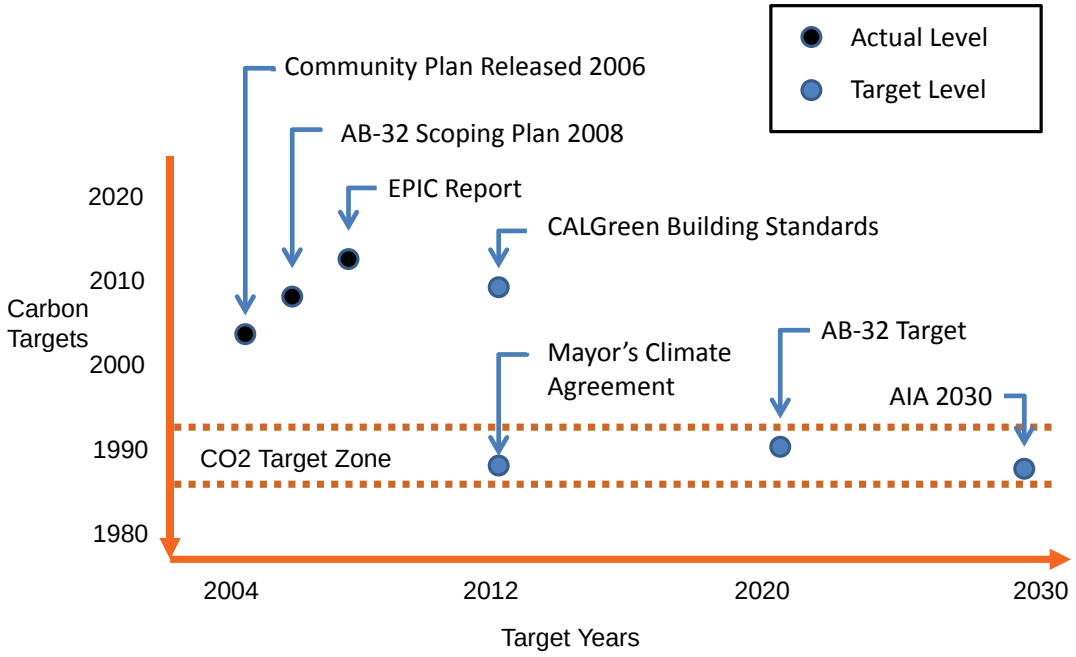

Exhibit 1.1: Actual CO_2 and Target Years for CO_2 emission levels

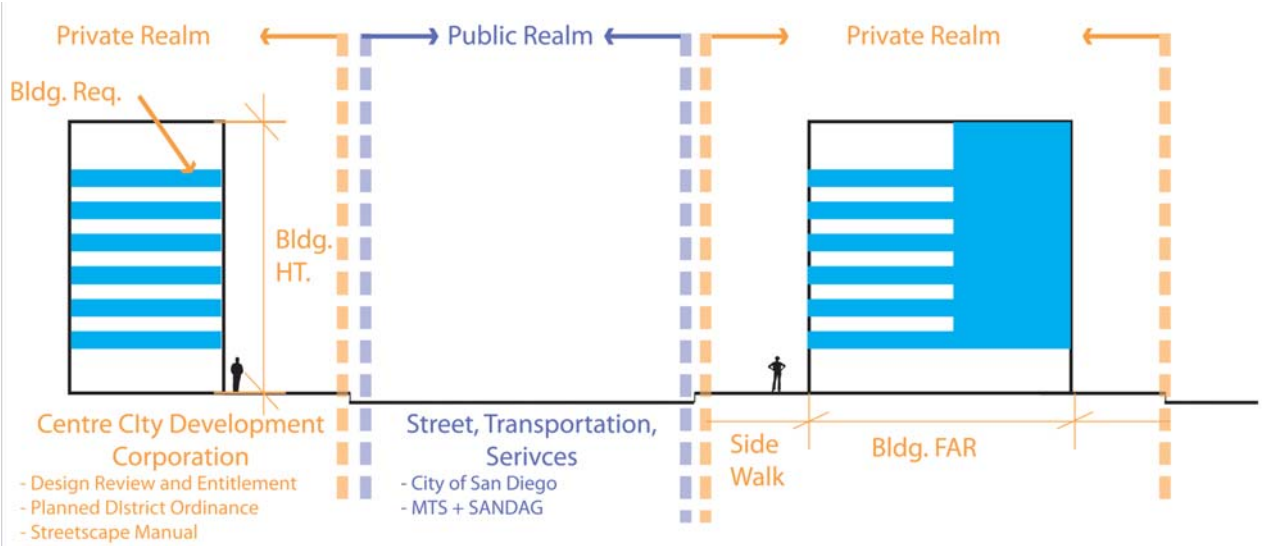

Exhibit 1.2a: CCDC street transect depicting private and public realms

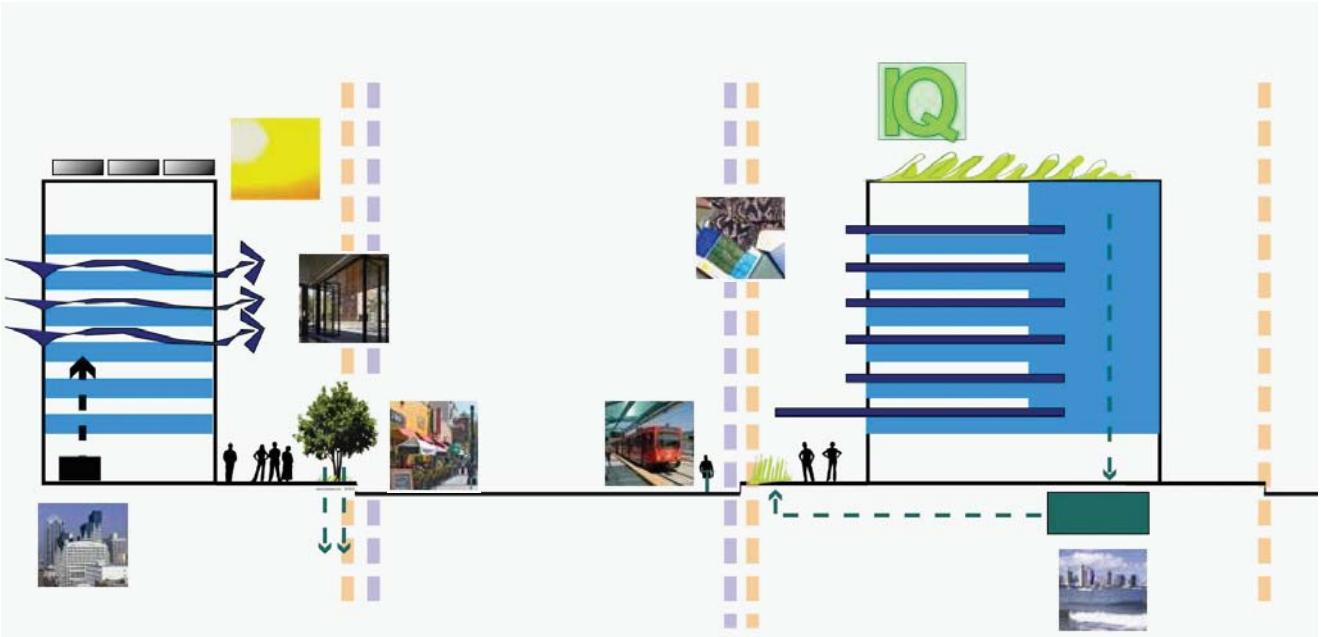

Exhibit 1.2b: CCDC street transect depicting overlay of Sustainbility Indicators

Exhibit 1.3: Advisory Committee Meeting #1, visioning snow card exercise

it administers, such as the PDO which provides development regulations (such as building use, height, depth, and materials) for new construction or renovation projects within downtown, and the Streetscape Manual which defines the public realm up to the sidewalk curb and includes street trees, pedestrian light fixtures, sidewalk furniture and finishes.

CCDC can also play a role in improving both existing buildings and right-of-way by actively participating in policies being implemented by partnering agencies and City departments.

Public Outreach

The public outreach program included stakeholder input in shaping a vision of sustainability for downtown. This has been accomplished through meaningful engagement of public agencies, elected officials, building owners/operators, developers, civic leaders, environmental non-governmental organizations (NGO), area residents and workers. Specifically, the objectives of the outreach program were to:

- Identify sustainability indicators to measure and evaluate progress over time
- Identify existing sustainability/green building programs and resources to build upon
- Identify a framework for implementation

Advisory Committee meeting

The public participation program was structured using two primary engagement methods in order to efficiently collect information from a variety of sources. Both of these methods – Advisory Committee Meetings and Stakeholder Interviews – were successful in helping to drive forward the vision for downtown sustainable development. Each group was comprised of market leaders, regional governance, and environmentally focused persons/groups to bring a balanced perspective of public and private concerns to the forefront.

The Advisory Committee included 15-20 members, and through six separate meetings functioned as a sounding board for direction and input on work being performed. Exhibit 1.3 depicts the result of a typical Advisory Committee brainstorm meeting.

The first step in the stakeholder engagement process was to identify groups and individuals to interview. Paladino and Company worked with CCDC and Wade Communications to map key stakeholder organizations and groups in San Diego to three critical areas:

- Market Drivers: Organizations that will be primarily affected by the development of Centre City Green polices and incentives
- Environmental Focus: Organizations that help inform what impending regulations mean and what actions should be taken to address them
- Regional Partners: Other governmental agencies that have sustainability plans under development that Centre City Green needs to align with or that will participate in the implementation of Centre City Green policies and incentives

Exhibit 1.4: Stakeholder Mapping

This categorization helps ensure that balanced viewpoints from differing perspectives were captured and synthesized into a coherent vision to frame the project. These stakeholders were then engaged through (16) 90-minute interviews in which direct dialogue with a single group provided unfiltered feedback and input on their vision of sustainability. Detailed meeting minutes were captured so that themes could be identified and used to develop the content for Centre City Green. For more detailed information regarding Stakeholder Interview results, please see the Stakeholder Interview Report located in Appendix C of this report.

Exhibit 1.5: Indicator: Something observed or calculated that is used to show the presence or state of a condition or trend

Indicator Intent

One of the major goals of Centre City Green was to establish well-defined indicators against which CCDC can measure and compare its development performance. An indicator is something observed or calculated that is used to show the presence or state of a condition or trend. For example, a gas gauge in a car is an indicator of the amount of fuel in the gas tank (shown in Exhibit 1.6). By tracking this indicator, the driver can measure the car's efficiency (miles per gallon) or track cost (dollars per mile).

Exhibit 1.6: Combining mutually exclusive indicators gives a total picture of performance at a glance.

In the same way, an appropriate set of indicators allows CCDC to set goals and document its improvement over time. Much like the dashboard of a car, CCDC Indicators can be assembled to show how well each of the programs implemented are performing at any point in time. If a program is failing to improve performance, funds and effort can be shifted to existing or new programs that are gaining traction in the community.

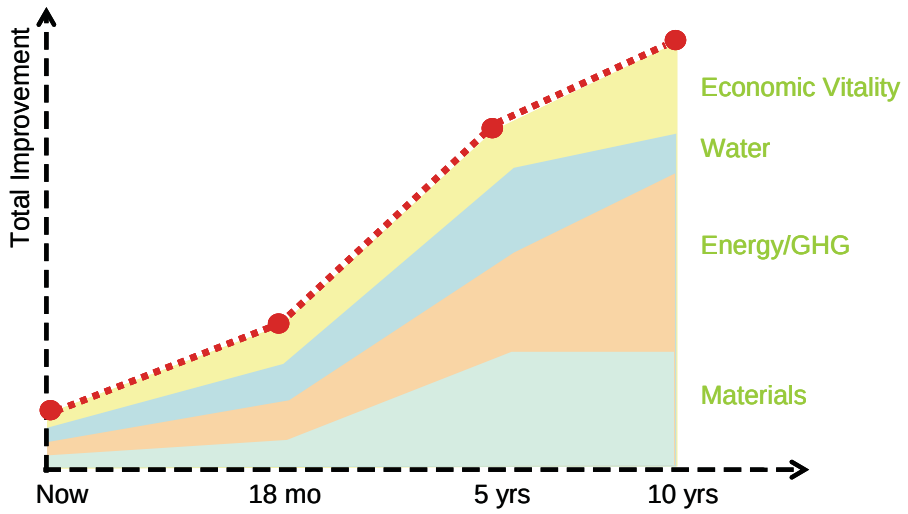

Exhibit 1.7: Growth toward the identified indicators adds incrementally over time to achieve the overall goal of sustainability.

By tracking indicator performance over time (as illustrated graphically in Exhibit 1.7), CCDC can show how its programs compare to sustainability goals and report its performance to stakeholders. Tracking performance also provides a basis of comparison with other peer cities. The following indicator characteristics are important to create a balanced set:

Significant:	Each Indicator must reflect major economic, social, and natural environmental issues within CCDC's context and area of control.
Measurable:	Indicators must have a unit of measure that is quantifiable over time. An indicator must report useful data to evaluate progress toward (or away from) the goal.
Comprehensive:	The Indicators must include all significant issues to give a complete picture of sustainability performance for CCDC.
Discrete:	Each Indicator should provide independent information that is discrete (not overlap each other) to prevent data from being double counted.
Consensus Based:	The Indicators must represent the major concerns of all CCDC stakeholders.

Centre City Green's Indicators

Sustainability Indicators are essentially an alignment strategy that coordinates efforts undertaken by State, regional and local governments, and provide a basis for measuring progress and developing policies. A growing number of state, regional and local laws and policies are being legislated that all have similar goals in sustainability but differ in timelines and means for implementation and methods for measurement. Specifically, SANDAG's Regional Plan and San Diego's General Plan both contain sustainability direction, though they are not directly aligned with each other

In addition, the US Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) green building rating system has been widely adopted around the country. This national standard has been used widely in California and within downtown San Diego. While this is a voluntary system, its frequent use by developers necessitated that the Indicators for San Diego incorporate it.

Exhibit 1.8 shows how both national, regional and local documents were used to generate Indicators and metrics for downtown.

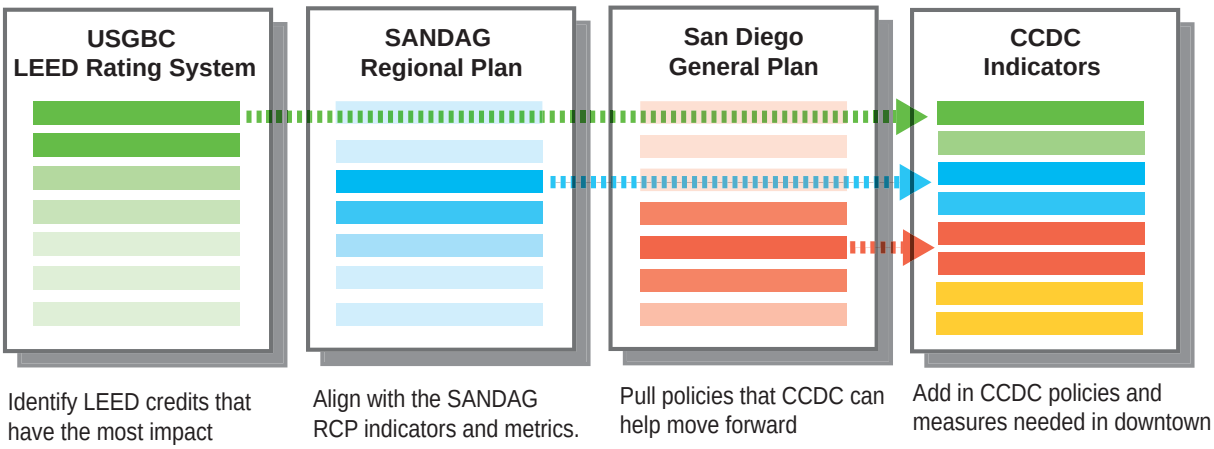

Exhibit 1.8: Documents used to generate CCDC Indicators and metrics

The combination of outreach groups and research of San Diego environmental imperatives and existing regional planning documents helped create Sustainability Indicators for CCDC and preliminary metrics for each of them. In total, the Indicators create a shared vision of sustainability and provide a way to measure progress of policy documents.

The following set of eight CCDC Sustainability Indicators was identified:

Energy /GHG — Measured by building energy use & GHG emissions

Water — Measured by building & landscape water use

Materials — Measured by recycled content materials & waste diversion

Economic Vitality — Measured by development density downtown & percentage of region's employment

Streetscape — Measured by streetscape amenities &social interaction

Healthy Spaces — Measured through the quality of indoor & outdoor spaces

Urban Mobility — Measured by transportation demand management

Green IQ — Measured by education & communication programs

The Indicators provide a filter to assess what green measures should be implemented in new and existing buildings, how the education needs of the development community can be met, what amendments to the PDO should be made, and how to further engage regional partners and governance.

These Indicators effectively serve as the foundation to affect positive movement towards meeting the local, regional and State mandates. In addition, they help align other recent policy documents, set an agenda for future development, and form the basis of Centre City Green.

Each of the above Indicators have specific metrics that allow CCDC to measure progress of their own programs. In addition, these metrics can provide data to interact with regional indicators, such as those found in SANDAG's Regional Com

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Applying Sustainability Indicators

The Sustainability Indicators were developed to align with local and regional documents so that they could be easily transferable to other geographic and planning areas of San Diego, if desired, with measures and incentives defined by community and stakeholder input and adapted to the land use requirements. Transferability to other parts of the City is a key objective of Centre City Green because it establishes consistency in incentivized measures and expectations across San Diego.

Thus, the Indicators themselves are transferrable to other planning processes during which the planning organization asks a simple question:

> "What policies can my planning jurisdiction implement to improve Indicator performance?"

This question serves to identify how each City department, organization, or private development can contribute towards a coordinated and regional effort. The targets for CO_2 reduction as described by AB 32 and other regional planning documents require an integrated approach. While entitlement of new buildings within downtown is the principal responsibility of CCDC, the Sustainability Indicators provide a framework for collaboration with other agencies and City departments that are responsible for transportation, streets, existing buildings, industry and other planning districts.

As an example, Centre City Green takes the eight Sustainability Indicators and applies them to Downtown and its development extents, as described by the PDO, to develop specific goals and polices that will help drive San Diego towards a shared vision of sustainability. The following section of this report outlines the findings of this exercise and proposes a roadmap to reach goals in 2030.

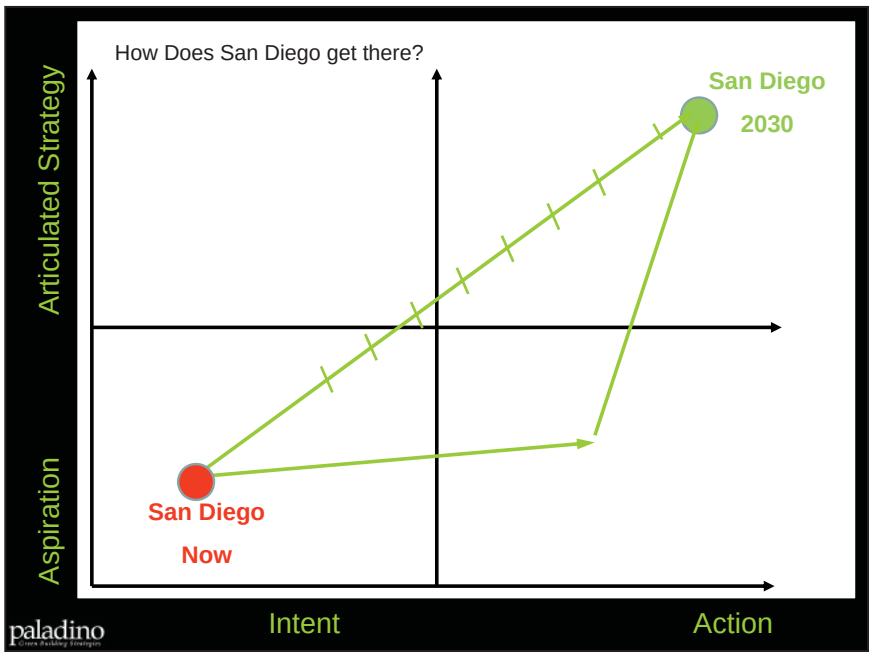


Figure 1.9: 4-Square Framework Model

1.2 Indicator Goals and Policies

The following section provides a summary of the Centre City Green set of eight Sustainability Indicators. The information for each Indicator includes:

- Indicator Intent: Acknowledges the impacts the Indicator is intended to evaluate
- Summary: Reviews the sustainability issues for the Indicator, their importance for the City of San Diego and their alignment with other regional planning documents, goals and policies
- Tracking Metrics: Identifies what will be measured to report on the progress toward the Indicator
- 2030 Vision Goals: Identifies the general goals for each Indicator and provides background on how the goals were determined
- Downtown Performance Review: Evaluates the current status of the Indicator for the downtown area, projects the performance of currently existing programs across the analysis period (2010-2030) to identify how close existing programs would get to achieving the goal, and identifies potential additional programs/policies needed to close the gap between the current projection and the final goal.
- Goals for 2030 Build-Out: Shows the specific 2030 Build-Out goals for each Indicator developed through the stakeholder and research phases of the project
- Centre City Green Policies: Lists the new Sustainability Policies for each Indicator that will drive improvement towards meeting 2030 goals

Energy/GHG

> ***"In almost every metropolitan area, carbon emissions are significantly lower for people who live in central cities than for people who live in suburbs."***
>
> *Green Cities, Brown Suburbs, Glaeser, City Journal, Winter, 2009*
>
> **Downtown Metrics:** High Rise Residential = 31 kBtu/sq.ft./yr
>
> **Suburban Metrics:** Low Rise Residential = 36 kBtu/sq.ft./yr

Indicator Intent

To promote energy efficient building design and renewable energy generation.

Summary

Energy use and its associated greenhouse gas (GHG) emissions are critical sustainability issues for development today. Efficient use of energy and development of renewable energy sources reduces dependence on limited natural resources and vulnerability to international energy markets, in addition to reducing costs and greenhouse gas emissions. This Indicator tracks the efficient use of energy within the built environment, including electricity and natural gas demand.

The Energy Indicator aligns with goals established in the Regional Comprehensive Plan and General Plan Conservation Element (CE), which track energy consumption, energy produced from renewable resources, and greenhouse gas emissions. Centre City Green's energy goals and policies shown below will help demonstrate progress toward these common goals.

Tracking Metrics

- kBtu per sq.ft. or kBtu per person
- Share of energy produced from renewable resources (total annual renewable energy in kWh)

2030 Vision Goals

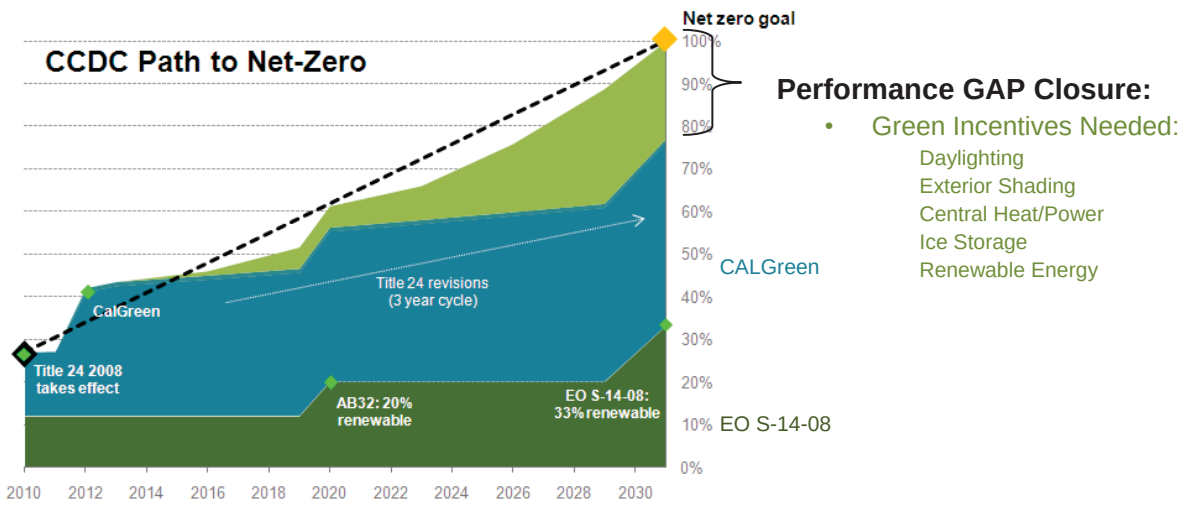
There are several performance goals with regards to energy that have been established by AB 32, AB 212 and Executive Order S-14-08:

- **Assembly Bill 32:** Establishes targets for GHG emissions that cut across all industry sectors. For buildings, the goal of a 20% reduction in GHG from 1990 levels is targeted for 2020.
- **Executive Order S-14-08:** Establishes a renewable energy portfolio of 33% by 2020 that will significantly reduce GHG for all buildings as they represent 40% of all emissions.
- **Assembly Bill 212**: Targets net zero energy demand for all new construction by 2030.

Downtown Performance Review

As demonstrated by the graph below, the current utility renewable energy portfolio and Title 24 2008 requirements establish a baseline of about 28% energy savings relative to the net zero energy use goal for 2030. More stringent future versions of the Title 24 energy code and increases in renewable energy

are anticipated to increase savings over time to represent about 78% energy offset by 2030. The gap between this and the goal of net zero (100% offset) will need to be achieved by providing incentives for efficiency measures like daylighting, exterior shading, central heat and power, ice storage, lighting retrofits and local renewable energy generation.



Energy Goals for 2030 Build-Out

Energy-G-1	20% reduction in GHG emissions by 2020 (AB 32)
Energy-G-2	33% green power by 2020 (EOS-14-08)
Energy-G-3	Net zero buildings by 2030 (AB 212)

Centre City Green Energy Policies

Energy-P-1	Provide incentives for alternative green power including cogeneration and PV installations
Energy-P-2	Provide incentives for energy efficiency measures in new buildings, such as natural ventilation, daylighting, exterior shading and condensing boilers
Energy-P-3	Provide incentives for strategies that generate power or reduce the peak load on source generation, such cogeneration, photovoltaic panels and ice batteries
Energy-P-4	Address pre-Title 24 existing buildings through a retrofit and upgrade program

Water

While water use for domestic purposes is similar for both downtown and suburban locations, water use for irrigation can be over 5 times higher in suburbs than in an urban core.

Downtown Metric: Irrigation use = 400 gallons /occupant

Suburban Metric: Irrigation use = 21,000 gallons /occupant

Indicator Intent

To promote water efficiency in buildings and landscaping and use of alternatives to potable water supply.

Summary

Due to the City's limited supply, water was the highest issue of concern among Stakeholders and Advisory Committee members who contributed to the development of the Sustainability Indicators. Water conservation strategies and alternative sources are needed to support the City's growing needs. This Indicator tracks the efficient use of water within the built environment and landscape, including potable water, graywater, blackwater and waterfront runoff protection.

The Water Indicator aligns with goals and indicators established in the Regional Comprehensive Plan and General Plan Conservation Element (CE), which are meant to track water consumption, diversity of water supply, amount of reclaimed water, and water quality. The Community Plan Water Indicator goals and policies shown below will help demonstrate progress towards these common goals.

Tracking Metrics

- Gallons of potable water use per person per day and total (in CCDC Project Area)
- Gallons of reclaimed or recycled water (graywater) per person per day and total

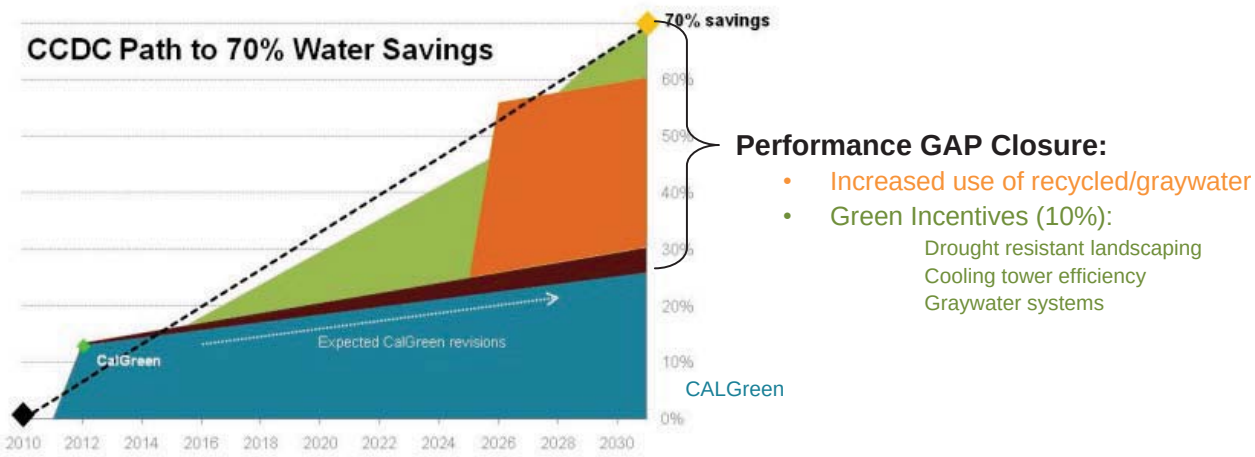
2030 Vision Goal

To establish a goal for water, industry standards were used to determine the maximum water savings that could be achieved through the use of existing water technologies. Low water consuming fixtures in combination with alternatives to using potable water for all uses can achieve nearly a 70 percent water savings when compared to current building practices.

Downtown Performance Review

Downtown's dense urban development uses approximately 40 percent less water than the typical suburban development due to more compact landscaped areas per person. However, there is potential to reduce downtown usage even further with efficient water fixtures and reuse. As demonstrated by the graph below, implementation of the CALGreen Building Code in 2011 is anticipated to initially achieve about 12 percent water savings. This is due mainly to limits on the flush and flow rates of standard water fixtures, such as toilets, showers

and faucets. Expected increases in stringency of this code over time should increase this to about 25 percent by 2030. The remaining gap to reach the 70 percent goal by 2030 will need to be closed by implementing incentive policies for graywater reuse and cooling tower efficiency approaches.



Water Goals for 2030 Build-Out

Water-G-1	70 percent reduction in potable water use by 2030

Centre City Green Water Policies

Water-P-1	Bring public utility supplied recycled water to the downtown core
Water-P-2	Encourage sustainable landscape design and low-impact maintenance practices
Water-P-3	Incentivize graywater systems to demonstrate applicability to downtown

Urban Mobility

A study for Metro Portland found that VMT per capita was reduced by over 12 miles per day when citizens lived in areas with good transit and mixed use living versus suburban areas.

Downtown Metrics: 6.3 VMT per capita per day

Suburban Metrics: 19.8 VMT per capita per day

The Urban Structure and Personal Travel, Keith Lawton
http://www.rand.org/scitech/stpi/Evision/Supplement/lawton.pdf

Indicator Intent:

To promote adoption of transportation alternatives to single-occupant vehicles

Summary

The Urban Mobility Indicator tracks the development of sustainable urban design strategies that support alternative transportation modes to improve urban mobility and create a walkable and bicycle-friendly community.

By tracking this Indicator, San Diego places importance on urban development and programs that help ensure that alternative forms of transportation are viable options for downtown residents, workers, and visitors.

The Urban Mobility Indicator aligns with goals and indicators established in the Regional Comprehensive Plan and General Plan Conservation Element (CE), which are currently tracking transit ridership, commute mode shares, travel times, air quality, and greenhouse gas emissions. The CE has issued a number of policies to improve urban mobility, such as providing incentives for the use of alternative transportation, including public transit, electric/hybrid vehicle infrastructure, carpooling, bicycling, walking and tele-working. Centre City Green Urban Mobility goals and policies shown below will help demonstrate progress towards these common goals.

Tracking Metrics

- Accessibility to high frequency transit as measured from a five minute walk with transit frequency every ten minutes or better
- Percent of commute trips via alternative transit (non-SOV)
- Number of hybrid/electric parking stalls
- Number of preferred parking for carpools/vanpools
- Downtown bicycle trip miles per day and per year
- Downtown vehicle trip miles per day and per year
- Downtown trip miles in CCDC per day and per year

2030 Vision Goal

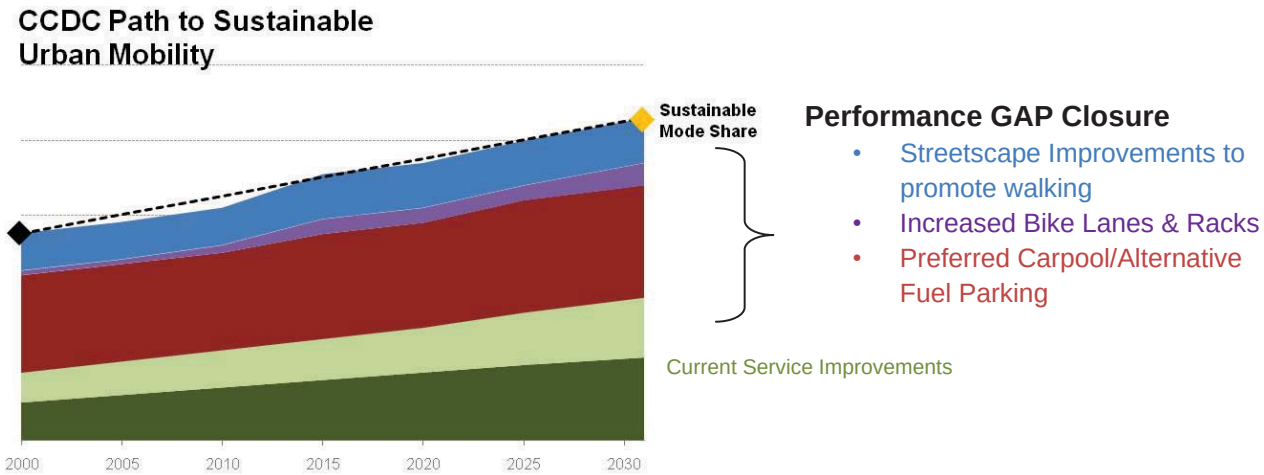
Downtown is transit rich, providing residents, employees and visitors with walkable five minute access to high frequency transit from any point in downtown to the regional transit system. Downtown is directly adjacent to Lindberg International Airport's Intermodal Transit Center and the cruise ships. Many of the challenges today stem from operating a regional system through downtown at a speed and frequency that is conducive to a fine grain pedestrian environment. The goals for 2030 are to provide inter-modal transit opportunities for navigating in and around downtown, improving bus and trolley connections from regional

transit centers at 12th and Imperial, Smart Corner and Santa Fe Depot with a downtown shuttle circulator and bicycle networks. Equally important, within the urban context, the design of transit should be about “place-making”, reinforcing the streetscape fabric, public safety and supporting the “end destination”.

Downtown Performance Review

Approximately 3.8 percent of San Diego County’s population uses public transit during the work commute compared to approximately 10 percent of downtown (US Census 2008). Some form of public transit is accessible from no more than a quarter mile walk from any point in downtown.

The graph below shows how transit mode share can grow with service improvements that provide more options. The lighter green band represents the impact of increased downtown service access. The Performance Gap can be closed with an inner city circulator that connects destinations, bike lanes, and improved walkable streetscapes. Promotion of carpools and alternative transportation vehicles can accommodate the accessibility issue. In addition, an aggressive campaign to educate commuters on the benefits of alternative transportation modes can leverage the benefits of arriving and traveling within downtown.



Urban Mobility Goals for 2030 Build-Out

Mobility-G-1 Promote transportation planning that creates downtown as a multi-modal public transit destination with easy transit access between all Neighborhood Centers

Centre City Green Urban Mobility Policies

Mobility-P-1 Revise the Transportation Demand Management requirements in the PDO to include more options to reduce single occupant vehicles

Economic Vitality

Downtown affords density that cannot be met outside of CentrE City creating outstanding economic opportunities

Downtown Metrics: built area = 53,000 - 435,000 sq.ft./ac

Suburban Metrics: built area = 15,000 - 57,000-sq.ft./ac

Indicator Intent:

To promoted increased density and a livable, workable downtown core

Summary:

The Economic Vitality Indicator tracks the leasing and development of new and existing buildings and spaces that promote increased density and a healthy urban center. By tracking this Indicator, San Diego emphasizes the importance of development density and creating a livable and workable downtown core.

The Economic Vitality Indicator aligns with goals and indicators established in the Regional Comprehensive Plan and City of San Diego's General Plan Conservation Element (CE), which track employment growth, income levels, education, housing, etc. The CE has identified a number of strategies to stimulate economic prosperity including the development of clean or green industries, implementing incentive programs to promote energy and water efficiencies and encouraging green building. The Community Plan Economic Vitality goals and policies shown below will help demonstrate progress towards these common goals.

Tracking Metrics

- Number of new residents, jobs and housing units
- Square footage of new entitlements of all building types
- Percent of projects that take advantage of FAR bonus programs
- Percent of employment to the region

2030 Vision Goal

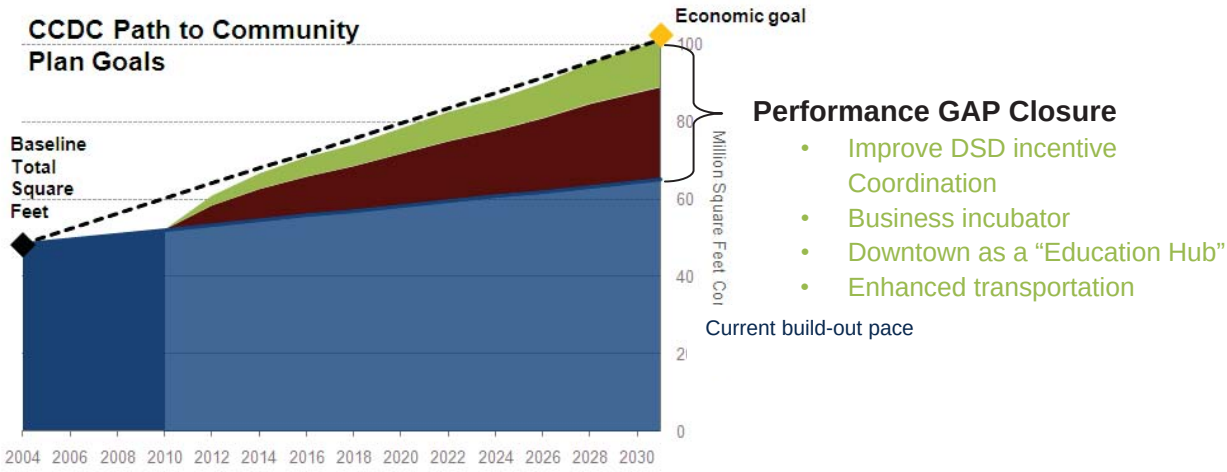
The Downtown Community Plan was written to achieve an increased density within downtown by 2030. These established goals remain the vision to achieve that will also address all Indicators within the Centre City Green sustainability master plan.

Downtown Performance Review

Downtown San Diego employment represents only 5.8 percent of the total region, down from 6.5 percent in 1995, a reflection of increased growth and competition from north county areas that offer cheaper leasable areas per square foot with an abundance of free parking. Downtown currently has about 52 million square feet of existing building stock and will need to grow to 65 million square feet by 2030 to reach full build-out.

For downtown to remain competitive, a comprehensive "economic development strategy" plan must be undertaken that seeks to lure and retain more employ-

ment to downtown. One place to start is by leveraging its assets: (1) Density drives all sustainability indicators and can more easily be accommodated in downtown. An enhanced building incentive program with enhanced coordination between CCDC and the City of San Diego's Development Services Department (DSD) can promote downtown as a more attractive place to build. (2) Downtown has direct access to the regional transportation network, including Lindbergh Airport that many areas in San Diego do not have. (3) Downtown has a large residential inventory within established neighborhoods that can offer a short walk for future employees. (4) Current and future planned parks and open space amenities offer a refined quality of life and amenities. (5) Downtown is a hub of the region's governmental and academic institutions.



Economic Vitality Goals for 2030 Build-Out

Economic-G-1	47,700 new residents (DCP)
Economic-G-2	77,300 new jobs (DCP)
Economic-G-3	29,400 new housing units (DCP)
Economic-G-4	23,372,000 square feet new non-residential development (DCP)

Centre City Green Economic Vitality Policies

Economic-P-1	Introduce a new Private Development Incentive Program coordinated with the City
Economic-P-2	Increase adoption of the Employment Center FAR
Economic-P-3	Develop a program (Business Incubator) with a third party entity to provide leasable area for start-up companies that provide employment in the downtown

Streetscape Vitality

Factors influencing walkability include the presence or absence and quality of sidewalks or other pedestrian right-of-ways, traffic and road conditions, land use patterns, building accessibility, and safety, among others.
Wikipedia, April 2010

Downtown Poor Walkability

Downtown Top-of-Class

Indicator Intent:

To promote a social interaction and a sense of community at the street level

Summary:

The Streetscape Vitality Indicator tracks the development of streetscapes that promote social interaction and a sense of community through strategies such as active storefronts, friendly sidewalks and view corridors. By tracking this Indicator, CCDC places importance on development that creates a sense of community, improves quality of life and stimulates the downtown economy.

The Streetscape Vitality Indicator aligns with goals and indicators established in the Regional Comprehensive Plan and City of San Diego's General Plan Conservation Element (CE), which track smart urban design that promotes sustainable landscape design and open space and habitat preservation. The CE has identified a number of strategies to develop a healthy urban environment including increasing tree canopy, preserving open space and encouraging sustainable building and landscape design. Centre City Green's Streetscape Vitality goals and policies shown below will help demonstrate progress towards these common goals.

Tracking Metrics

- Square feet of active storefront added
- Square feet of pedestrian-oriented development
- Square feet of vegetated dedicated open space
- Square feet of canopy cover and shade from overhangs
- Walking miles per day

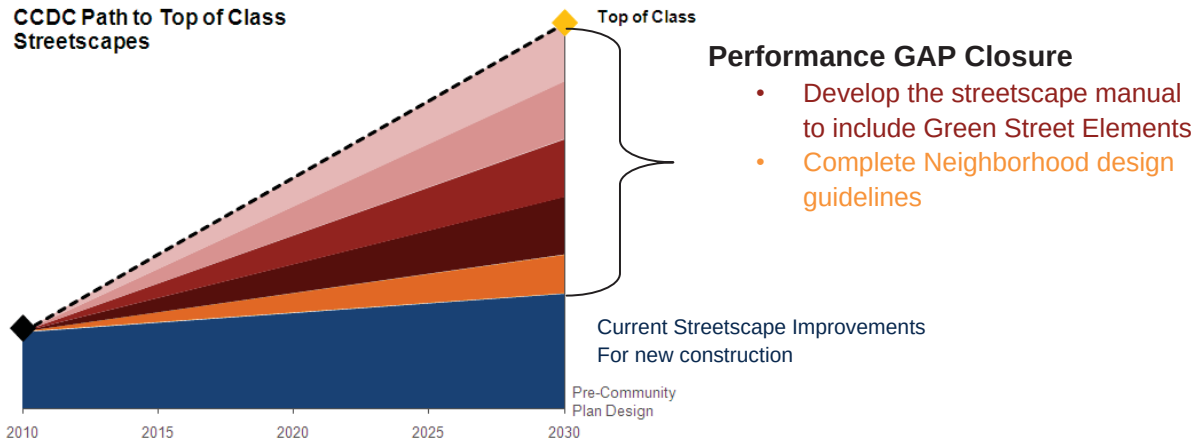
2030 Vision Goal

Downtown San Diego can become one of America's top walkable cities due to its temperate climate and existing development patterns. Current planning documents, such as the Streetscape Manual should be revised to promote open space, Green Street elements that increased tree canopies, active street life, with a revised right-of-way that increases areas for pedestrians.

Downtown Performance Review

The Downtown Streetscape Manual provides for 14-foot standard sidewalks, which is greater than the City's standard of five feet. In addition, the PDO requires active use at the base of buildings at designated streets, such as Commercial, Main Street and Neighborhood Centers.

As demonstrated by the graph below, improvements in PDO requirements for individual building projects, increased density, the Streetscape Manual revision for green street elements, CIP Street projects and the completion of the Neighborhood Design Guidelines are anticipated to move San Diego streetscapes close to the top-of-class goal. The top-of-class can be reached with a comprehensive green street program.



Streetscape Goals for 2030 Build-Out

Streetscape-G-1	Make Centre City a top-of-class streetscape environment that promotes walking over all other modes of transit

Centre City Green Streetscape Policies

Streetscape-P-1	Develop a Green Streets Pilot Project and program to demonstrate the potential to revise the street right-of-way
Streetscape-P-2	Revise the Streetscape Manual to include elements from a Green Streets Program

Healthy Spaces

There are certain design decisions and operation practices that are generally known to affect IEQ and are commonly used in green buildings. These strategies include (but are not limited to): improving ventilation, removing indoor pollutants, using green materials, giving occupants personal control over operable windows, task air-conditioning, or under floor air distribution systems, employing daylight, and reducing ambient light levels by using task lighting.

Occupant Satisfaction with Indoor Environmental Quality in Green Buildings,
Center for the Built Environment, University of California

Indicator Intent:

To promote daylight, naturally ventilated and low-toxicity interiors.

Summary:

The Healthy Spaces Indicator tracks the amount of indoor and outdoor spaces that promote the health and well-being of downtown occupants with features such as daylit interiors, operable windows and non-toxic materials. By tracking this Indicator, CCDC places importance on the health productivity and quality of life of building occupants.

The Healthy Spaces Indicator aligns with goals and indicators established in the Regional Comprehensive Plan and City of San Diego's General Plan Conservation Element (CE), which track healthy air quality both indoors and outdoors. The CE has identified a number of strategies to improve air quality including the use of healthy indoor building materials and the elimination of chlorofluorocarbon-based refrigerants. Centre City Green's Healthy Spaces goals and policies shown below will help demonstrate progress towards these common goals.

Tracking Metrics

- Square feet of green buildings and/or LEED rated or CALGreen Tier 1 & 2 buildings
- Square feet of existing building green renovations

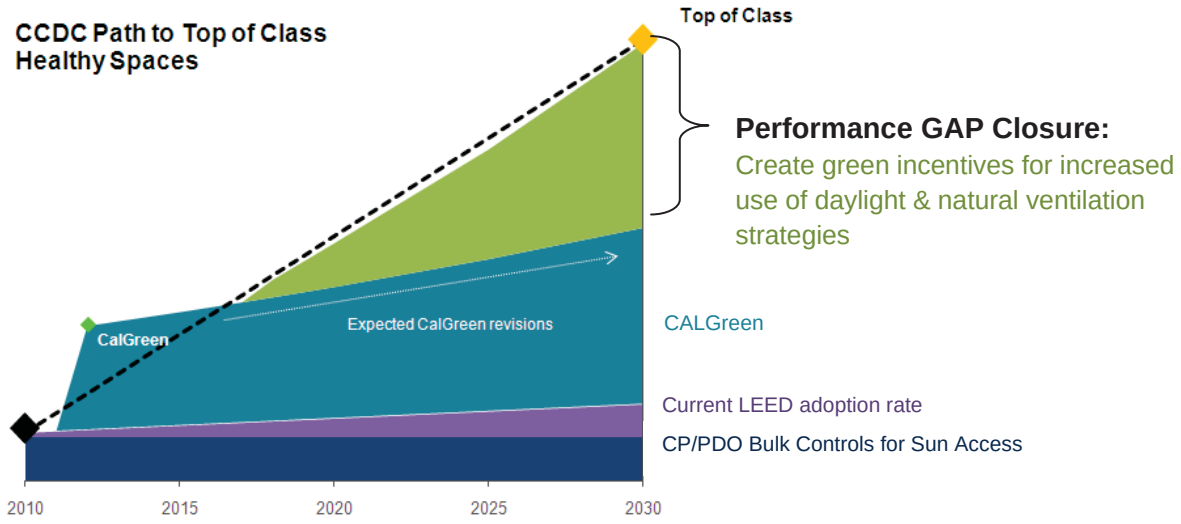
2030 Vision Goal

Top-of-class healthy spaces are characterized by good indoor air quality and access to natural light, fresh air and views. These may be accomplished by increasing access to daylight/views, natural ventilation/increased outside air, use of low-VOC products/low-toxicity materials, individual control for lighting & thermal comfort and acoustic privacy control.

Downtown Performance Review

The Introduction of the CALGreen code in 2011 is anticipated to significantly increase the production of healthy interior spaces in San Diego buildings as it establishes minimum requirements for volatile organic compounds (VOC) and promotes user controls for lighting and thermal comfort. Additionally, the gradual increases anticipated from the LEED Certification program will drive towards improved indoor environmental quality as roughly one eighth of all points are contained within the Environmental Quality credit category. Although many downtown buildings provide good access to fresh air and daylight from existing setbacks and massing requirements outlined in the PDO, many buildings can more effectively engage the San Diego climate. By combining operable

windows that are tied to smart HVAC controls that turn off cooling when the window is open or notify tenants when it is appropriate to open or shut windows, an office environment becomes more productive and energy efficient. Daylight and natural ventilation are two strategies that are viable within the context of existing PDO requirements and are ideal based on climate characteristics.



Healthy Spaces Goals for 2030 Build-Out

Healthy Spaces-G-1	Develop buildings that capitalize on San Diego's temperate climate to create top-of-class healthy indoor spaces

Centre City Green Healthy Spaces Policies

Healthy Spaces-P-1	Create green incentives for natural ventilation and daylighting to harness the San Diego climate
Healthy Spaces-P-2	Rely on the CALGreen code to monitor minimum requirements for use of low VOC adhesives, sealants, and paints
Healthy Spaces-P-3	Promote adoption of LEED Certification, specifically Environmental Quality credits
Healthy Spaces-P-4	Promote adoption of green measures that increase occupant controllability through lighting controls and access to operable windows

Materials

The build-out of downtown will have a significant impact on green house gas emissions that can be reduced through the use of local, sustainably harvested, renewable, and recycled content materials.

- Each SF of building generates between 50-90 lbs of construction waste
- Each SF of downtown building generates 54 - 98 lbs of CO_2 equivalent emissions

Indicator Intent:

To promote conservation of natural resources through both material procurement and end-of-life reprocessing activities

Summary:

The Material Indicator tracks the recycling of construction and operational waste materials and the use of local, recycled and sustainably sourced materials. By tracking this Indicator, CCDC can evaluate its contributions to sustaining San Diego's natural resource base and reducing the amount of waste taken to landfills. Material choices are important because of their impact on our limited natural resources, the potential pollution created, and energy used during their extraction, processing and transportation.

The Materials Indicator aligns with goals and indicators established in the Regional Comprehensive Plan and General Plan Conservation Element (CE), which are currently tracking construction waste management, recycling and the use of recycled and local building materials. The CE has identified a number of strategies to reduce construction waste through the reuse of building materials, use of recycled materials and recycling of waste. Centre City Green's Materials goals and policies shown below will help demonstrate progress towards these common goals.

Tracking Metrics

- Construction waste recycling rate (percent diversion, tons)
- Operational waste recycling rate (percent diversion, tons)
- Percentage of recycled content materials used
- Locally manufactured/harvested materials used

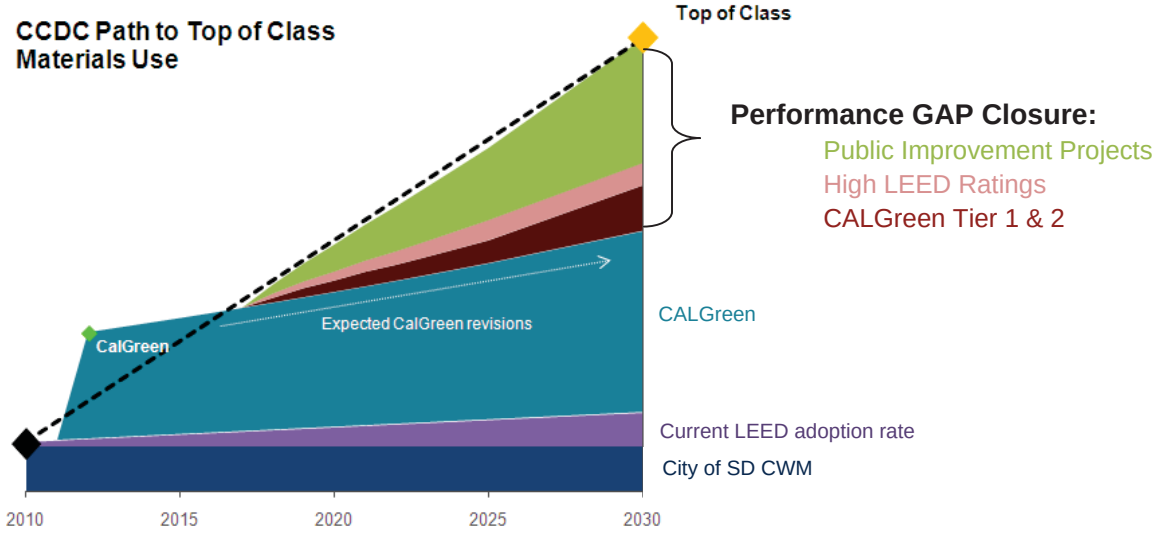
2030 Vision Goal

Downtown San Diego's density requirements and full build-out provide needs for an expansive range of construction materials. A top-of-class position can be adopted such that the build-out of downtown represents the best allocation of materials through the use of regional materials, recycled content materials, materials reuse and by diverting materials from the landfill from construction and operational waste sources.

Downtown Performance Review

Although City of San Diego has made progress on both construction waste recycling mandates and requirements to maintain recycling areas in new buildings, additional efforts are required to attain top-of-class performance. As demonstrated by the graph below, introduction of the CALGreen code in 2011

is anticipated to significantly improve recycling and the use of green materials in San Diego. In addition, new LEED projects, the Green Streets Program and street recycling efforts will make additional improvements. The gap between these efforts and true top-of-class performance will require further efforts including selection of green materials and recycling on all new public works and the development of green materials incentives for all private developments.



Materials Goals for 2030 Build-Out

Materials-G-1	75 percent construction waste recycled on all new projects
Materials-G-2	50 percent operational waste recycled for all businesses and residences in Centre City

Centre City Green Materials Policies

Materials-P-1	Provide Centre City Green Incentive for construction waste recycling above 95 percent
Materials-P-2	Promote use of sustainable materials in downtown public improvements

Green IQ

> "Achieving the goals of sustainable development requires widespread community education and a responsible media committed to encouraging an informed and active citizenry."
>
> UN Decade of Education for Sustainable Development, 2005-2014
>
> http://unesdoc.unesco.org/images/0014/001416/141629e.pdf

Indicator Intent:

To promote development of a green knowledge base among the San Diego population

Summary:

Green IQ tracks the development of the green knowledge base of residents, workers, building owners, visitors, City staff and designers concerning sustainable design and operations of the built environment. By tracking this Indicator, CCDC can measure the increase in awareness and actions taken by the building community towards conservation and green building.

The Green IQ Indicator aligns with goals and indicators established in the Regional Comprehensive Plan and The City of San Diego's General Plan Conservation Element (CE), which are currently tracking green building educational programs and services. The CE has identified a number of strategies to increase green education, such as offering technical services for green buildings and educational programs to increase awareness of resource conservation. The Green IQ goals and policies shown below will help demonstrate progress towards these common goals.

Tracking Metrics

- Number of LEED Rated Projects
- Number of LEED Accredited Professionals
- Number of CALGreen Tier 1 & 2 Projects
- Annual number of sustainability communications & trainings to businesses and local/regional community

2030 Vision Goal

Downtown San Diego is uniquely positioned to attract and retain a green knowledge base that will be prepared to address sustainability challenges facing San Diego. As downtown has ample opportunities for future development as stated by the development goals of the Community Plan, downtown can create green jobs by promoting the green development standards and generating green building guidelines.

Downtown Performance Review

Centre City Green's Building Incentive Program is designed to prepare building owners and developers for future upgrades to Title-24 and CALGreen that will ensure more high performing green buildings are built in downtown. Exemplary projects that test new technologies and promote new standards can also have an educational benefit and increase public awareness. Signature green

buildings and streetscapes that conserve energy and water above standard practice should be publically recognized by the CCDC Board with a “Centre City Green plaque”, mounted on the exterior of the building in a highly visible area. CCDC’s website and marketing brochures can also bring awareness to the public and encourage the green economy.

Green IQ Goals for 2030 Build-Out

Green IQ-G-1	Develop a green knowledge base that leads the country in successful demonstration of economically viable green technologies and sound green building practices

Centre City Green Green IQ Policies

Green IQ-P-1	Develop a public outreach program with case studies, educational signage and tours to promote green developments in downtown
Green IQ-P-2	Provide support for pilot projects utilizing new sustainable technologies

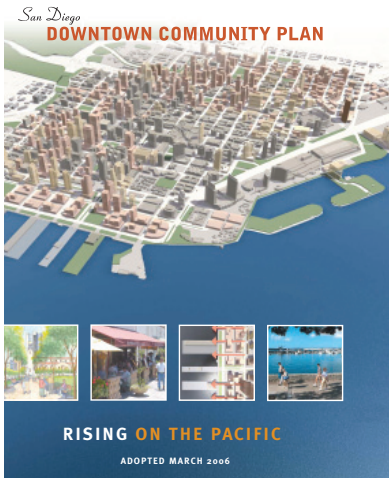


Exhibit 1.10: DCP cover

1.3 Planning and Implementation Strategy

Centre City Green advances the Visions and Goals of the Downtown Community Plan (DCP) and the objectives of the Centre City Redevelopment Project. It supports downtown's estimated population growth, from the current 30,000 residents and 75,000 jobs to 90,000 residents and up to 165,000 jobs projected by 2030. By implementing the goals and policies of Section 5.8 Sustainable Development of the Downtown Community Plan and strengthening relevant DCP Chapters with criteria and standards that ensure development in the downtown is guided by sustainable practices, Centre City Green can make significant progress towards a sustainable future.

Centre City Green's Sustainability Indicators provide the basis for identifying long range goals and policies. By measuring them over time and mapping them directly into the DCP, sustainability can strengthen DCP topical areas and key concepts. Chapters such as Urban Design, Structure and Land Use and Transportation can be refined with updated practices and improved as it relates to energy use and water conservation. This process will ensure that the long range build-out of downtown is consistent with local, regional and state mandates to reduce carbon emissions.

Eight out of the 14 DCP chapters describe policies that relate to buildings and the spaces in-between:

Chapter 3: Structure and Land Use

Chapter 4: Parks, Open Space, and Recreation

Chapter 5: Urban Design

Chapter 6: Neighborhoods and Districts

Chapter 7: Transportation

Chapter 8: Public Facilities and Amenities

Chapter 9: Historic Preservation

Chapter 11: Economic Development

(no overlays have been provided for Chapters 1-2,10,12-14).

Each chapter has been analyzed for alignment to the Sustainability Indicators, summarizing benefits and identifying key long range opportunities. For each chapter:

- Specific goals have been identified that support the chapter's intent and drive the Sustainability Indicators over the course of downtown's build-out

- Relevant DCP chapter goals and policies are referenced to the appropriate Sustainability Indicators

- Long range goals, opportunities, initiatives and programs are identified that support and are consistent with the California Public Utilities Commission net-zero buildings, San Diego Association of Governments (SANDAG) Climate Action Strategy Plan and state long range policies and mandates that seek to redeuce carbon emissions.

Some of the key principles for identifying long range goals, programs and initiatives include:

- **Focus on water conservation, energy and the State's preferred loading order:** New energy resources come first from energy efficiency and then demand response, renewable energy, and distributed generation, all before new transmission and natural gas generation are sought.
- **Promote state policies and mandates:** The California Global Warming Solutions Act of 2006 (AB 32) and related Scoping Plans require planning districts to aid in meeting milestone reductions in energy use and carbon footprint. Downtown San Diego should be consistent with the policy direction of state agencies like the California Public Utility Commission (CPUC) to achieve zero net energy usage in new residential and commercial buildings and meet the intent of the AB 32.
- **Support SANDAG's Climate Action Strategy:** Goals, objectives and policy measures in the areas of transportation, land use, buildings and energy use need to be mapped into long range goals to the appropriate section of the DCP.
- **Support San Diego's Comprehensive Regional Energy Strategy:** Goals and policy measures need to be mapped to the appropriate section of the DCP. Strategies are needed that promote and incentivize the use of clean and renewable energy sources by focusing on: (1) Energy efficiency and conservation, (2) Renewable energy, (3) Distributed generation, (4) Energy and water, (5) Peak demand, (6) A long range goal of a "smart grid," and (7) A clean energy economy.

Exhibit 1.11: DCP build-out model

As many of the Indicators demonstrate, the increased density, improved access to services and amenities, and strong sense of community available in a downtown area provide inherent sustainability benefits as compared to surrounding suburban areas. From energy use to urban mobility, we see the sustainability benefits of more dense urban settings:

- **Energy/GHG:** High rise residential energy use (which predominates in the downtown) is 5 kBtu/sq.ft./yr lower than low rise residential (which predominates in the suburbs)

- **Water:** Irrigation water use is over fifty times higher in the suburbs as compared to the downtown (21,000 gallons/occupant in the suburbs as compared to only 400 gallons/occupant in the downtown)
- **Urban Mobility:** Per capita vehicle miles traveled (VMT) per day reduces from 19.8 in the suburbs to only 6.3 in the downtown

These are some of the many sustainability benefits that are reflected in the identified Sustainability Indicators and that will be leveraged by the additional policies identified below for each DCP chapter.

Chapter 3: Structure and Land Use

Summary of Sustainability Benefits

Land use patterns determine the bulk and scale of development across the City, providing the density needed to support a vibrant urban life while modulating its intensity to ensure a good balance with adjacent smaller scale residential neighborhoods and open space. Progressive land use policies encourage a dynamic central urban core with a diverse mix of uses that has sufficient density to establish the downtown area as a multi-use regional center with strong employment and residential opportunities. Mixed-use density provides the following sustainability benefits:

- Density supports a comprehensive transit system, reducing the emissions, congestion and required parking areas associated with the use of single occupant vehicles
- Reduced commute and entertainment miles traveled per person (saving energy, money and personal time)
- Preservation of open space, habitat and farm lands in outlying areas that would be otherwise developed if downtown were not to increase density
- Stronger sense of community and sense of place

Key Sustainability Opportunity:

Private Development Incentive Program

Green building incentives encourage new development to locate in downtown and to implement low impact design strategies with energy, water and materials saving measures. Green development incentives can be linked to specific measures and reward those who exceed the standards, such as to a level of achievement in a rating system like LEED or as part of CALGreen Tier guidelines. Development incentives may involve activities such as increases in FAR or expedited processing of permits and should be tailored to building types such

that all have equal opportunity to achieve incentives based on building performance. Please see the section on Private Development Incentive Program that further develops this opportunity into a new policy program.

		CCG Indicator Map							
Land Use & Housing Sustainability Policies		E	W	M	EV	S	HS	UM	IQ
Land Use- CCG .1	Provide development incentives for new projects that demonstrate high levels of energy and water savings and sustainability through the Centre City Green Program	x	x	x	x	x	x	x	x
Land Use-CCG .2	Provide incentives for existing buildings that implement audits/commissioning and efficiency upgrades	x	x						
Land Use- CCG .3	Provide incentives for installation of peak reduction, cogeneration, and renewable energy measures	x							
Land Use-CCG .4	Provide incentives for new developments to include streetscape improvements that increase bicycle ridership (racks, access to showers for commuters, etc.)	x				x		x	
Land Use-CCG .5	Work with the City of San Diego to align Centre City Green Incentive program with City incentives				x				

		E	W	M	EV	S	HS	UM	IQ
Related Downtown Community Plan Policies									
CP 3.5-G-1	Develop a system of neighborhoods sized for walking, with parks and concentrations of retail, restaurants, cultural activities and neighborhood services in mix with residential and other commercial uses.	x			x	x			
CP 3.3-G-2	Ensure supplies of housing for downtown employees commensurate with their means to reduce automobile trips and achieve related air quality benefits	x					x	x	
CP 3.2-P-3	Allow intensity bonuses for development projects in specific locations established by this plan that provide public amenities/benefits beyond those required for normal development approvals	x					x	x	

4

PARKS, OPEN SPACE, AND RECREATION

Open spaces are critical in satisfying the diverse outdoor recreational needs of downtown residents, visitors, and workforce. They are vital to downtown's quality of life, especially given high development intensities, and San Diego's mild Mediterranean climate conducive to outdoor living. Parks and plazas also help foster social interactions and sense of community that define the public realm and urban culture.

Two magnificent open space assets—the waterfront and Balboa Park—border downtown. The northern waterfront is being developed with public parks, cultural amenities, and activity nodes strung along a continuous pedestrian promenade. Planned parks at the County Administration Center (CAC) will enhance the waterfront environment as well. Balboa Park, although separated from downtown by the I-5 freeway, is the country's largest urban cultural park, containing a multitude of cultural amenities and hundreds of acres of open space, and will remain a cultural and recreational destination for downtown.

Downtown's two existing neighborhood-oriented parks (Amici Park and Pantoja Park) are located in two rapidly developing neighborhoods – Little Italy and Marina. Parks will be essential in the new neighborhoods to draw residents, and can reinforce the area's image through careful design. In planning downtown's open space system, several factors require consideration:

- Accessibility to Balboa Park is limited because of grade differential and the I-5 freeway. Also, the largest waterfront parks—the Embarcadero Marina parks on Port property—are isolated and not conveniently accessible on foot from residential neighborhoods.
- Some of the new emerging neighborhoods were originally developed with commercial and warehouse emphasis, without any provision for parks.
- Strategic park siting and development is essential to maximize accessibility and use and make efficient use of limited municipal resources for land acquisition.

Chapter 4: Parks, Open Space, and Recreation

Summary of Sustainability Benefits

Parks and open spaces are valuable urban assets that provide multiple sustainability benefits touching upon several of the identified Sustainability Indicators including Energy, Water, Materials and Streetscape. Best practice development of parks and open space in Centre City should provide the following sustainability benefits:

- Increased social interactions and a sense of place
- Connections of people with nature to relieve stress and encourage stewardship of natural resources
- Exercise and healthy lifestyle habits
- Reduction of urban heat island effect and its associated energy use by providing shade and reducing evapotranspiration
- Improved water quality by absorbing and filtering stormwater runoff
- Reduced air pollutants through the sequester of carbon from increased landscaping
- Reduced noise by providing buffer areas
- Wildlife habitat for songbirds and non-pest animals and diverse ecosystems to maintain a healthy biodiversity in the urban environment
- Education of citizens on low water use, native landscape techniques

Key Sustainability Opportunity:

East Village Green Park

The East Village Green Park can be developed as a showcase of sustainability by incorporating best practice design including native landscaping and habitat for song birds and other non-pest animals. Treated recycled water should be used to the greatest extent possible. The landscape plan should offer a mix of native tree shaded areas and sunny open spaces, all of which are designed with Low Impact Development techniques to manage stormwater on site. Some areas of the park should provide a calming, natural refuge, while other areas could meet the needs for exercise and social interactions. Consideration should also be given for a demonstration community garden and potential fruit trees on the site. An educational signage program should be developed for the park to communicate the sustainability elements to park users, both to increase the understanding of the importance of nature in the urban environment and to edu-

cate users on sustainable landscaping approaches they can implement at their own homes. Materials should be selected based on examples of sustainable procurement and should showcase new and innovative solutions.

		CCG Indicator Map							
Parks & Open Space Sustainability Policies		E	W	M	EV	S	HS	UM	IQ
Parks-CCG .1	Develop all new parks as showcases of sustainability with native and drought-tolerant grasses and plants		x	x		x			x
Parks-CCG .2	Provide Centre City Green incentives for addition/preservation of open space in private developments	x	x		x	x	x		
Parks-CCG .3	Use local- or regional-sourced landscaping materials	x		x	x	x			x
Parks-CCG .4	Develop a signage program to provide education on the native plantings and low water use sustainability features implemented in new parks		x						x
Parks-CCG .5	Coordinate location of new parks/open spaces to encourage economic development in targeted areas				x				
Parks-CCG .6	Coordinate transit stops to provide easy access to parks & open space activity areas							x	
Parks-CCG .7	Partner with a local gardening organization to develop a demonstration community garden in one of the urban parks					x			x

		E	W	M	EV	S	HS	UM	IQ
Related Downtown Community Plan Policies									
CP 4.1-P-4	Wherever possible, incorporate parking under all new parks and open spaces greater than a half-block in size. Design underground parking so access ramps do not isolate the park from adjacent pedestrians	x						x	
CP 4.1-P-4-9	Improve green streets as an essential element of the open space program – as connections to the waterfront, Balboa Park, activities centers and parks and plaza; as tree-lined open spaces; and as continuous recreational paths					x		x	
CP 5.8-P-2	In cooperation with other agencies, undertake a program of street tree planting, maintaining a target of 10,000 trees downtown by 2030	x				x			
CP 5.8-P-6	In new development and re-use projects alike, encourage use of Low Impact Development principles such as eco-roofs, roof gardens, landscaped courtyards, grass filter strips, permeable pavement, and rainwater systems, to reduce surface runoff volumes and pollutants as well as reduce heat-island effects	x	x			x			
CP 5.8-P-7	Promote biodiversity and indigenous plantings that require low or no irrigation. Encourage habitats for songbirds and non-pest animals		x			x			

5

URBAN DESIGN

This chapter focuses on issues of public realm, identity, character, and experience – for residents, workers, and visitors. Another important thrust is fostering livability for downtown's burgeoning population.

San Diego enjoys a favorable climate, the most moderate of any major North American metropolis. Downtown has a magnificent setting, occupying a strategic location between the sparkling San Diego Bay and the green expanse of Balboa Park. The Community Plan capitalizes on these unique assets, creating an outdoor-focused, Mediterranean ambiance that emphasizes vitality and street life, and gathering places that reflect San Diego's natural setting.

The Community Plan envisions downtown as a quilt of distinctive, walkable neighborhoods with unique identities. Diversity in scale, design, texture, and light will help build complexity and an engaging human experience. This chapter seeks to:

- Maximize the advantage of San Diego's climate and downtown's waterfront setting by emphasizing the public realm—streets and public spaces—more so than individual buildings;
- Foster vital and active streetlife, and maximize sunlight penetration into streets and open spaces;
- Build upon natural features and historic assets to promote richness and diversity;
- Ensure that development is designed with a pedestrian orientation;
- Promote fine-grained development where appropriate, while enabling desired development intensities to be achieved; and
- Provide direction for more detailed guidelines and capital project designs.

Many of the urban design components addressed in this chapter directly relate to transportation topics covered in *Chapter 7: Transportation*. These include street grid, street design, and special street designations.

Chapter 5: Urban Design

Summary of Sustainability Benefits

The Urban Design chapter of the DCP provides significant direction for sustainable planning, urban design/relationships and green buildings in the downtown core. Centre City Green Planning Guidance is intended to supplement the information currently in the Urban Design Chapter 5.8 by expanding sustainability goals and policies that are aligned to stakeholder outreach, current laws and mandates that have occurred since the 2006 adoption.

This additional direction is especially important since the urban design and infrastructure form the core connecting threads for the sustainability fabric of the City. The Land Use policies create the density needed to provide a vibrant urban setting and the Urban Design policies ensure that this results in a livable, dynamic urban core. As identified in the current Urban Design Chapter, the critical sustainability benefits of sensitive urban design include:

- View corridors that connect people with San Diego's dynamic natural surroundings to promote pedestrian activity and the relaxation and well being associated with the connection to natural areas
- A balanced development pattern that addresses the bulk, skyline and solar access issues to promote fine grain developments that engage pedestrians while providing the needed density to support a sustainable and dynamic urban core
- Rich and varied streetscapes and building interfaces to encourage multimodal transportation options ranging from walking and bicycling to public transit
- Expanded use of public domain areas to encourage public gatherings, naturally infiltrate stormwater and reinforce a sense of place, in addition to meeting the needs for transit and utility corridors.
- Connections and gateways to surrounding neighborhoods to both strengthen community identity and reinforce the interconnectedness
- Wayfinding and signs to encourage pedestrian mobility and economic activity

Key Sustainability Opportunity:

Green Streets Pilot Project and Program

A well-designed green street calms vehicular traffic and offers a more pleasant pedestrian environment by narrowing vehicular pavement and providing streetside native plantings that shade the pavement, allow natural low impact development (LID) infiltration of stormwater and provide habitat for song birds.

Green streets balance the needs for all modes of transportation by providing bicycle lanes, widened sidewalks, and access to an intra-downtown circulator/ shuttle. Green streets can also provide casual gathering spots with art installations and seating to promote impromptu social interactions. The sidewalks and other built amenities can utilize materials that are produced locally and that have high recycled content. Good green street designs modulate the width of paved areas with street bulb-outs, landscaped areas and variations in sidewalk widths to allow for a variety of space types and to promote bicycle parking areas and angled vehicular parking to support economic vitality of adjacent businesses. See Green Streets Development Program section that further develops this opportunity to a conceptual level.

		CCG Indicator Map							
Urban Design Sustainability Policies		E	W	M	EV	S	HS	UM	IQ
Urban Design-CCG.1	Implement a Green Streets Pilot Project at a designated location that extends the open space system and addresses more than three Sustainability Indicators.				x	x			
Urban Design-CCG.2	Upgrade the Streetscape Manual based on the Green Streets Program and Pilot project				x	x			
Urban Design-CCG.3	Incentivize and promote large-scale developments that promote (1) new green technologies at a neighborhood scale, employing smart grid or cogeneration/bio-cell technologies that takes the development completely off the grid; and (2) promote water reuse technologies at a neighborhood scale				x	x			
Urban Design-CCG.4	Increase awareness of existing green buildings and promote top-of-class examples to the public	x	x	x	x	x	x	x	x
Urban Design-CCG.5	Provide development incentives for projects that implement energy- and water-conserving features and other sustainability strategies through the Centre City Green program	x	x	x		x	x	x	
Urban Design-CCG.6	Provide an integrated design review step that encourages consideration of neighborhood-scale sustainability options like cogeneration, Low Impact Development, water reuse, wind & solar patterns, etc.	x	x	x	x	x		x	x
Urban Design-CCG.7	Promote the adoption of new green technologies to increase awareness and drive market adoption of green practices								x
Urban Design-CCG.8	Increase awareness of existing green buildings and promote top-of-class examples to the public								x

Related Downtown Community Plan Policies		E	W	M	EV	S	HS	UM	IQ
CP 4.1-P-9	Improve Green Streets as an essential element of the open space system – as connections to the Waterfront, Balboa Park, activity centers and parks and plazas; as tree-lined open spaces; and as continuous recreational paths		x		x	x			
CP 4.1-P-15	Encourage the position of outdoor seating and/or cafes where appropriate				x	x			
CP 5.2-G-2	Promote walkability by providing amenities in proximity to every downtown worker and resident and linking Neighborhood Centers with Green Streets	x			x	x		x	
CP 5.4-P-5	Emphasize pedestrian orientation of buildings & development, especially in the retail districts, Neighborhood Centers.	x			x	x	x	x	
CP 5.3-G-4	Ensure uninterrupted sunlight during designated periods in all major parks and maintain standards to ensure adequate sunlight on sidewalks and streets in Neighborhood Centers and residential areas.					x	x		
CP 5.2-P-2	Ensure that Centers are attractive destinations, offer pedestrians comfort and maximize sun access to streets and sidewalks through a variety of implementing mechanisms including streetscape improvements (street trees, widened sidewalks, seating and lighting,), sun access standards, and fine grained development.	x			x	x		x	
CP 5.3-P-3	Establish performance-based Sun Access requirements in the Neighborhood Centers, which provide flexibility in building massing.	x				x	x		

		CCG Indicator Map							
		E	W	M	EV	S	HS	UM	IQ
CP 5.4-G-1	Enhance downtown through distinctive streetscapes. Promote street trees and unified landscape treatment along streets, while ensuring sunlight through species selection and placement.					x			
CP 5.4-P-5	Emphasize pedestrian orientation of buildings, especially in the retail districts and Neighborhood Centers					x			
CP 5.6-P-1	Work with Caltrans and other agencies to prioritize construction of a “lid” decking I-5 in Cortez to reconnect downtown with Balboa Park.					x			
CP5.8-P-1	Prepare and implement Green building guidelines and/or standards, appropriate to the intense San Diego downtown context, to ensure high levels of energy efficiency and reduction of life-cycle environmental impacts associated with construction and operations of buildings.	x	x	x			x		
CP 5.8-P-3	Maintain building volume standards that allow sunlight to reach streets and public spaces. Explore the feasibility of building reflectivity standards to maximize ambient light in streets and other public spaces, without glare.					x			
CP 5.8-P-6	In new development and re-use projects, encourage use of Low Impact Development principles such as eco-roofs, roof gardens, landscaped courtyards, grass filter strips, permeable pavement, and rainwater systems to reduce surface runoff volumes and pollutants as well as reduce heat-island effects	x	x			x			

Exhibit 1.12: DCP Neighborhood Center Illustration

6

NEIGHBORHOODS AND DISTRICTS

The Community Plan envisions downtown as a collection of unique neighborhoods and sub-districts, reflecting variations in function, history, topography, location, architecture, building scale, and civic icons. Little Italy's history as home to families of fishermen, the excitement of high-rise residential towers in Marina, the mix of new and old anchored by the historic El Cortez on Cortez Hill, and the potential transformation of the Northeast sub-district area with residences, offices, and institutions fused with City College are examples of this transformation of neighborhood character. The collection of neighborhoods and sub-districts—each sized to reflect an approximately ten-minute walk across—promotes identity; especially useful given downtown's significant size.

Many of downtown's neighborhoods and districts—such as Marina and Little Italy—are well developed. Others—such as Cortez, Core, Northeast, and Columbia—have historical assets, views, or other significant form-giving components that will be reinforced through this plan. However, large sections of eastern downtown and some waterfront areas will undergo considerable transformation. In some neighborhoods, such as Northwest and Northeast in East Village, 70-80 percent or more of the neighborhood's blocks could have new uses. The extent of contemplated change provides an opportunity to create cohesive new neighborhoods sized for walkability, and new centers and parks to support livability.

As downtown development proceeds, neighborhoods will evolve into full-service districts with synergistic mixes of employment, residential, retail, cultural, visitor-serving, and open space components. Each neighborhood will allow for a full complement of amenities to enable urban, walking-oriented lifestyles. While encouraging uniqueness, this Plan lays out some essential components for each neighborhood:

- A Main Street or Neighborhood Center with a mix of retail, services, housing, employment, civic, and/or cultural uses that reinforces distinctive neighborhood traits;
- A significant park or open space feature;
- Linkage to the rest of downtown and neighborhoods surrounding downtown via Green Streets; and
- Urban form that protects sunlight in major parks and the finer grain Neighborhood Center/Main Street area.

Chapter 6: Neighborhoods & Districts

Summary of Sustainability Benefits

The DCP identifies Neighborhood Centers at key downtown locations with finer grain development standards and neighborhood supporting uses at the base. Neighborhood Centers generate "ownership" that encourages local interactions and stewardship. This minimizes unnecessary transit outside the neighborhood and opens the way for "neighborhood scale projects" that employ district based improvements such as cogeneration, low impact development approaches to stormwater treatment, and street-side recycling. Neighborhood Centers provide for a best practice approach to the development of neighborhoods and districts in Centre City with the following benefits:

- Provides for localized area's needs for employment, shopping, education, entertainment, open space and services, thus minimizing the time and energy use of transit to other areas
- Increases social interactions and appreciation for a sense of place and environmental responsibility
- Promotes healthy lifestyles for neighborhood residents through increased walking and bicycling
- Increases local networks to evaluate and implement neighborhood scale sustainability initiatives that achieve greater performance than building-based measures

Key Sustainability Opportunity:

Neighborhood Pilot Project Opportunities

The downtown neighborhoods are based on existing character and expected new development patterns that will define new building volumes, parks and open spaces, land use emphasis, design, texture, and light. These work together to foster a sense of individual identity, and emphasize a human scale. Per the DCP, each downtown neighborhood is served by, or shares, at least one Neighborhood Center that provides amenities necessary for daily life, and a focal core of activity. The Neighborhood Centers are located within a convenient, five-minute walking radius of the surrounding neighborhoods. Neighborhood Design Guidelines (a separate document) will further provide direction on design character and should be consulted.

A Neighborhood Center could provide the opportunity to implement a district approach to large-scale sustainability measures based on multi-developments or parcels, either as a producer or a consumer of a particular resource. For example, a multi-block development could implement a cogeneration facility, taking multiple parcels off the grid and achieving a net-zero energy status.

Other opportunities can be based on intensive resource exchanges. Hotel developments produce significant amounts of graywater generated through laundry facilities yet may have no appropriate use for it. An adjacent public park, green street, or landscaped street median could be the beneficiary of this graywater resource, treated on-site. This would allow the public right-of-way to meet its irrigation demand with a neighborhood scale graywater system.

A district or neighborhood pilot program should be initiated as part of Centre City Green that demonstrates the viability of the system and establishes cost sharing between multiple projects.

		CCG Indicator Map							
Neighborhoods & Districts Sustainability Policies		E	W	M	EV	S	HS	UM	IQ
Neighborhoods-CCG .1	Develop a pilot program for co-generation or water reuse systems that serve a neighborhood or district	x	x		x				x
Neighborhoods-CCG .2	Provide support for neighborhood scale LID approaches that reduce runoff		x						
Neighborhoods-CCG .3	Develop water sharing guidelines to allow projects to share the generation and use of gray water within their neighborhoods	x							
Neighborhoods-CCG .4	Provide recycling bins for metal, glass and paper on all major streets in all neighborhood centers			x					x

		E	W	M	EV	S	HS	UM	IQ
Related Community Plan Policies									
CP 6.5-G-12	Develop cohesive, lush streetscapes to promote sub-district identity, character and connections					x			

7

TRANSPORTATION

Downtown has extraordinary access to major transportation systems including air, water, light and heavy rail, and bus, and well developed street and freeway networks. These connect the area locally, regionally, and even nationally and internationally, while the street grid system, with small blocks, facilitates easy pedestrian and vehicle movement.

As downtown's population and employment increase, many more trips will begin and end within downtown, or even within a single neighborhood. Walking to work or to a store, bicycling to a restaurant on the waterfront, taking transit from Little Italy to East Village, or carpooling to work will become an integral part of downtown's lifestyle. Downtown's land use pattern will be intense and diverse, allowing many destinations to be reached within a short walk, and closely integrated with the transportation system.

As redevelopment occurs on multi-block sites and on blocks where streets currently do not connect, downtown's street grid will be reinforced. As industrial areas are transformed into neighborhoods, streets will be improved to emphasize walking and bicycling, increase on-street parking supply, and enhance traffic flow during peak periods.

Promoting alternative transportation is an important downtown goal, recognized in the Guiding Principles. Since regional circulation is largely dependent on cars, and reducing traveling efficiency is counterproductive in general, cars will need to access and flow through downtown with reasonable efficiency. Rather than taking measures to discourage car travel, programs to make transit, carpooling, and walking more attractive are outlined. Downtown will accommodate a well-managed mixture of pedestrians, cars, and transit; its size and density is far beyond that of a medieval town center or village where travel needs can be met exclusively by walking.

Development of an efficient transportation system and well designed streets will require partnerships between various public agencies—including the San Diego Association of Governments (SANDAG), the City and the Port, and the Centre City Development Corporation (CCDC)—and other organizations and businesses.

Chapter 7: Transportation

Summary of Sustainability Benefits

Downtown has extraordinary access to major transportation systems including air, water, light and heavy rail, bus transit (rapid and local) and walk/bike networks as well as highly developed street and freeway networks. These connect the area locally, regionally and even nationally and internationally, while the street grid system, with small blocks, facilitates easy pedestrian, bicycle and vehicle movement. With well planned density supported by open space, employment, tourism and amenities and linked with a variety of transit modes, Downtown San Diego can demonstrate the greatest impact on energy and water conservation and economic prosperity. As 42 percent of California's carbon emissions are associated with transportation, further development of amenities in Centre City can make a significant contribution to the regional carbon reduction goals. By enhancing transportation systems, the following benefits can be realized:

- Increased opportunities for building community through casual interactions on the street, at transit stations and in shared vehicles
- Enhanced public health with bicycling and walking opportunities
- Reduced use of non-renewable fuels and their associated carbon emissions
- Reduced metal, rubber, oil and fossil fuel contamination of stormwater runoff

Key Sustainability Opportunity:

Downtown Connector Shuttle

Serving as San Diego's regional transit hub, the various forms of regional transit networks that traverse downtown need to be linked with an intra-downtown shuttle. The shuttle should reinforce and connect transit hubs, such as Santa Fe Depot, Smart Corner and the 12th and Imperial rail stations that in turn have connections to bus linkages, downtown attractions, the Convention Center, hotels and the cruise ship terminals. The shuttle would offer a multi-modal and seamless experience of transport that supports the local economy, tourism and employment.

The development of a downtown shuttle has been consistently cited as a desire by the downtown residential and business community, not only as an efficient method of transport in and around downtown, but as an economic development tool and "jobs creator" that supports local business. A downtown shuttle offers more flexibility than a regional system by being uniquely scaled to the urban form and fine grain character of downtown street blocks. Frequent stops and flexible routes that can easily be programmed to directly connect the arrival

point with the destination and neighborhood to neighborhood would serve as an economic and social engine. As such, a downtown shuttle would entail the participation and ownership of local stakeholders, property owners, merchants, employees, residents and visitors alike.

To support a successful downtown shuttle, the regional transit systems should be planned in a manner that effectively connects to the intra-transport system by arriving at key "transit hubs" and at other appropriate downtown perimeter locations. Trolley service should also be provided that bypasses downtown by utilizing the Bayside connection, addressing a significant ridership that needs to get through downtown in a more efficient and timely manner. Regional systems, whether rapid bus or the trolley, should always operate within the existing street block geometry, with operational characteristics that are complimentary to areas of high pedestrian volume, ground level business and public safety.

		CCG Indicator Map							
Sustainable Transportation Policies		E	W	M	EV	S	HS	UM	IQ
Transportation-CCG.1	Develop Green Streets Program that prioritizes the pedestrian to all modes of transit within downtown					x		x	
Transportation-CCG.2	Reduce auto-dependency, pollution impacts, and waste of valuable downtown real estate by encouraging shared parking, automated parking, carpools, transit and non-polluting mobility modes such as electric vehicles, pedicabs, bicycling and walking	x				x		x	
Transportation-CCG.3	Revise the Transportation Demand Management requirements in the PDO to encourage options to reduce use of single occupant vehicles							x	
Transportation-CCG.4	Support the use of carpool and low-emission vehicles with preferred parking locations.	x				x		x	
Transportation-CCG.5	Partner with local agencies and the private sector to develop a downtown connector shuttle to link all major amenities, neighborhoods and transit hubs.	x				x		x	x

Related Community Plan Policies		E	W	M	EV	S	HS	UM	IQ
CP 5.8-P-4	Reduce auto-dependency, pollution impacts and waste of valuable downtown real estate by encouraging shared parking, automated parking, transit use, carpools, and non-polluting mobility modes such as electric vehicles, pedicabs, bicycling, and walking.	x				x		x	
CP 7.2-P-1	Create a system of bike paths and encourage regional links such as the San Diego Bayshore Bikeway	x						x	
CP 7.2-P-3	Require bike racks and locking systems in all residential projects, multi-tenant retail and office projects and government and institutional uses.	x						x	
CP 7.2-P-4	In pedestrian priority zones, undertake strategic streetscape improvements (such as sidewalk widening, bulb-outs, enhanced lighting and signage), lengthen traffic signal walk times for pedestrians and explore feasibility of "all-walk" signalization at intersections with heavy pedestrian flow, and accept lower levels of automobile traffic service	x				x		x	

8

PUBLIC FACILITIES AND AMENITIES

The Downtown Community Plan is subject to and must comply with all of the provisions of the City of San Diego General Plan and Strategic Framework Element and Action Plan as may currently exist or as may be amended in the future by the City of San Diego. The provisions thereof are specifically adopted herein by reference.

An essential component for accomplishing downtown's potential as a livable place and a regional center is a strong framework of public facilities and amenities. Parks and open spaces and schools are vital to support the growing population; police and fire stations are essential for safety. Facilities such as the Civic Center, Convention Center, and institutions of higher learning also act as catalysts for redevelopment and economic activity.

This chapter focuses on educational facilities, police and fire emergency facilities, community facilities, the civic center, and libraries. Additional types of public facilities are addressed in other chapters of the Community Plan:

- *Chapter 3: Land Use and Housing;*
- *Chapter 4: Parks, Open Space, and Recreation;*
- *Chapter 7: Transportation;*
- *Chapter 10: Arts and Culture;* and
- *Chapter 12: Human Services*

Chapter 8: Public Facilities & Amenities

Summary of Sustainability Benefits

A strong framework of public facilities and amenities is an essential component in establishing downtown as a livable place and a regional center. Moreover, public facilities, such as parks, open spaces and schools, support a growing population; police and fire stations ensure public safety; and Convention and Civic Centers can be a catalyst for redevelopment.

In the sustainable design and operation of its public facilities, the City has the opportunity to save resources, reduce costs, and demonstrate state-of-the-art sustainability technologies to the broader community. As public facilities operate on limited budgets, efficient use of energy and water can produce operational savings while also reducing the drain on non-renewable resources. A well-designed, sustainable public facility provides the following benefits to the community:

- Reduction of water and energy use and their attendant savings in cost and carbon emission equivalents
- Increased comfort and indoor air quality for building occupants by improvements in ventilation, lighting and thermal controls
- Improved site designs that maximize open space with native plantings
- More pervious site area and LID designs to reduce stormwater runoff and improve water quality in the Bay
- A demonstration “living laboratory” for students in educational buildings to investigate sustainable design approaches
- Stimulation of the local economy

Key Sustainability Opportunity:

Redevelopment of Civic Center

The City’s Civic Center complex that includes the Administration and Operations Buildings, Civic Center Theater, the Concourse, Golden Hall and an above-grade structured parking lot, are strong anchors for downtown’s central business district. The Civic Center is also a prominent functional and visual landmark.

There is wide consensus that the aging and deteriorating Civic Center facilities need full-scale redevelopment, as can be seen by the fact that over half of the space occupied by downtown City staff is leased in private office buildings. A redeveloped Civic Center that is outward facing, welcoming, and reconnected

to the street grid and surrounding areas provides an inspiring yet functional regional government center.

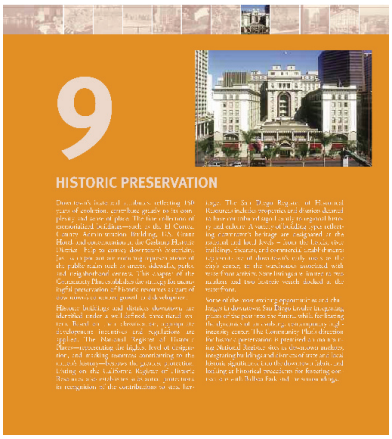
The redevelopment of Civic Center provides the opportunity to showcase to the public and building community new sustainability technologies and approaches with positive impact on the San Diego urban infrastructure. Civic Center could be a demonstration project, addressing each of the Sustainability Indicators and promoting market opportunities by showcasing state-of-the-art sustainability technologies, such as cogeneration, blackwater treatment systems, use of graywater and integrated daylighting strategies.

Policies: Sustainable Public Facilities & Amenities

		CCG Indicator Map							
		E	W	M	EV	S	HS	UM	IQ
Public Facilities-CCG.1	Design public facilities with low water use/native landscaping and other interior water saving technologies and strategies		x						
Public Facilities-CCG.2	Design Public Facilities to LEED Silver or CALGreen Tier II standards	x	x	x	x		x	x	x
Public Facilities-CCG.3	Develop an educational signage and/or tour program to inform building users of the sustainability measures installed in public facilities								x

Related Community Plan Policies

		E	W	M	EV	S	HS	UM	IQ
CP 5.8-P-5	Encourage the use of daylighting, natural ventilation, photovoltaic panels, district energy plants, insulation and other energy conserving techniques and strategies	x					x		
CP 5.8-P-8	In accordance with established City policy, ensure that public projects – including buildings, streets and parks – incorporate sustainable design and construction practices.	x	x	x			x		



Chapter 9: Historic Preservation

Summary of Sustainability Benefits

Historical resources contribute greatly to a city's complexity and sense of place. The fine collection of memorialized buildings—such as the El Cortez, County Administration Building, U.S. Grant Hotel and the concentration of historic buildings in the Gaslamp Quarter Historic District provides scale and helps to convey downtown's historicity. Since newer buildings must conform to the nation's strictest building code and energy standards and represent only 10-12 percent of the total carbon emissions from building stock, adaptive reuse and/or retrofitting pre-Title-24 existing and/or historic buildings is arguably one of the most important approaches in achieving overall efficiencies in energy and water conservation.

Rehabilitation of historically designated structures offsets the need for new materials (and their embodied energy) while reinforcing the cultural history of the area. However, as energy, and water-saving technologies and indoor air quality measures have significantly improved over time, the reuse of buildings is only a net sustainability benefit if the buildings are upgraded to take advantage of the most recent high performance technologies. Comprehensive building audits are required to benchmark current performance and propose efficient upgrades. The upgrade of existing buildings provides the following sustainability benefits:

- Minimizes extraction of new, non-renewable materials and the associated embodied energy use and carbon emission equivalents
- Minimizes materials going to the landfill to reduce landfill size and preserve open space
- Improves energy and water performance of building systems to reduce the costs and depletion of these resources and the urban infrastructure needed to support them
- Improves health, comfort and indoor air quality for building occupants by improving ventilation, lighting and thermal controls
- Reduces the impact of construction on neighborhood centers and the attendant disruption to the pedestrian experience and economic activity

Key Sustainability Opportunity:

Existing Building Energy Audit and Retrofit Program

To reach sustainability goals and meet improvement targets for the Energy, Water and Material Indicators, a program to incentivize existing building upgrades is needed. The highest priority structures should be those that have historic designation or were constructed prior to Title-24 energy code compliance stan-

dards. As CCDC has no jurisdictional control over the existing building stock, incentive based voluntary programs need to be developed to encourage building owners to make building and operational improvements.

The USGBC's LEED for Existing Building Operations and Maintenance program can be used as a performance approach. Another approach is to provide funds to complete audits that identify retrofit opportunities with less than a five year payback. SDG&E and CCDC funds and various State and Federal grants should be identified to start the program. As part of the Private Incentive Building Program new developments should be able to contribute to the audit and retrofit fund in exchange for incentives, such as CCDC's FAR bonus and City of San Diego's DSD expedited review.

Historic Preservation Sustainability Policies

		CCG Indicator Map							
		E	W	M	EV	S	HS	UM	IQ
Preservation- CCG.1	With the participation of the City of San Diego and San Diego Gas & Electric (SDGE), develop an energy audit and retrofit program.	x	x	x			x		x
Preservation- CCG.2	Promote the adoption of green operations and maintenance practices on all existing buildings	x	x	x			x		x
Preservation- CCG.3	Develop a retrofit fund for pre-Title 24 buildings over 100,000 SF	x	x	x					x

Related Downtown Community Plan Policies

		E	W	M	EV	S	HS	UM	IQ
CP 9.2-P-4	Promote the adaptive reuse of intact buildings (designated or not) and/or significant elements, as a cultural and sustainability goal.	x		x	x	x			
CP 5.8-P-9	Promote adaptive re-use of historic resources as an effective means to reduce construction materials, energy and waste.	x		x					

11

ECONOMIC DEVELOPMENT

Downtown has been an economic center for San Diego since its early days, becoming very active in shipping and warehousing by the early 20th century. In subsequent years, however, the area met with economic decline, although its commercial office hub was the regional business center until the 1980s. In the 1970s, San Diego embarked on a mission to better its troubled, under-performing downtown, and to date, more than $4 billion of public and private money has been invested. Downtown's continued revitalization means important new opportunities for business growth and development in the seventh largest U.S. city.

An expanding and well-educated population, a positive business environment, and availability of sites for job-oriented land uses position downtown to capture significant new development with resultant economic benefits for the City and the region. Central location, transportation infrastructure, government presence, and unique urban culture reinforce downtown as the economic center for the region.

The City of San Diego General Plan Strategic Framework Element (adopted by Resolution number R-297280 chapters 7 and 8 specifically sets forth the Economic Prosperity and Equitable Development core values and policies which serve as the guiding principals for the goals and implementation actions identified in the Strategic Framework Element Action Plan. The Action Plan (adopted by Resolution number R-297251) goals 7 and 8 set the City's long-term policy for growth and development with regard to Economic Prosperity and Equitable Development.

Chapter 11: Economic Development

Summary of Sustainability Benefits

Downtown's private office market currently consists of approximately nine million square feet of space, representing the largest concentration of office space within the region. However, downtown's share of the regional overall inventory has diminished from 23 percent in 1991 to about 15 percent in 2004 and its percentage of the region's employment also has been reduced from 6.5 percent in 1995 to 5.8 percent in 2006.

Employment provides the key metric for the Economic Vitality Sustainability Indicator and drives many other Indicators, such as Energy, Urban Mobility and Healthy Spaces. Employment in a mixed use context furthers the region's smart growth policies and significantly reduces VMT by promoting alternative forms for transit resulting in less energy spent and less traffic congestion.

Additionally, promoting growth within downtown versus suburban areas means that investment in existing infrastructure within downtown is capitalized rather than having to develop new services for suburban green field development. The sustainability benefits for economic development with an emphasis on employment include:

- Supports residential and mixed-use communities by lowering vehicle miles traveled and encouraging a diverse array of services
- Supports the regional transit system and reduces traffic congestion on the highways and connector streets
- Leverages existing public investments and urban infrastructure as well as planned improvements, such as parks, open space, green streets and bicycle infrastructure
- Encourages the development of a green economy knowledge base that works to actively save energy, water and material resources and promote quality indoor environments both in the products/projects they develop and in their operations
- Engages centers of sustainability excellence (like the UCSB Sustainability Resource Center) that both model and promote state-of-the-art sustainability approaches

Key Sustainability Opportunity:

Employment and Economic Development Strategies

In the efforts to draw tenants away from established suburban markets to downtown, a coordinated economic development and employment strategy should be developed that may include the following:

1. **Regional partnerships for fostering smart growth objectives:** Many agencies and entities have a stake in downtown economic development, including SANDAG, the San Diego Regional Economic Development Corporation (EDC), the Downtown San Diego Partnership and the City's Community Planning and Community Investment Department (CPCI).

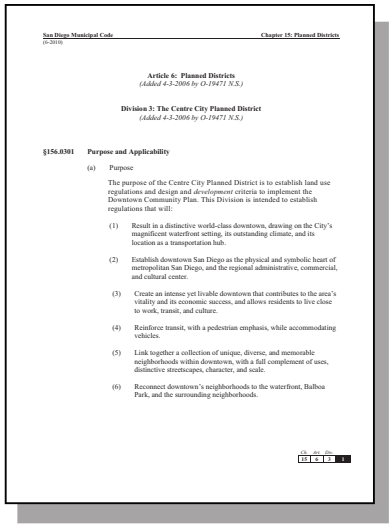
2. **Financing for public improvements**: Parks and open space, green streets, bicycle facilities and transit options provide infrastructure that suburban markets do not have. The DCP identifies a network of public open spaces that will be built over the next 30 years.

3. **Development Incentives**: Refine employment incentives for new and existing projects within downtown's redevelopment areas that help stimulate and retain businesses, promote economic growth and further redevelopment goals. Incentives could include site assembly, fee deferral to certificate of occupancy, expedited permitting, off-site improvements, commercial façade loans and rebates and parking reductions and/or deviations to code.

4. **Business Incubator:** CCDC and the City of San Diego should partner with a private, non-profit or academic entity in developing a facility to attract new start-up entities in green technology or international business.

		CCG Indicator Map							
Economic Development Sustainability Policies		E	W	M	EV	S	HS	UM	IQ
Economic Dev-CCG.1	Maintain and expand partnerships with nonprofit and community organizations like Clean Tech San Diego that work to increase green jobs in the City of San Diego				x				

		E	W	M	EV	S	HS	UM	IQ
Related Community Plan Policies									
11.3-P-1	Preserve sites in Core/Columbia for business or primarily employment orientated development to ensure that downtown's employment potential is maintained.				x	x			
11.3-P-2	Permit office and other employment-orientated development in a variety of locations across downtown, and allow mixed-use developments in all neighborhoods				x	x			
11.3-P-3	Emphasize shared parking and merchant serving parking approaches.				x				



San Diego Municipal Code
(6-2010)

Chapter 15: Planned Districts

Article 6: Planned Districts
(Added 4-3-2006 by O-19471 N.S.)

Division 3: The Centre City Planned District
(Added 4-3-2006 by O-19471 N.S.)

§156.0301 Purpose and Applicability

(a) Purpose

The purpose of the Centre City Planned District is to establish land use regulations and design and *development* criteria to implement the Downtown Community Plan. This Division is intended to establish regulations that will:

(1) Result in a distinctive world-class downtown, drawing on the City's magnificent waterfront setting, its outstanding climate, and its location as a transportation hub.

(2) Establish downtown San Diego as the physical and symbolic heart of metropolitan San Diego, and the regional administrative, commercial, and cultural center.

(3) Create an intense yet livable downtown that contributes to the area's vitality and its economic success, and allows residents to live close to work, transit, and culture.

(4) Reinforce transit, with a pedestrian emphasis, while accommodating vehicles.

(5) Link together a collection of unique, diverse, and memorable neighborhoods within downtown, with a full complement of uses, distinctive streetscapes, character, and scale.

(6) Reconnect downtown's neighborhoods to the waterfront, Balboa Park, and the surrounding neighborhoods.

Ch. Art. Div.
15 6 3 1

1.4 2006 Planned District Ordinance Analysis

The PDO provides development regulations for all new construction within the Centre City Project Area of downtown and is based on goals and policies of the DCP, emphasizing fine grain development in Neighbor Centers, Main and Commercial Streets with street level activation and quality architectural design standards. A cohesive collection of urban mixed-use neighborhoods have resulted over the last twenty years, with an urban form that promotes lower vehicle miles traveled and that has lower energy and water usage when compared to every standard and metric.

Additional sustainability requirements were reviewed as part of the development process of Centre City Green. However, the State of California enacted a new green building code, CALGreen, the first in the nation statewide green building code that incorporated many of the items that were identified by Centre City Green stakeholders for inclusion in the PDO.

The purpose of CALGreen is to improve public health, safety and general welfare by enhancing the design and construction of buildings. Building strategies that have a reduced negative impact or positive environmental impact and that encourage sustainable construction practices were organized in the following categories:

1. Planning and design
2. Energy efficiency
3. Water efficiency and conservation
4. Material conservation and resource efficiency
5. Environmental quality

CALGreen takes effect January 2011 and defines minimum requirements in energy, water and material efficiencies. CALGreen will require that every new building constructed in California reduce water consumption by 20 percent, divert 50 percent of construction waste from landfills and install low pollutant-emitting materials. It also requires separate water meters for nonresidential buildings' indoor and outdoor water use, with a requirement for moisture-sensing irrigation systems for larger landscape projects. It stipulates mandatory inspections of energy systems (e.g., heat furnace, air conditioner and mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity and according to their design efficiencies. The CARB estimates that the mandatory provisions will reduce greenhouse gas emissions (CO_2 equivalent) by three million metric tons equivalent in 2020. Low-flow water fixtures, automatic light shut-off sensors, use of low VOC adhesives, sealants and primers will all be regulated as part of CALGreen. Each of these items was initially considered as "market standard" by Centre City Green stakeholders, which was the criterion for identifying additional PDO requirements.

As CALGreen will be updated every five years and will become part of the DSD review process, the PDO does not need to consider additional requirements beyond CALGreen. Instead, the PDO should promote an incentive based program coordinated with the City that prioritizes CALGreen voluntary tiers, LEED certification and green building measures accumulative equivalents.

Centre City Green focuses on "market opportunities" such as mid- to high- rise building efficiencies that are not specified in the Code. It does so by incentivizing selected "green" design features and measures based on SANDAG's Climate Action Strategy and AB 32 Scoping Plan, addressing peak energy loads and water conservation.

To implement Centre City Green, the PDO will be required to:

1. Expand the existing incentive programs, such as the eco-roof and public open space into the Centre City Green Incentive Program. For more information see the **Private Development Incentive Program** section of this report

2. Install the Centre City Green Incentive Program as a function of the regulatory processes of the PDO.

The Centre City Green Incentive Program will be required to be reviewed and updated every five years based on CALGreen's review and update by the California Building Standards Commission.

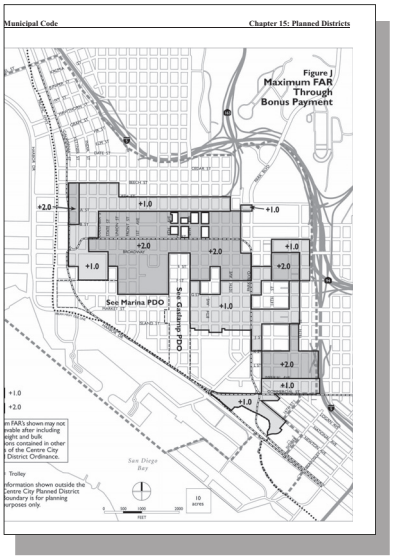
1.5 Revised 2006 Sustainability Incentive Programs

FAR Payment Bonus Incentive Program

In 2009, nearly half of all projects that were entitled by Centre City elected to purchase additional FAR at the current cost of $15/SF. While this cost may be considered low by current and former market analysis, the program encourages owners to develop more floor area downtown than is possible in other areas of the City. Nearly all of the Sustainability Indicators improve with density as constructed in compliance with the Community Plan (Energy, Water, Streetscapes, and Economic Vitality). CCDC should conduct a sensitivity analysis to evaluate the appropriate balance of costs and benefits for the FAR incentive program.

Urban Open Space Incentive Program

In 2009, less than 10 percent of projects elected to attempt the Urban Open Space FAR bonus. In reviewing the requirements for this program, there are several restrictions that both make the program unattractive and limit achievement of the 2030 Streetscape Indicator Goals.



It is suggested that the following restrictions are removed to increase adoption of the bonus incentive:

- Change the required open hours to dawn - dusk rather than 6am to 10 p.m.
- Reduce the minimum size required to 500 square feet
- Allow north-facing open space to qualify for bonus with enhanced public amenities provided

Eco-Roof Incentive Program

In 2009, nearly half of all projects elected to attempt the Eco-Roof bonus program. Eco-Roofs are well aligned with the Healthy Spaces Sustainability Indicator as they can provide outdoor green environments for occupants. However, the current requirements for Eco-Roofs do not clearly indicate that they should be accessible for occupants. Additionally, the Eco-Roof program is a small measure that achieves a large incentive.

As part of Centre City Green, a new sustainability incentive program is being considered that includes several green building measures that have similar performance as eco-roofs. As described in section **Private Development Incentive Program,** the program offers another avenue to incentivize eco-roofs.

It is suggested that the following adjustments to the Eco-Roof program is made:

- FAR bonuses for Eco-Roofs be reduced to bring alignment with current market rates and prevent double credit for attempting it as part of Centre City Green incentives
- All Eco-Roofs shall be designed to be accessible to building occupants as outdoor space
- Eco-Roof should be incorporated into Centre City Green's Private Development Incentive Program

1.6 Revised 2006 Transportation Demand Management Plan

Overview

In order to reduce single occupant vehicle trips, the PDO currently requires that all commercial and hotel projects containing more than 50,000 SF must achieve a minimum of 25 points by selecting a number of Transportation Demand Management options. Adopted in May of 2006, the list of options relates directly to the Urban Mobility Sustainability Indicator and is a critical component

in reaching 2030 goals. However, the chart is outdated and does not feature alignment with other green building rating systems, such as LEED. By increasing the number of options and modifying the points given to any one measure, the TDM program can drive greater performance against the Urban Mobility Indicator. The following chart captures suggested changes:

Transportation Demand Management Revisions

Minimum points for entitlement = 25

Points	Measure
20	5-year, 50% subsidy for transit passes for employee occupants
15	Public accessible shuttle to all downtown and airport locations
15	Vehicle parking to meet, but not exceed, minimum PDO requirements
15	"Shared use vehicles" by property tenants - minimum 1 vehicle per 33 occupants - vehicles provided have CARB classification of ULEV, SULEV, PZEV, or ZEV - preferential parking
15	Electric, natural gas, fuel cells, fueling stations - minimum office (1 per 30,000 s.f.), hotel (1 per 100 rooms) - minimum 50% of stations are electric vehicle charging stations
10	* On-site daycare
5	Bicycle storage - minimum 1 space per 20 occupants
5	* Upgraded transit stop adjacent to new development, including shelter, seating, lighting and ongoing maintenance
5	Preferential parking for vehicles with CARB classifications ULEV, SULEV, PZEV, and ZEV - minimum 5% of permitted parking
5	Preferential carpool and/or vanpool parking - minimum 5% of permitted parking
5	On-site shower facilities available to all tenants/employees of a building - minimum office (1 per 100,000 s.f.), hotel (1 per 100 rooms)
5	Participation by building management and tenants in carpool coordination, ridesharing and car-sharing programs
5	Discounted parking rates for vehicles with CARB classifications ULEV, SULEV, PZEV, and ZEV - minimum 20% discount
5	Discounted parking rates for carpools containing 3 or more adults - minimum 20% discount
5	Preferential parking for car-sharing vehicles (at least one space)
5	* On-site transit pass sale, maps and information
1	* Proximity to public transit stop/station (1,320 feet or fewer)

* = No change from existing TDM

Exhibit 1.13: Revised TDM Programl

SAN DIEGO DOWNTOWN SUSTAINABILITY PLAN

2. Green Streets Pilot Project and Program

2

2.1 Overview

The Downtown Community Plan (DCP) emphasizes "public realm" enhancement that includes designated Green Streets envisioned as an essential element and integral to the open space system – as connectors to the waterfront, Balboa Park, downtown activity centers proposed parks and plazas, and as continuous recreational bicycle paths. Green Street designs will employ sustainable landscape elements, energy efficient street lights, storm water management, multi-modal transportation choices, and widened sidewalks bordering tree-lined open spaces. (See Exhibit 2-4 for locations of designated DCP green streets)

In concert with the region, Green Streets advance downtown efforts to reduce greenhouse gas emissions by implementing streetscapes that conserve energy by connecting public amenities with pedestrian friendly routes. These Green Streets also have energy efficient streetlights and are constructed with locally sourced materials that employ low volatile organic compounds (VOC). If planned in conjunction with private development, Green Streets can be translated into plans that act as a catalyst for redevelopment.

Green Streets incorporate features that concurrently enhance pedestrian comfort and safety, encourage pedestrian activity, and provide environmental benefits. Key attributes of Green Streets include:

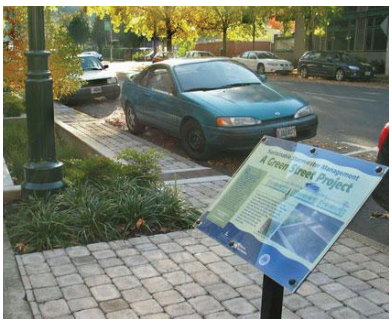
- Sidewalk and street design to prioritize and enhance the experience of pedestrians and bicyclists
- Abundant vegetation to provide shade, clean stormwater runoff, and improve air quality
- Facilities and furnishings to foster use of the sidewalk as a community space and a marketplace
- Enhanced localized transit facilities, such as downtown circulator shuttle stations
- Material and fixture selection with preference to items with reduced environmental impacts, increased efficiency or local sources

Bicycle parking

Centre City Green defines a framework for the implementation of designated Green Streets, starting with a basic configuration or “base plan” and possible overlays of various green street elements to enhance the streetscape experience. Pilot project concepts are established to seek improvement within multiple Sustainability Indicators, such as water, energy and materials, with the intent of testing new approaches and methodologies that could lead to the upgrade of current standards and practices within the public realm. A menu of implementation options are defined for developments located along designated green streets that will eventually become part of the Streetscape Manual.

Bicycle lanes

Areas for sitting and relaxing



Stormwater management

Exhibit 2-1 Elements of a Green Street:

Exhibit 2-2 Green Streets connect to proposed parks. See Map - Illustrative of the proposed East Village Green (A)

Exhibit 2-3 Green Streets connect to Neighborhood Centers

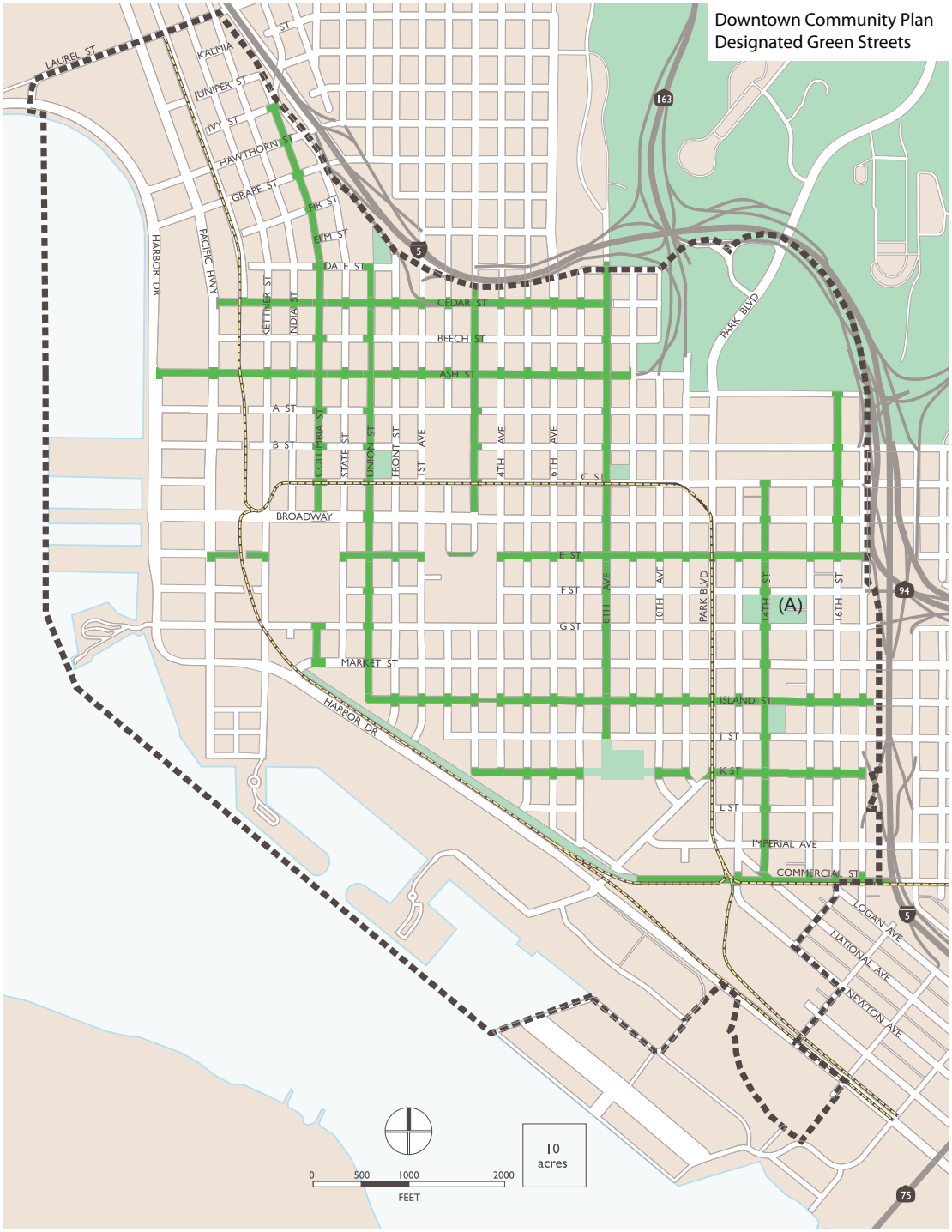


Exhibit 2-4 Designated Green Streets per the Downtown Community Plan

Exhibit 2-5 Base Plan Elements of a Green Street:

Reduced auto lanes with expanded sidewalk widths

Sidewalk builb-outs at intersections

Bulb-outs with planting

Bicycle parking

2.2 The Green Street "Base Plan"

Centre City Green defines a Green Streets "Base Plan" for all designated Green Streets in the DCP and a framework for future CCDC capital improvements. The Base Plan Elements include a reconfiguration of the typical 80 foot right-of-way that involves the reduction of one lane of vehicular traffic (from three to two lanes) of a typical street right-of-way.

2.3 Design Elements of Green Streets

A comprehensive Green Street design addresses buildings' street interfaces as well as infrastructure, landscaping, and sidewalk furnishings. The following images provide a visual guide to the types of features that can be implemented as parts and pieces of a Green Street. Viewed individually, the relative impact of each measure is limited; in fact many of the features are already present on some streets in downtown. However, a Green Street represents an integrated design strategy that links each of the individual features to create a unique urban environment that currently does not exist in downtown San Diego.

Building Features

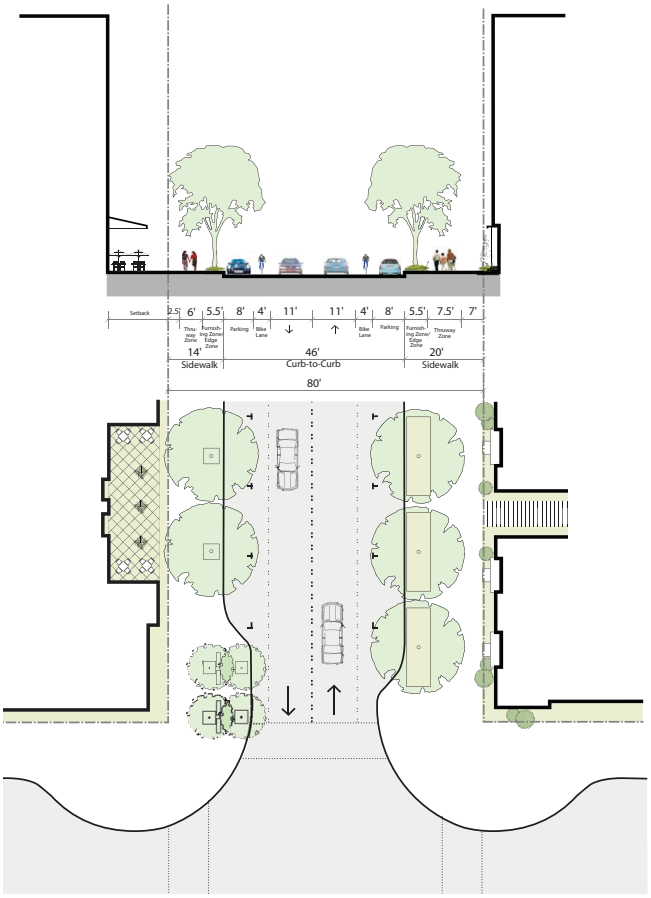
The juncture between buildings and the street edge can promote a walkable and inviting urban environment. When properly designed, overhangs can be used to provide shade for sidewalk enterprises and open space can create time-unique gathering spaces for lunchtime, outdoor meetings or impromptu encounters.

Landscape Features

Landscape provides a softening of the streetscape that can enhance the pedestrian environment by providing shade and habitat for song birds. Native landscaping also does not require a large irrigation demand. Non-native accent plantings can be watered with graywater generated by neighboring buildings.

Infrastructure Features

Often overlooked, infrastructural elements that are required in any urban environment can play a vital role in a Green Street program. Utility vaults, building indentions for fire access, and bike parking should be located out of the pedestrian way but maintain access for servicing. Exterior lighting should be energy efficient and hardscape materials should be locally sourced to represent the San Diego region while providing easy removal for access to underground utility lines.



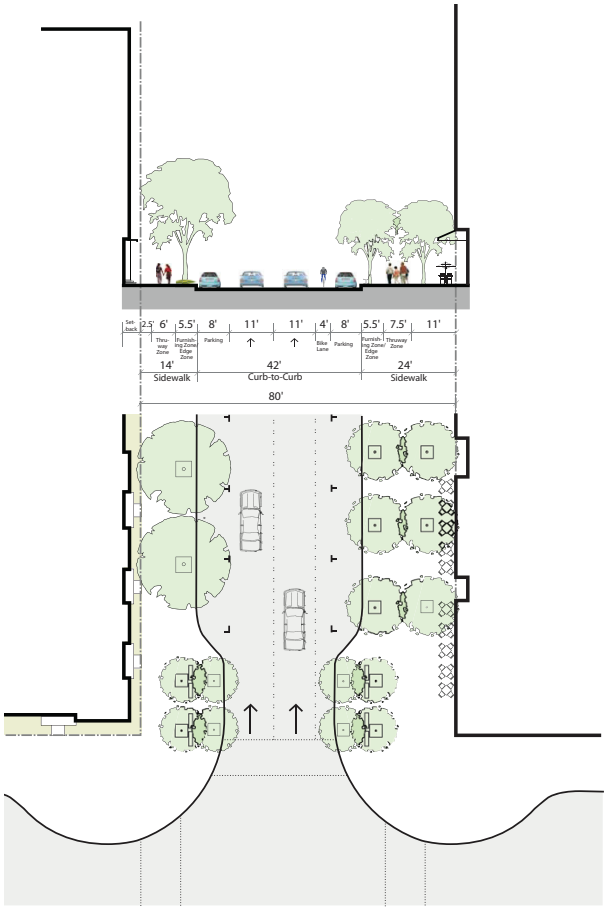


Exhibit 2-6 Base Plan

Green Streets – ROW Option 1

This option removes one outside lane of traffic in favor of additional sidewalk, thereby creating an asymmetrical street section:

- Two-way, two-lane street
- Replaces one of the existing curbs to accommodate the reduction of three to two lanes of traffic
- Parallel parking on both sides
- Striped bicycle lanes on both sides of the street
- Existing sidewalk improved to add long bulb-outs at intersections and introduce second row of trees

Green Street – ROW Option 2

This option also removes one bicycle lane, further accentuating the asymetrical street:

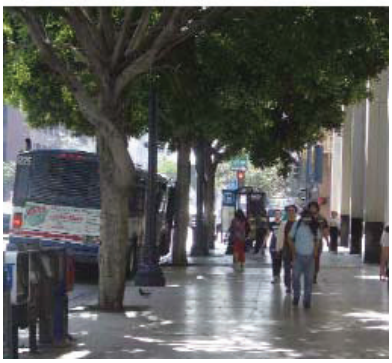
- One-way, two-lane street
- Replaces one of the exisitng curbs
- Parallel parking on both sides
- Replaced sidewalk to accomodate double row of trees on either side of clear pedestrian zone for a promenade-like pedestrian experience
- Existing sidewalk improved to add long bulb-outs at intersections and introduce second row of trees

1. Building overhangs or awnings to shade the adjacent sidewalk

Sidewalk Features

Sidewalks are perhaps the greatest asset to an urban environment. When designed properly, they provide economic opportunities, encourage walking over single occupant vehicles, and generate activity to ward off vagrancy. Green Streets should have sidewalks that are shaded and that connect major amenities and destinations within downtown. Cross walks should be wide and pronounce to motorists that they need to slow down and pay attention. Sidewalk improvements can significantly increase the development pressures resulting in greater density and increased activity at local businesses.

2. Plazas or other pockets of public open space to encourage street-side activity



3. Transit access and street trees to shade the adjacent sidewalk

4. Native plantings adjacent to buildings can create habitat for song birds

5. Curbside infiltration areas to divert stormwater runoff from sewers

Exhibit 2-7 Elements of Green Streets

2.4 Pilot Project Concepts

Centre City Green defines concepts for Green Street Pilot Projects ("Pilots") as enhancement overlays to the green street "Base Plan" that can be used to evaluate methods of sustainability in the areas of energy, water and materials. As new materials, finishes and technologies used in the Pilots demonstrate more efficient standards and practices, they can be incorporated into the City's current streetscape design manuals and/or practices. The priority of such Pilots is on the embodied impacts of construction and materials, with a focus on lowering the operational footprint of infrastructure projects, including an emphasis on lowering the embodied footprint of its construction. This can include reducing the total amount of material, using more recycled material, making use of existing slavaged material as part of new construction (such as with demolition debris, or full-depth reclamation), using materials with lower footprint (water or CO2 for instance) regardless of source, and using materials with less transport distance.

6. Porous Pavement

The Pilots will focus on what drives the reduction of environmental footprint and are intended as a multi-faceted approach that addresses multiple Sustainability Indicators, such as energy, water, and regional materials, leveraging multiple funding sources and are aniticipated to generate partnerships among public and private entities. Some of the areas of development may include:

> Stormwater Management System: reduces runoff to storm sewers by nearly 20 percent as a result of the increase in infiltration area. In addition, the combination of increased landscaping and shaded paving would reduce peak outdoor temperatures by up to 3°C, leading to an estimated twenty percent reduction in air conditioning energy use and a 5 - 10 percent decrease in peak electricity load.

Exhibit 2-8 Green Street Section

7. Sidewalk enterprise to promote economic activity at street-level

8. Sidewalk seating

9. On-street bicycle corrals to support local businesses with bicycle patrons

10. Street-side recycling bins to reduce waste sent to landfills

Bicycle Enhancements: promotes public health and offers transit alternatives to the single occupant vehicle, therefore reducing carbon emissions.

Energy Efficient Street Lights: results in about 50 – 70 percent energy savings with light emitting diode (LED) technologies that have a life span three to five times longer than conventional high pressure sodium lamps. These savings result in the reduction of carbon dioxide emissions from 450 million kg to 300 million kg per 100,000 hours. In addition, new light poles and covers can minimize light pollution by prioritizing light to areas where it is needed.

Sidewalk Finishes: alternatives to energy intensive Portland cement should be evaluated, especially materials that have a high recycled content, low VOC and are locally sourced. The sidewalk area will also be expanded to allow for wider pedestrian areas with more park-like elements and landscaped areas, employing drought resistant landscaping where possible.

Roadway Improvements: In conjunction with the City of San Diego material alternatives to asphalt with lower carbon content and heat island effect should be investigated. Material could include rubberized asphalt, recycled asphalt pavement, full-depth reclamation, cold-in-place recycling, warm mix asphalt, recycled concrete aggregate, pervious concrete, and porous asphalt.

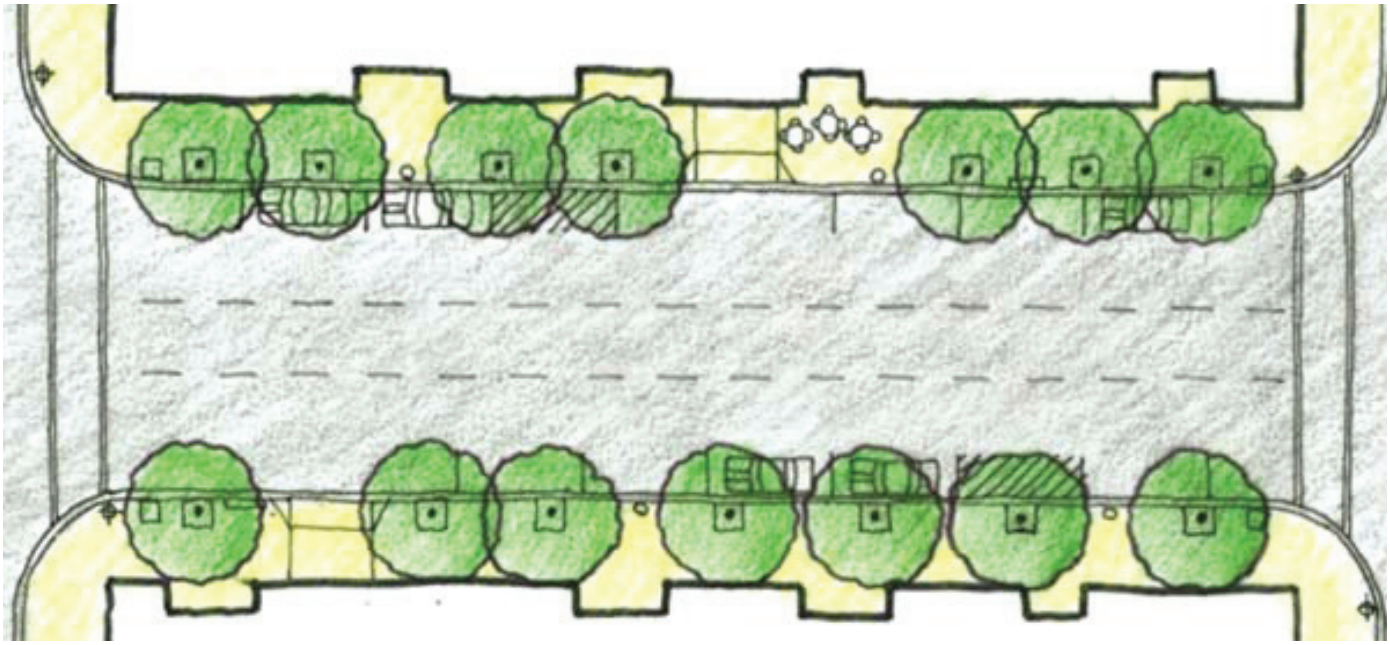


Exhibit 2-9 Typical Street Block

2.5 Existing Downtown Streetscape

The majority of downtown streetscapes are designed to facilitate traffic flow – vehicle traffic on the street and pedestrian traffic on the sidewalk. As a result, much of downtown's outdoor space has the character of a corridor - a place to pass through - rather than that of a destination or a place to linger. While transportation is an essential function, the typical utilitarian streetscape prioritizes traffic to the exclusion of other potential uses and functions of this public sphere. Additionally, many existing downtown sidewalks lack provisions for pedestrian comfort, such as shading, and offer no accommodations for persons using alternate forms of transportation, such as bicyclists. Common features of existing streetscapes are listed in the inset.

Typical Features of Existing Streetscapes

- Three drving lanes, one-way
- Wide intersections at crosswalks
- Parallel parking
- Sidewalk utility boxes
- Low-density street trees
- Little to no landscaping
- Little to no open space
- No bike lanes and limited bike parking
- Inefficient high pressure sodium lighting

Centre City Green's Green Street features are intended to reshape the conventional streetscape into a vibrant and sustainable community space. However, the approach is flexible; the green features can be layered and combined in a variety of ways to achieve this transformation. On the following pages, two distinct Green Street configurations are presented. Both options incorporate features of conventional streetscapes, improve upon other typical attributes, and add entirely new green elements to produce dissimilar environments with similar benefits and similar Sustainability Indicator impacts.

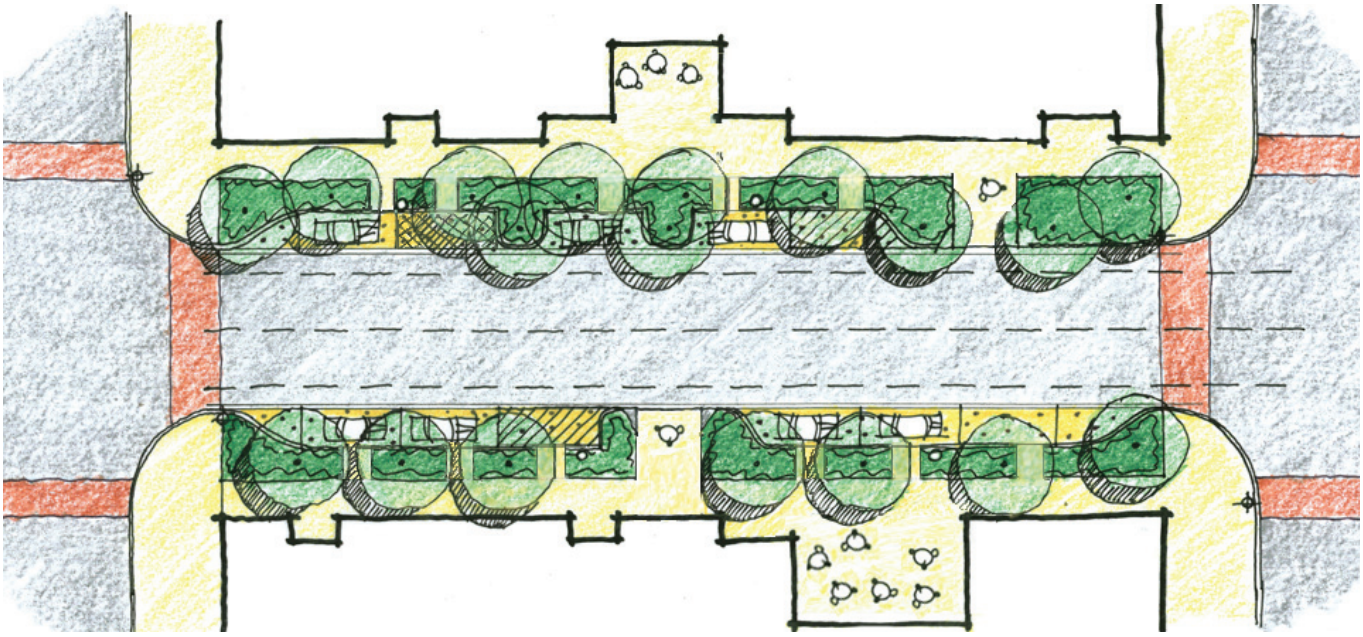


Exhibit 2-10 Pilot Project 'A'

Plan A Green Features

- Narrower intersections / crosswalks
- Increased density of street trees
- Increased shading of sidewalk
- LED or induction lighting
- Bicycle parking
- Dedicated bicycle lanes
- Underground utilities with Porous paving
- Many small curbside landscaped areas with native vegetation
- Green patios with public art

2.6 Pilot Project: Plan A

Green Street Example Plan A includes parallel parking and small, distributed centers of sidewalk activity as is common to typical streetscape design. However, Plan A is distinguished by dedicated bicycle lanes, dense street trees and many small pockets of landscaping. Plan A also incorporates narrowed streets and crosswalks, underground utilities, porous paving, and a variety of other features listed in the inset (right).

Compared to the typical streetscape design, the Plan A Green Street design demonstrates significant gains across a variety of CCDC Sustainability Indicators. Plan A offers the following benefits:

SUSTAINABILITY INDICATOR IMPACTS

Energy/Emissions	43% street light energy savings 40% increase in surface area of materials that mitigate urban heat island impact 30% increase in carbon capture by street trees
Water	14% reduction in stormwater runoff
Materials	100% of materials include recycled content or locally manufactured
Economic Vitality	Two-fold increase in sidewalk café/activity area
Streetscape Vitality	900 sq ft public open space Ten-fold increase in landscaped area
Healthy Spaces	33% reduction in crosswalk distance
Urban Mobility	16% increase in sidewalk area

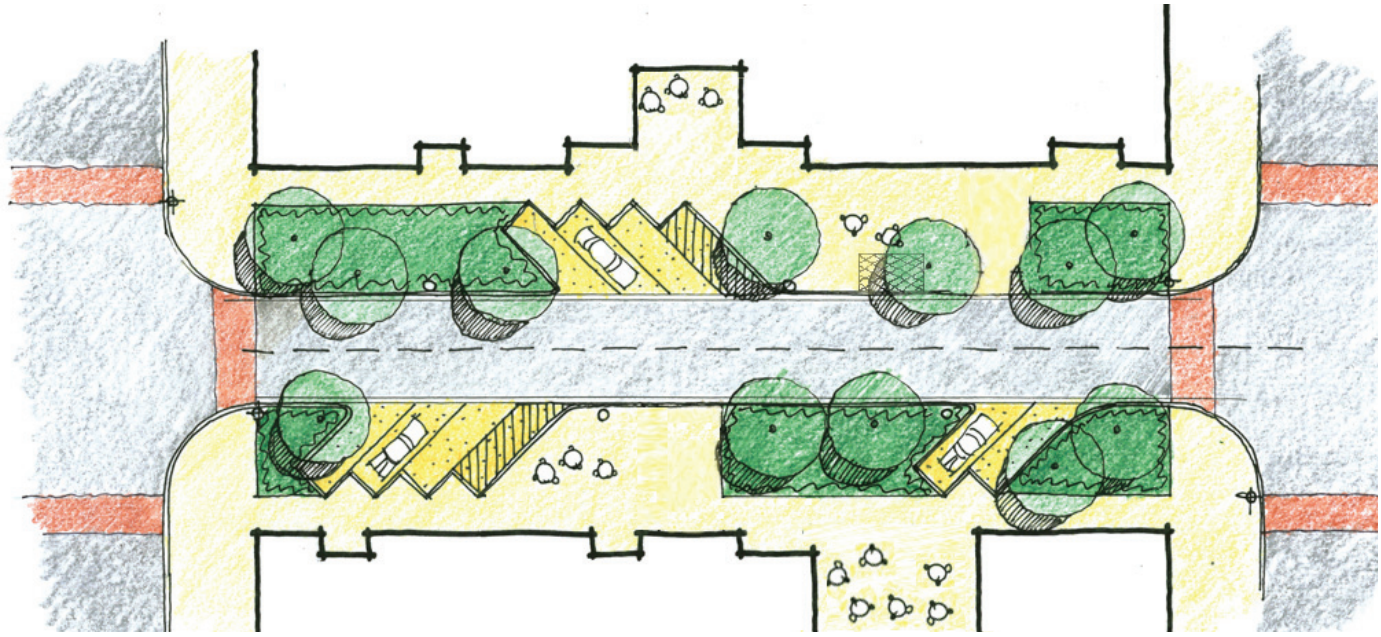


Exhibit 2-11 Pilot Project 'B'

2.6 Pilot Project: Plan B

Like conventional downtown streetscapes, Green Street Example Plan B incorporates low-density street trees and provides minimal sidewalk shade. The defining characteristics of this plan include angled parking, large, concentrated activity areas and a few large pockets of landscaping. Plan B is substantially different from Plan A in these aspects, as well as in how bicycle traffic is accommodated – in sharrows, rather than dedicated, lanes.

Despite the differences from Plan A, the Sustainability Indicator impacts of Plan B are quite similar. Plan B offers the following benefits:

Plan B Green Features

- Angled back-in parking
- Narrower intersections / crosswalks
- Underground utilities
- LED or induction lighting
- A few large sidewalk activity areas
- Bicycle parking
- Bicycle sharrow lanes
- A few large curbside landscaped areas
- Porous paving
- Inner-City Transit Enhanced Stop
- Green patios with public art

SUSTAINABILITY INDICATOR IMPACTS

Energy/Emissions	43% street light energy savings 75% increase in surface area of materials that mitigate urban heat island impact
Water	16% reduction in stormwater runoff
Materials	100% of materials include recycled content or locally manufactured
Economic Vitality	Threefold increase in sidewalk café/activity area
Streetscape Vitality	900 sq ft public open space Twelve-fold increase in landscaped area
Healthy Spaces	47% reduction in crosswalk distance Increased cyclist visibility and safer vehicle loading/unloading due to back-in parking
Urban Mobility	47% increase in sidewalk area. Enhanced Transit Access

"San Diego Today and Tomorrow"
Artwork provided by Monarch School, San Diego

2.7 Streetscape Manual Update

The Centre City Streetscape Manual provides designers with development guidelines to make the streets consistent from one project to the next. As part of the entitlement process, new developments are reviewed to make sure that they comply with the intent of the guidelines. Currently, the streetscape manual does not include any additional requirements for properties that are located on a Green Street as identified in the DCP.

To improve the effectiveness of the Streetscape manual and to align it with the Centre City Green Sustainability Indicators, it is proposed that projects located on a Green Street identified in the DCP would be required to implement green elements. Based on the TDM requirements found in the PDO, a system of options and points for various green measures are provided in the chart below. To meet the requirements of the program, owners would be given the option to select any measures that achieve a minimum of 20 points. Additional incentives may be offered for projects that elect to increase points well above 20, thereby adding significant value to Sustainability Indicators and the urban experience.

Exhibit 2-12 Streetscape Manual Update - Green Street Elements

Green Street Elements

Minimum points for entitlement benefit = 20
At designated Green Streets only

	Measure	Points	Energy	Water	Materials	Streetscape	Economic	Healthy Space	Mobility	Green IQ
Building	Open space greater than 250 SF or 5% of lot, whichever is larger	15				x				
	Incorporate transit shelters into development	20				x			x	
Infra-structure	An additional 10 feet of sidewalk area provided on private property	20				x				
	Efficient Exterior Lighting (LED or Induction)	10	x							
	100% of materials locally manufactured or include at least 10% recycled content	5			x					
Landscaping	Street trees that will shade 50% of sidewalk area within 5 years	15				x				
	Landscaped stormwater management systems at the curb edge containing local plantings	15		x	x	x				
	Native landscaping at additional ROW landscaped area	5		x				x		
Furnishings	Sidewalk enterprises, such as exterior sales kiosks, cafes, and retail sales	10				x	x			
	Benches and or movable seating maintained by the building owner	10				x	x			
	Street recycling that will be managed by the building owner	5			x					
	On-street bicycle corrals	10							x	
	Public art that is located at the focal point of the development	5			x			x		
	Sustainability educational display that is accessible to the public	1								x

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Centre City
Development
Corporation

Paladino

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GREEN BUILDING INCENTIVE PROGRAM

SUBMITTAL MANUAL

Centre City green

Centre City Development Corporation

ADOPTED JULY 2011

ATTACHMENT B

GREEN BUILDING INCENTIVE PROGRAM

Submittal Manual
Adopted July 2011

Table of Contents

0.0 Green Building Incentive Program

pg

0.0 Overview 0-1

0.1 The Performance Path 0-2

0.2 The Prescriptive Path 0-3

0.3 How to Use The Centre City Green Checklist 0-8

0.4 How to Provide Documentation During Design Review 0-10

0.5 Plan Intake Phase 0-12

0.6 Submission Guidelines 0-13

SUBMITTAL MANUAL

Program Overview
Adopted July 2011

A

0.0 Overview

Centre City Green ("CCG") allows building owners to earn development incentives by designing and operating buildings in ways that exceed the new CALGreen code. Two paths are available to demonstrate performance:

- **Performance Path** allows owners to demonstrate a high level of whole-building sustainability by achieving a targeted level of performance in an existing voluntary green building rating system (LEED or CALGreen Tiers 1 & 2). These systems offer flexibility to implement sustainability strategies to meet specified performance thresholds, which benefit a wide range of Centre City Green Sustainability Indicators.

- **Prescriptive Path** allows owners to select from a menu of options that improve performance in one or more Centre City Green Sustainability Indicators(s). Each prescriptive measure is assigned a point value that represents the Indicator impact for a particular building type. The Centre City Green incentives earned depend upon the combined point total of the measures selected.

To quality for incentives, applicants need to select one of the paths above (paths cannot be combined) and follow its requirements to accrue points. Point totals have been determined to create three levels of performance with resulting development incentives as indicated by Exhibit A-1.

Centre City Green Performance Levels

Level	Points Required
1. Green	25-44
2. High Performance Green	45-59
3. Signature Green	60+

Exhibit A-1: Performance Levels Points

0.1 Performance Path

There are two performance options, Leadership in Energy and Environmental Design (LEED) and CALGreen Tiers 1 and 2, that serve as comprehensive approaches to meeting the sustainability goals for downtown. Both systems are performance based and address all building types and ownership models.

CALGreen, the California Green Building Code, includes two additional Tiers (1 & 2) of performance that are optional. The Centre City Green Incentive program allows owners that achieve either Tier 1 or Tier 2 status to also earn incentives from both CCDC and the City of San Diego's Department of Development Services.

The US Green Building Council's green building rating system can also be used to achieve incentives under the performance path. In lieu of using CALGreen, an owner can submit for LEED certification and achieve the same and higher incentives than offered through the CALGreen option.

To establish equivalency between CALGreen and LEED v2009, a comparison of the requirements of the systems was conducted and aligned. A LEED Silver Certification aligned with CALGreen Tier 2. However, both LEED Gold and Platinum certifications had substantially higher performance than CALGreen Tier 2, thus they represent the highest level of the performance path.

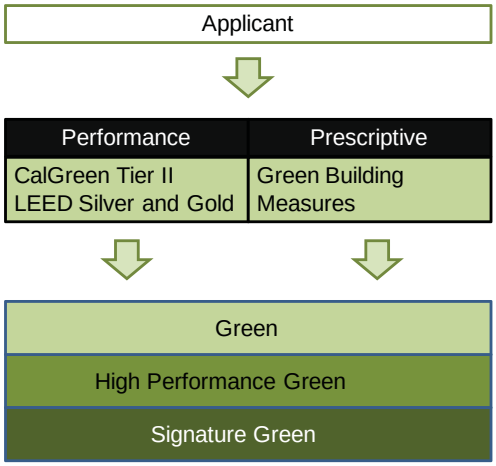


Exhibit A-2: Performance or Prescriptive Path Diagram

0.2 The Prescriptive Path

The Prescriptive Path are measures that align to the Centre City Green Sustainability Indicators and are specific to key elements of mid and high-rise buildings. By implementing any number of measures, owners create energy and water performance improvements that are on par with the Performance Path options and can achieve the same incentive levels.

Prescriptive measures were developed through a process that considered benchmark building performance data, existing conditions downtown, current energy code requirements and downtown stakeholder preferences.

Energy end-use profiles from the California Energy Commission and other benchmark performance data were analyzed to identify target opportunities for improvement, such as major energy loads and water uses, for each of the four building types. To understand what specific measures would be most successful in downtown buildings, target loads and end-uses were reviewed against stakeholder priorities and preferred green strategies identified though focus group meetings. Title 24, the California Green Building Code and related incentive programs were also evaluated to determine how the target loads and

Level	Option	Description
1 Green	**CalGreen Tier 1**	CalGreen Tier 1 requires 15% energy savings and 30% water savings in addition to site, materials, and IAQ improvements.
2 High Performance Green	**CalGreen Tier 2 / LEED Silver**	CalGreen Tier II requires 30% energy savings and 40% water savings in addition to site, materials, and IAQ improvements.*
3 Signature Green	**LEED Gold+**	High LEED ratings go above and beyond the CalGreen Tier I and Tier II codes and promote a comprehensive approach to green building.

Exhibit A-3: The Performance Path Description

end uses are currently addressed.

See Exhibit A-5 that lists the green measures options that were adopted by the Centre City Development Corporation Board in September 2010. It is expected at these measures will be evaluated after an initial period.

Centre City Green establishes points for each prescriptive green measure that a project may incorporate. The points vary according to the type of building that they are applied to. As Centre City has three main project types (Office, Mixed Use and Hotel), points were assigned to each according to how the implemented measures improve performance. As the building use has a significant impact on energy and water use, points are weighted to create a balanced program that aligns incentives with predicted performance.

For instance, measures that reduce water demand are weighted more heavily for Residential/Mixed Use & Hotel projects than for Office projects as they use substantially more water per SF/Year than do Office buildings. However, each building type has the same number of available points to meet various incentive levels.

As the performance path sets targets for energy and water, the points are the same for all three building types. The prescriptive path has varying points per building type in order to align indicator performance of the two paths. The tentative point structure for both the performance and prescriptive paths are shown in Exhibit A-4.

Centre City Green Incentives

Performance Level	Prescriptive Requirements	Performance Requirements	New Construction Incentives*
Entry	None	All Projects Must Meet CalGreen Mandatory	None
1 Green	25-44 CCG Points	CalGreen Tier 1	Public Recognition from CCDC*
2 High Performance Green	45-59 CCG Points	CalGreen Tier 2 or LEED Silver	1.0 FAR Bonus*
3 Signature Green	60+ CCG Points	LEED Gold or higher	2.0 FAR Bonus*

* Additional City of San Diego DSD Incentives may apply.

Exhibit A-4: Incentive Levels

Centre City Green Measures Adopted Sept. 2010

	Indicators Addressed							
Performance Path	Energy	Water	Materials	Streetscape	Economic	Healthy Space	Mobility	Green IQ
1. CalGreen Tier 1	X	X	X			X	X	
2. LEED Silver/Gold/Platinum Rating	X	X	X			X	X	
Prescriptive Path								
3. Natural ventilation	X					X		
4. On-Site Photovoltaic Power	X							
5. Cogeneration	X							
6. Exterior Shading	X					X		
7. Energy Star Equipment	X							
8. High Efficiency Plumbing		X						
9. Cooling Tower Potable Water Use Optimization		X						
10. Daylighting with Controls	X					X		
11. High Efficiency Condensing Boiler	X							
12. Eco-Roof		X				X		
13. Modular Interior Construction			X			X		
14. Enhanced Transportation Measures							X	
15. Enhanced Green Streets	X	X	X	X	X	X	X	X
16. Energy Efficient Exterior Architectural Lighting	X			X				
17. Savings By Design	X							X
18. Innovation	X	X	X	X	X	X	X	X

Exhibit A-5: Centre City Green Incentive Options

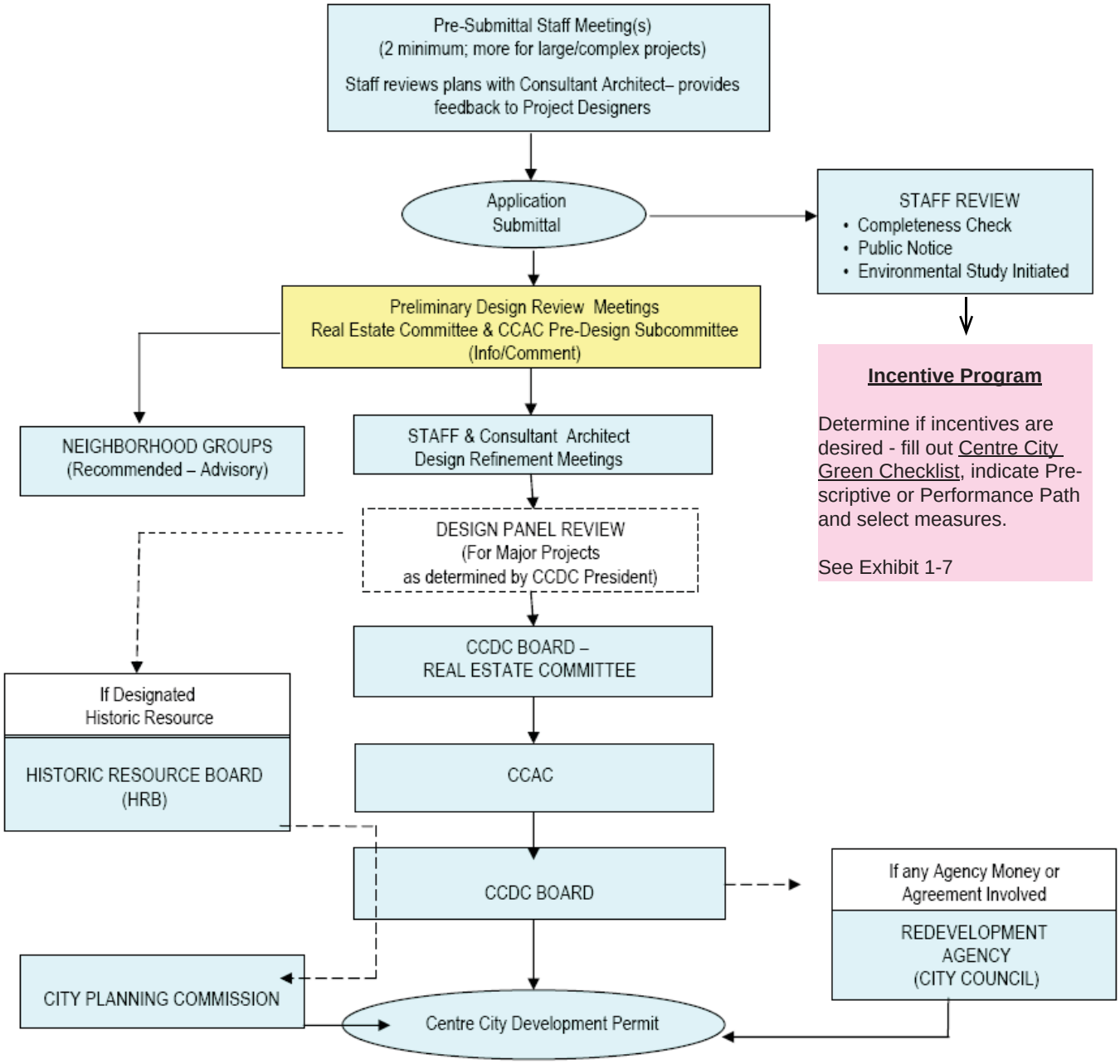


Exhibit A-6: CCDC Design Review Process

Total Points and Tier Ranking

Predicted Savings

Project Background

Incentive Approach

Performance Approach

Prescriptive Measures

CENTRE CITY GREEN SUSTAINABILITY INCENTIVE CHECKLIST

Project Name/Address	420 C Street	Sustainability Points =	25
Select Project type	Office	Tier Ranking =	Green
SF of Building	325,000	Green = 25+ High Performance Green = 45+ Signature Green = 60+	
Number of Residential Units	50	Total Points Possible = #N/A	
Number of Hotel Rooms	80		
# of Building Occupants	450	Annual kWh Saved =	4,389,692
Select Path	Prescriptive	Annual Carbon Saved =	TBD
Select Application Stage	Entitlement	Annual gallons H2O Saved =	1,411,898

A B C D E F G H

Indicator Impact: Energy	Water	Materials	Streetscape	Economic	Healthy Space	Mobility	Green IQ	Path	Green Measure	Points Possible	Attempted	Instructions	Points Attempted
								Performance	CalGreen Tier 1	25	☐		-
									CalGreen Tier 2	45	☐		-
									LEED Silver	45	☐		-
									LEED Gold+	60	☐		-
								Prescriptive	Natural ventilation	15	☐		-
									On-site PV: 30 kW	10	☑	Complete preliminary commitment on Photovoltaic Tab	10
									Cogeneration: 30 kW	20	☐		-
									Exterior shading	5	☑	Complete preliminary commitment on Shading Tab	5
									70% Energy Star equipment / appliances	15	☐		-
									High efficiency plumbing fixtures	10	☑	Complete preliminary commitment on Plumbing Fixture Tab	10
									Recycled Water	#N/A	☐		-
									Chemical-free cooling tower	5	☐		-
									Daylighting with controls	15	☐		-
									High efficiency water heating	5	☐		-
									Demountable Partitions	5	☐		
									Enhanced Mobility	5			-
									Green Street	5	☐		-
									Eco-Roof	5	☐		-
									Audit & Retrofit Fund	5	☐		-
									Savings By Design	TBD	☐		
									Innovation	5			-

Selected Measures and Instructions

"Innovation" - for measures not included on the Prescriptive Measures List. Would need to be approved by the CCDC Board

Exhibit A-7: Centre City Sustainbility Incentive Checklist

0.3 How to Use the Centre City Green Checklist

To facilitate the coordination between the applicant, CCDC, and the City, a Centre City Green Checklist ("Checklist") based in Excel, has been developed to serve as both a documentation process and as a means to verify performance of the project. See Exhibit A-7 for reference.

The Checklist is to be submitted with both CCDC Development Application during the design approval phase and the preliminary review with the City. The Checklist documents which option the applicant is pursuing and identifies what accompanying documentation needs to be submitted. The Checklist then identifies what information needs to be supplied at two stages of review by both CCDC and the City of San Diego. Phase I approval occurs at the entitlement phase using a simple calculation that identifies how the requirements of the measure apply to the particulars of the project. Getting agreement at the entitlement review phase allows the applicant the ability to design using additional FAR or other incentives that can be awarded through CCG. See Exhibit A-8 for reference.

<u>Design Review and Development Entitlement Phase</u>

1. Use the Checklist to establish your project's sustainability goal and select a combination of measures that achieves the point threshold for your project's desired Performance and Incentive Level. For reference, CCG's Sustainbility Indicators impacted by each of the measures are noted by the colored squares to the left of the measure name to complement the project's overall goals.

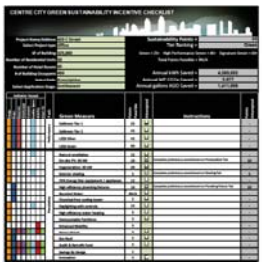
2. To complete the Checklist, fill in the top green-shaded cells (A) with your project's background information. Then select from a drop down menu either the performance path or prescriptive path (B) and indicate the phase you are in (Entitlement or Plan Intake). This action will activate the tool for either the performance measures (D) or the prescriptive measures (E) that the project may attempt. The total points for selected measures are automatically calculated and displayed along with the Performance Level achieved in the upper right corner of the Checklist (F) in the gray box.

3. Once measures are selected (G), the tool indicates which tabs in the Excel file need to be completed. These tabs each contain additional Blocks that will need to be inserted into your drawings as described in the process below. Please note that the tool also predicts carbon, water and energy savings in the gray box (H) based on inputs from the tabs of the selected measures.

The Checklist and the Measure Blocks shall be incorporated into both Entitlement and Plan Intake submittals. See Exhibit A-9 for reference.

CCDC Development Application

Schedule meetings with CCDC Staff to discuss design and sustainability measures



Applicant to complete the Checklist if incentives are desired

Applicant to intitiate Preliimnary Review with the City and submit Checklist as part of the application

Basic Concept Schematic Design Set

Checklist to be integrated into the Schematic Design Set, under CCG-1.0

CCDC Development Permit

Incentives and Measures to be recorded into the Development Permit

Exhibit A-8: CCDC Design Review and Entitlement Process

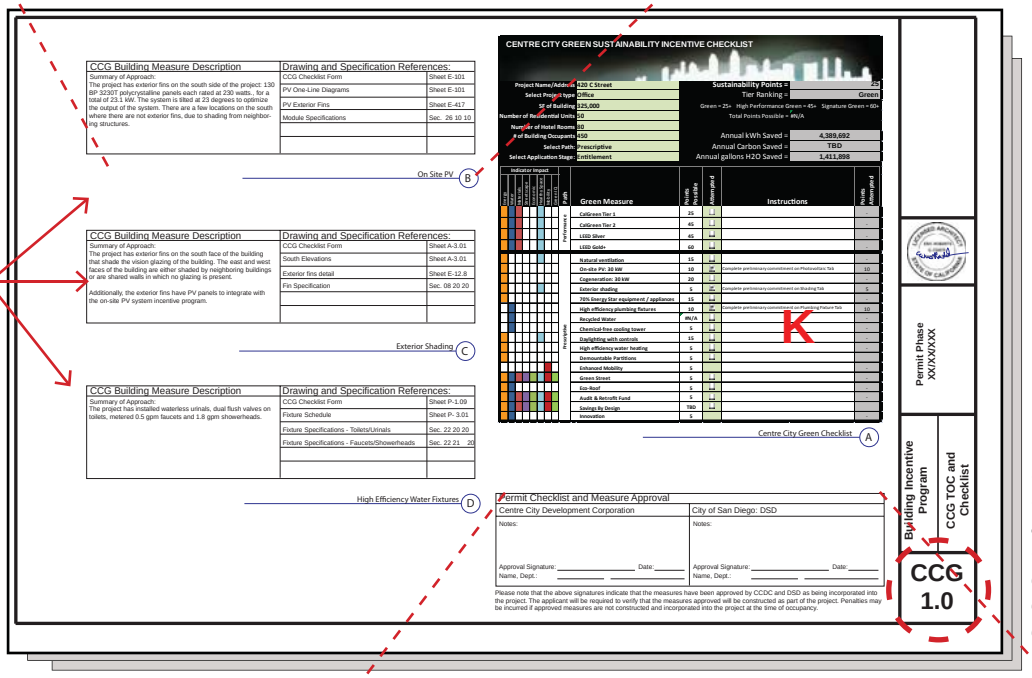
Number each measure and provide a description of the approach

#1 On-Site PV

CCG Building Measure Description	Drawing and Specification References:	
Summary of Approach: The project has exterior fins on the south side of the project: 130 BP 3230T polycrystalline panels each rated at 230 watts., for a total of 23.1 kW. The system is tilted at 23 degrees to optimize the output of the system. There are a few locations on the south where there are not exterior fins, due to shading from neighboring structures. J	CCG Checklist Form	Sheet E-101
	PV One-Line Diagrams	Sheet E-101
	PV Exterior Fins	Sheet E-417
	Module Specifications	Sec. 26 10 10

L

Identify all sheets and specifications that describe the measure



Number each proposed measure

CCG 1.0: Checklist and Table of Contents Page: directs the plan checker the documentation

** DSD approval may occur per departmental review on specific pages related to to type of measure (A,MEP)*

Permit Checklist and Measure Approval	
Centre City Development Corporation	City of San Diego: DSD
Notes: M Approval Signature: _____ Date: _____ Name, Dept.: _____	Notes: Approval Signature: _____ Date: _____ Name, Dept.: _____

Please note that the above signatures indicate that the measures have been approved by CCDC and DSD as being incorporated into the project. The applicant will be required to verify that the measures approved will be constructed as part of the project. Penalties may be incurred if approved measures are not constructed and incorporated into the project at the time of occupancy.

Exhibit A-9: Documentation Diagram

0.4 How to Provide the Documentation During Design Review

1. For the CCDC Design Review and Development Entitlement process, create a CCG Incentive Program Table of Contents page (CCG 1.0) for the project drawing set as shown in Exhibit A-9.

2. Cut and paste an image of the project's completed CCG Checklist (K) on the page at position indicated in Exhibit A-9.

3. For projects following the performance path (CALGreen or LEED):

> For CALGreen projects, follow the City of San Diego submission Guidelines for CALGreen submissions, ensuring that the project achieves Tier 1 or 2 as indicated on the project CCG Checklist.
>
> For LEED projects, cut and paste a LEED scorecard showing the credits and points the project intends to achieve on the left side of the CCG 1.0 sheet. Also paste a confirmation from the Green Building Certification Institute (GBCI) acknowledging that the project has been registered in the appropriate LEED rating system.

4. For projects achieving prescriptive measures, provide a list of all the anticipated measures with a description of how they will be implemented on the left side of the CCG 1.0 sheet (J). Also provide references to the drawing sheets that contain the Entitlement Commitment Blocks that have been copied from the Checklist Tabs (L) and a brief narrative on the overview of the strategy and and references to other drawings sheets that demonstrate the measures is included in the project documents. Use multiple sheets as necessary to include all measures.

5. Insert the CCDC staff signature block shown in Exhibit A-9 (M) on the Table of Contents page, CCG 1.0. DSD staff sign off area may be inluced on specific A/MEP sheet relevent to building measure.

6. Create related Arch, MEP, etc. project documents that contain the details of the selected measures (see Exhibit A-11). For each sheet, the Entitlement Commitment Block must be completed and inserted into the drawing set (N). This block is contained within the selected measure's tab in the CCG Sustainability Checklist (G). Also include all related drawings, diagrams, specifications, etc. that are relevant to the selected measure and are noted on the CCG 1.0 Table of Contents (O).

7. Sign and date the signature line on the Entitlement Commitment Block (P) for each measure.

8. Take the drawing set to CCDC and to City of DSD to review the Entitlement Commitment (Exhibit A-10) and verify that the project has committed to install

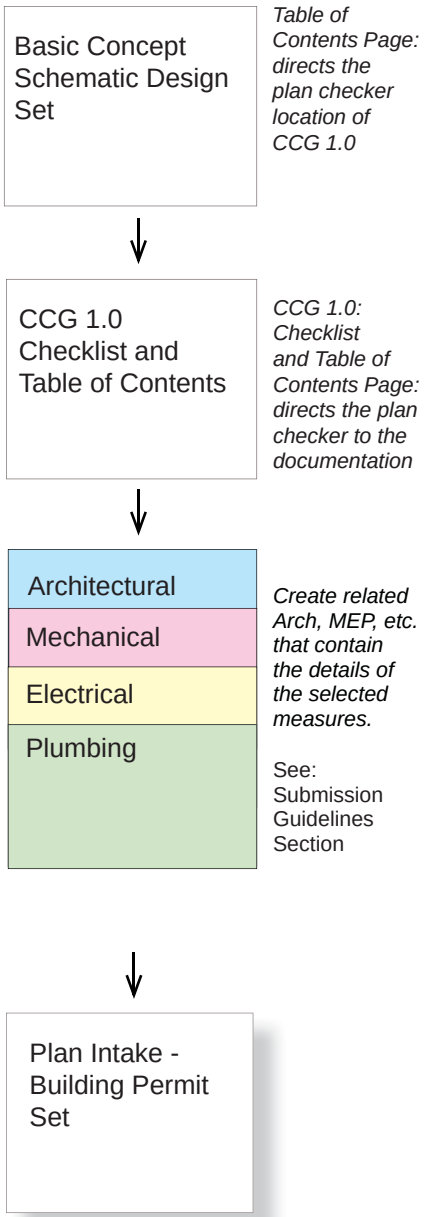


Exhibit A-10: Documentation Process

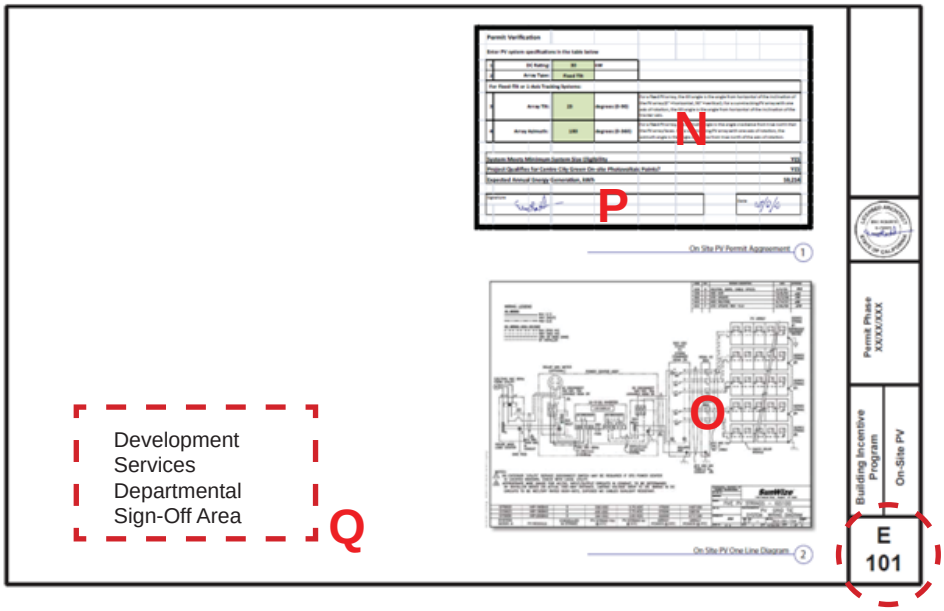


Exhibit A-11: Documentatiion Diagram - Instruction Tabs are located in the Checklist Excel file for each Performance or Prescriptive Measure

the measures. CCDC and DSD staff will sign the Table of Contents page, CCG 1.0 in the signature block shown in Exhibit A-9 (M), to indicate that the measures have been approved by CCDC and DSD as being incorporated into the project. The applicant will be requried to verify that the approved measures will be constructed as part of the project. Penalties may be incurred if approved measures are not constructed and incorporated into the project at the time of occupancy.

7. Sign and date the signature line on the Entitlement Commitment Block (P) for each measure.

Before final permits are issued, the second phase of approval occurs which documents that the project has incorporated the measures into the finished project. During permit review, the applicant would then be required to provide actual calculations based on how the realities of the project unfolded. The Checklist also generates a “Plan Intake” form that is cut and pasted onto drawing sheet CCG-1.0 and signed by the architect. Locating the information here allows both the City of San Diego and CCDC to review that the project is meeting the entitlement phase agreement.

For example, when a developer indicates intention to pursue the Daylighting and Controls Green Measure, the CCG Checklist generates the minimum building area that must be both daylit and equipped with daylight-responsive lighting controls in order for the project to earn points toward development incentives. In the Schematic Design-Entitlement Phase, the developer must sign a compliance statement confirming that the requisite square footage meets the requirements of the Daylighting Green Measure and includes the signed

declaration in the project drawings on sheet CCG-1.0.

At the Entitlement-Development Permit phase, the developer provides information from Title 24 lighting compliance documentation (required of all projects to obtain a building permit) to confirm that the daylighting design meets the prescriptive requirements of Centre City Green. City of San Diego staff review the information provided in the Checklist against the Title 24 compliance form stamped by the project's electrical engineer. If no inconsistencies are found and the Checklist indicates compliance with Green Measure requirements, the project is allowed to move into the construction phase.

0.5 Plan Intake Phase

The Plan Intake Phase submission process is nearly identical to the Design Review and Development Entitlement submitttal. The main difference is that there are additional details of selected measures that were not fully developed during the schematic design phase.

- Complete the CCG Table of Contents and update the CCG Sustainability Checklist.
- Confirm that all project drawings adequately document the design/ construction details for the selected measures.
- Fill out the CCG Plan Intake Blocks for each measure and cut and paste them into their respective Arch, MEP, etc. drawings. Please retain the original Entitlement Blocks as a reference for both CCDC and City of San Diego during their review.

SUBMITTAL MANUAL

Measure Submission Guidelines
Adopted July 2011

A

0.6 Submission Guidelines

The following sections contain descriptions of all of the Performance and Prescriptive options. The text describes:

- *Requirement: Describes the CCG requirement that must be met to accrue points towards incentive level.*
- *Measure Intent: Includes information on why the measure is important to Downtown and its link to the CCG Sustainability Indicators. Also included are a brief summary of benefits beyond CCDC or City of San Diego incentives as well as overall design considerations that may inform how a project implements the selected strategy.*
- *Resources: Links to outside resources that provide additional guidance on design considerations*
- *Existing Laws or Regulations: Many measures link to existing laws or regulations, such as CALGreen or Title 24.*
- *Compliance Method: For each measure, a complete description of required performance thresholds and the documentation required for compliance is provided for both the Entitlement and Plan Intake phases. This section describes in detail what information needs to be provided in the Arch, MEP, etc. drawings.*
- *Enforcement: Both CCDC and the City of San Diego will be reviewing the documents generated for compliance with CCG. This section describes what will be reviewed at each phase.*

Centre City Green Incentive Structure

The Centre City Green Program establishes points for each green measure that a project may incorporate. The points are weighted according to the type of building that they are applied to. For instance, measures that reduce water demand are weighted more heavily for Residential/Mixed Use & Hotel projects than it is for Office projects as they use substantially more water per SF/Year than does an Office building. However, each building type has the same number of available points to meet various incentive levels.

Path	Measure	Indicators Addressed								Points by Building Type		
		Energy	Water	Materials	Streetscape	Economic	Healthy Space	Mobility	Green IQ	Office	Residential / Mixed Use	Hotel
Performance	1. CalGreen Tier 1	X	X	X			X	X		25	25	25
	1. CalGreen Tier 2 and 2. LEED Silver	X	X	X			X	X		45	45	45
	2. LEED Gold+	X	X	X			X	X		60	60	60

Exhibit A-12: Performance Measures - Building Types Points

Path	Measure	Indicators Addressed								Points by Building Type		
		Energy	Water	Materials	Streetscape	Economic	Healthy Space	Mobility	Green IQ	Office	Residential / Mixed Use	Hotel
Prescriptive	3. Natural ventilation	X					X			15	10	5
	4. On-Site Photovoltaic Power	X								10	10	10
	5. Cogeneration	X								20	20	20
	6. Exterior Shading	X					X			5	5	5
	7. Energy Star Equipment	X								15	10	15
	8. High Efficiency Plumbing		X							10	20	20
	9. Cooling Tower Potable Water Use Optimization		X							5	5	5
	10. Daylighting with Controls	X					X			15	5	5
	11. High Efficiency Condensing Boiler	X								5	15	15
	12. Eco-Roof		X				X			5	10	5
	13. Modular Interior Construction			X			X			5	N/A	N/A
	14. Enhanced Transportation Measures							X		5	5	5
	15. Enhanced Green Streets	X	X	X	X	X	X	X	X	5	5	5
	16. Energy Efficient Exterior Architectural Lighting	X			X					5	5	10
	17. Savings By Design	X							X	5	5	5
	18. Innovation	X	X	X	X	X	X	X	X	5-20	5-20	5-20

Exhibit A-12: Prescriptive Measures - Building Types Points

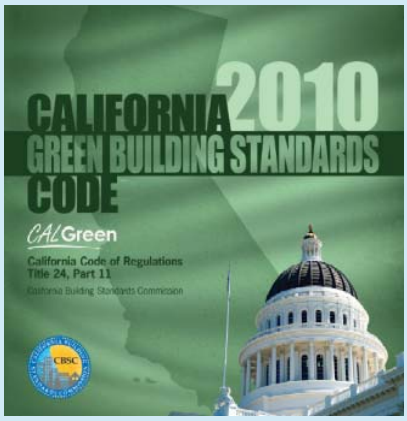


Figure 1: CALGreen

1 CALGreen

Requirement:

Achieve CALGreen Tier 1 or Tier 2 Performance.

Intent:

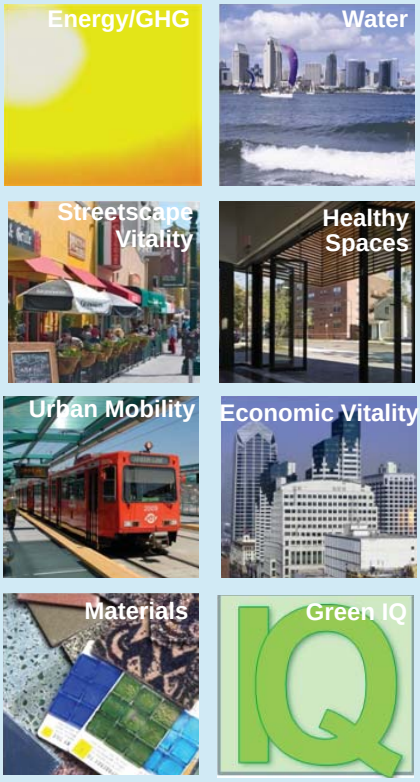
To encourage more sustainable and environmentally friendly building practices for the health and safety of our future.

CALGreen is the nation's first mandatory state-wide green building code. It is a comprehensive and unified code to guarantee that every new building in California is built using environmentally advanced construction practices. The code consists of a series of mandatory Prerequisites across a wide range of sustainability categories that ensure that all buildings meet a minimum level of sustainability. In addition, it provides a framework to voluntarily demonstrate higher levels of achievement, Tier 1 and Tier 2, which set higher performance targets levels on specific measures beyond what is mandated by the baseline code. It also requires projects to incorporate additional elective measures that are selected from a menu of options. The number of Centre City Green points awarded to a project will depend on whether the project achieves Tier 1 or Tier 2 performance.

Benefits:

- Reduces energy use and cost: CALGreen requires new buildings to save at least 15% and 30% energy for Tier 1 and Tier 2 respectively, relative to Title 24.
- Minimizes impact on regional water supplies: Tier 1 and Tier 2 require projects to install indoor water fixtures that save 30% and 35% respectively. Other prerequisites require additional water savings for landscape irrigation.
- Minimizes construction waste: CALGreen requires projects to divert at least 65% or 80% of construction waste from the landfill for Tier 1 and 2 respectively.
- Improves indoor environmental quality: Each project must select one or more elective measures that promote more stringent environmentally clean construction practices and materials selection requirements to further ensure that indoor spaces have good air quality.
- Reduces material resource use: Additional requirements for use of recycled and local materials promote a cradle-to-cradle approach

CCG Indictors



to material use that supports efficient use of materials, minimizes waste, stimulates local economies and reduces the impact of material transportation to the jobsite.

Design:

CALGreen is a comprehensive system with both mandatory and optional measures that allow project teams to chart an integrated, sustainable approach to project design that delivers optimal savings and environmental quality customized for the project program, site, and priorities. The project team should work together in an integrated design approach to target the desired CALGreen Tier 1 or Tier 2 level, identify the prerequisites for the selected level and then identify an appropriate number of additional elective measures to meet the Level requirements. Appendix A4 and A5 of the CALGreen Code of Regulations summarize the Mandatory and Voluntary options available for both residential and non-residential buildings. A few of the CALGreen requirements to achieve Tier 1 and Tier 2 are listed in the table below.

Since some CALGreen requirements are dependent on the construction process, participation of construction team representatives in the early design phases is valuable. Optional measures should be selected to complement the project's overall goals, take advantage of specific site and program opportunities and support San Diego's sustainability priorities identified by the CCG Sustainability Indicators. Chapter 8 of the CALGreen Code provides standardized methodologies and templates to calculate and report water and construction waste savings.

CALGreen

	Residential		Non-Residential	
	Tier 1	Tier 2	Tier 1	Tier 2
Energy Savings (relative to Title 24)	15%	30%	15%	30%
Indoor Water Savings (relative to Calif. Building code)	*	*	30%	35%
Construction Waste Diversion	65%	75%	65%	80%

* Individual prescriptive measures are required rather than a percentage based performance goal

Exhibit 1: Partial List of CALGreen Requirements

1 CALGreen

Resources:

For more information about CALGreen, see the following:

- *2010 California Green Building Standards Code*. California Code of Regulations Title 24, Part 11. California Building Standards Commission. Effective Date January 1, 2011. Web. http://www.bsc.ca.gov/CALGreen/default.htm

Existing Law or Regulation:

The 2010 California Green Building Standards Code, California Code of Regulations Title 24, Part 11, describes the intent of CALGreen, the mandatory requirements for all projects in California and the additional requirements to achieve level Tier 1 or Tier 2.

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Meet all of the mandatory provisions for the identified Tier 1 or 2 level desired for the project. Identify sufficient additional voluntary measures to achieve the threshold (based on project type) set for either Tier 1 or 2 and reference them on appropriate drawing sheets as labeled on CCG-1.0

3. Complete the CALGreen tab of the CCDC Checklist Tool for Entitlement (see Exhibit 2)

Enforcement:

1. Entitlement Commitment: CCDC shall review the Entitlement Commitment and verify that the project has committed to achieve either Tier 1 or Tier 2 in CALGreen and is anticipating sufficient energy and water savings to demonstrate compliance.

CALGreen

Centre City Green Requirement: Achieve CALGreen Tier 1 or Tier 2 Performance.

Entitlement Commitment

CALGreen Voluntary Tier that the project is pursuing:

- ☐ Tier 1
- ☐ Tier 2

Title 24 2008 compliance margin from PERF-1 form		**kBTU per square foot per year**
Total baseline daily water use from CALGreen WS-1 worksheet		**gallons**
Total proposed water use from CALGreen WS-3 worksheet		**gallons**

- ☐ **Yes, my project meets the CalGreen Voluntary Tier requirement**
- ☐ **I have attached a CalGreen Application checklist for the project**

Signature

Date

Exhibit 2: Example CALGreen Entitlement Commitment

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Meet all of the mandatory provisions for the identified Tier 1 or 2 level desired for the project. Identify sufficient additional voluntary measures to achieve the threshold (based on project type) set for either Tier 1 or 2 and reference them on appropriate drawing sheets as labeled on CCG-1.0

3. Complete the CALGreen tab of the CCDC Checklist Tool for Plan Intake (see Exhibit 3).

4. Complete Title 24 2008 compliance margin from PERF-1 form, demonstrating that the overall building achieves the threshold energy savings relative to Title 24 established for the building type (residential or nonresidential) and desired level (Tier 1 or Tier 2).

5. Complete the CALGreen WS-1 and WS-3 Worksheets demonstrating that the project also meets the appropriate water savings threshold. Insert these savings values into the CCDC Plan Intake Form.

1 CALGreen

CALGreen

Centre City Green Requirement: Achieve CALGreen Tier 1 or Tier 2 Performance.

Plan Intake

CALGreen Voluntary Tier that the project is pursuing:

- ☐ Tier 1
- ☐ Tier 2

Title 24 2008 compliance margin from PERF-1 form		**kBTU per square foot per year**
Total baseline daily water use from CalGreen WS-1 worksheet		**gallons**
Total proposed water use from CalGreen WS-3 worksheet		**gallons**

- ☐ **Yes, my project meets the CALGreen Voluntary Tier requirement**
- ☐ **I have attached a CALGreen Application checklist for the project**

Signature

Date

Project Qualifies for Centre City Green CALGreen Voluntary Tier Points: **NO**

Exhibit 3: Example CALGreen Intake Form from CCDC Checklist Tool

Enforcement:

1. The reviewer and/or plan checker shall review the Plan Intake Form and confirm that the Tier 1 or Tier 2 level, the predicted energy and water savings, and the additional voluntary measures reported on the form match the calculations and project details in the drawing set.

2. The inspector shall review the permit set of plans to verify that the equipment to achieve the required performance levels and the voluntary measures have been installed in the project consistent with the project drawings.

III. Post Construction

Documentation Requirements

1. Complete the CALGreen tab of the CCDC Checklist Tool for Post Construction (see Exhibit 4) and submit to CCDC

Enforcement:

1. CCDC to review the Post Construction form, verify with DSD that the project has a certificate of occupancy, and file for their records.

CALGreen

Centre City Green Requirement: Achieve CALGreen Tier 1 or Tier 2 Performance.

Post-construction Verification

CALGreen Voluntary Tier that the project has achieved:

- ☐ Tier 1
- ☐ Tier 2

Title 24 2008 compliance margin from PERF-1 form		**kBTU per square foot per year**
Total baseline daily water use from CALGreen WS-1 worksheet		**gallons**
Total proposed water use from CALGreen WS-3 worksheet		**gallons**

- ☐ **Yes, my project meets the CALGreen Voluntary Tier requirement**
- ☐ **I have attached documentation from the City of San Diego to confirm that the project has achieved the CALGreen Voluntary Tier identified above.**

Signature

Date

Project Qualifies for Centre City Green CALGreen Voluntary Tier Points: **NO**

Exhibit 4: Example CALGreen Post-Construction Verification Form

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
CALGreen									
Achieve CALGreen Tier 1 or Tier 2 Performance.	X		X	X	X	X		Confirm CALGreen Tier 1 or 2 compliance	Engineering or Mechanical
					X			Title 24 2008 PERF-1 form compliance margin	Engineering or Mechanical
					X			CALGreen WS-1 and WS-3 Worksheets	Engineering or Mechanical
Complete the CALGreen tab of CCDC Checklist Tool.	X								

Exhibit 5: Compliance Review Responsibility Chart

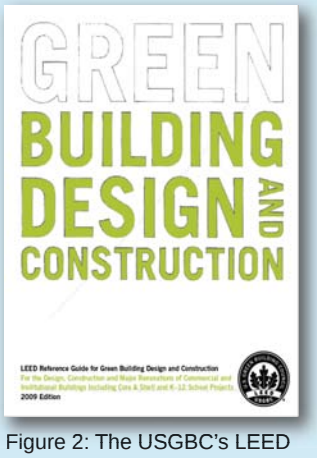


Figure 2: The USGBC's LEED Reference Guide

2 LEED

Requirement:

Achieve a LEED Silver or higher rating using LEED for New Construction or LEED Core & Shell using the current version as adopted by the US Green Building Council.

Intent:

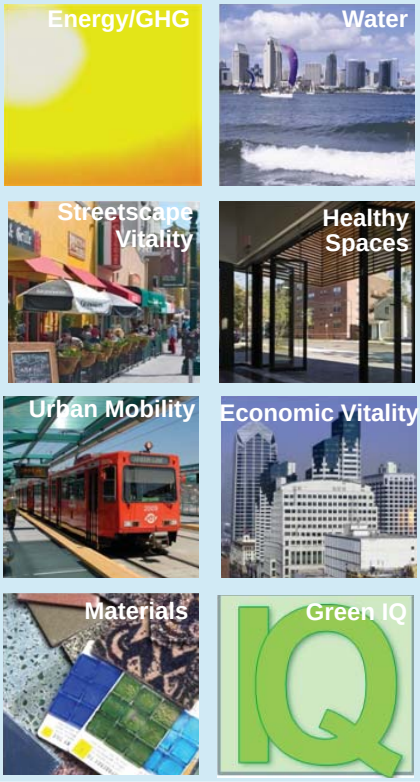
This measure promotes energy, water efficiency, and healthy indoor environments while minimizes a building environmental impact by encouraging the design, construction, and operation of green buildings.

The Leadership in Energy and Environmental Design (LEED©) Rating system is an internationally recognized green building certification system developed by the US Green Building Council, that provides third-party verification that a building was designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO_2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts. LEED is a point-based system that awards points to projects for achieving four prescribed levels of performance: Certified, Silver, Gold and Platinum. The number of Centre City Green points awarded to a project will depend on whether the project achieves LEED Silver or Gold/Platinum performance.

Benefits:

- **Reduces energy use and cost:** LEED prerequisites require new buildings to save at least 10% energy savings, relative to the current Title 24 Standard. Additional LEED credits encourage even higher savings.
- **Minimizes impact on regional water supplies:** LEED prerequisites require projects to install indoor water fixtures that save at least 20% relative to the EPAct standard. Additional LEED credits encourage even higher indoor savings and further savings in irrigation and process water use.
- **Minimizes construction waste:** One optional LEED credit requires projects to create a construction waste management plan and divert at least 50% of construction waste from the landfill.
- **Improves indoor environmental quality:** Optional credits for environmentally clean construction practices, use of low VOC paints, adhesives, and flooring materials and a post-construction building flush-out ensure that indoor spaces have good air quality.

CCG Indictors



- **Reduces material resource use:** Optional credits promote the use of recycled and local materials supporting a cradle-to-cradle approach to material use that provides an efficient use of materials, minimizes waste, stimulates local economies and reduces the impact of material transportation to the jobsite.

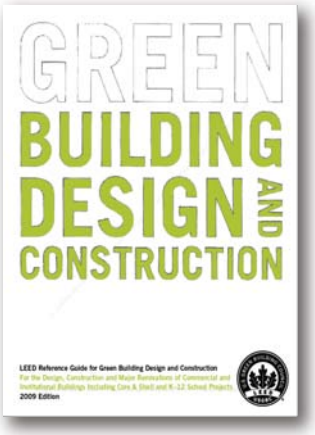
Design:

In LEED's Green Building Design and Construction system, points are awarded in the categories of Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality and Innovation in Design. A LEED New Construction (NC) or LEED Core & Shell (CS) that needs a minimum of 50 points to attain a Silver rating and 60 points to achieve Gold.

LEED is a comprehensive system with both required prerequisites and optional measures (credits) that allow project teams to chart an integrated, sustainable approach to project design that delivers optimal savings and environmental quality customized for the project program, site, and priorities. It is recommended that the project team include a LEED accredited professional (LEED AP) on their design & construction teams who are knowledgeable about the LEED system and documentation process.

The project team should work together in an integrated design approach to develop strategies to achieve the prerequisites and identified optional credits for the desired LEED level. Since many LEED credits are dependent on the construction process, participation of construction team representatives in the early design phases is valuable. Optional measures should be selected to complement the project's overall goals, take advantage of specific site and program opportunities, and support the city sustainability priorities identified by the CCG Sustainability Indicators.

Identify the desired LEED rating system (NC or CS) for the project type and the desired rating level and meet all of the prerequisites for the appropriate LEED rating system. Identify sufficient additional credits to achieve the threshold number of points (based on project type) set for either a Silver or Gold (or higher) rating and incorporate these measures into the project design. Register the project with the USGBC prior to submitting for Centre City Green incentives.



Resources:

For more information about LEED, see the following:

- LEED 2009 Green Building Design and Construction Reference Guide. US Green Building Council. http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1970

2 LEED

Existing Law or Regulation:

California Executive Order #S-20-04 required all new and renovated California state-owned facilities to achieve a LEED Silver rating.

Many of the strategies promoted by LEED also support the achievement of CALGreen Mandatory requirements. See the CALGreen performance path measure for additional information and resource links.

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Complete the LEED tab of the CCDC Checklist Tool for Entitlement (see Exhibit 6) identifying the LEED rating system used and the level of certification anticipated.

3. Provide a LEED "scorecard" showing the specific credits anticipated by the project to achieve the points required for the desired rating. Also, provide data from the calculations for Energy and Atmosphere Credit 1 (EAc1) and Water Efficiency Credit 3 (WEc3) to estimate the energy savings and water savings reported for these credits.

LEED Certification

Centre City Green Requirement: Achieve a LEED Silver or higher rating

Entitlement Commitment

Level of LEED certication that the project is pursuing:

- ☐ Silver
- ☐ Gold
- ☐ Platinum

LEED Rating System used:

- ☐ New Construction
- ☐ Core & Shell

Energy & Atmosphere Credit 1 Savings Expected		**kWh per year**
Water Efficiency Credit 3 Savings Expected		**gallons**

- ☐ **Yes, my project meets the LEED Certification requirement**
- ☐ **I have attached a LEED scorecard for the project**

Signature

Date

Exhibit 6: Example LEED Entitlement Commitment

Enforcement:

1. CCDC shall review the Entitlement Commitment and verify that the project has committed to achieve a LEED Silver or higher rating and is anticipating sufficient energy and water savings to demonstrate compliance.

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Confirm the LEED information at Plan Intake (see Exhibit 7) and provide documentation of the project's registration in the LEED system. Ensure that the measures from the identified LEED credits are incorporated into the project drawing set.

LEED Certification

Centre City Green Requirement: Achieve a LEED Silver or higher rating

Plan Intake

Level of LEED certication that the project is pursuing:

- ☐ Silver
- ☐ Gold
- ☐ Platinum

LEED Rating System used:

- ☐ New Construction
- ☐ Core & Shell

Energy & Atmosphere Credit 1 Savings Expected _____ **kWh per year**

Water Efficiency Credit 3 Savings Expected _____ **gallons**

- ☑ **Yes, my project meets the LEED Certification requirement**
- ☑ **I have attached a LEED scorecard for the project**

Signature _____ Date _____

Project Qualifies for Centre City Green LEED Certification Points: **YES**

Exhibit 7: Example LEED Intake Form from CCDC Checklist Tool

Enforcement:

1. The reviewer and/or plan checker shall review the Plan Intake Form and confirm that the LEED certification level, the predicted energy and water savings, and the additional voluntary measures reported on the form match the calculations and project details in the drawing set.

2. The inspector shall review the permit set of plans to verify that the equipment to achieve the required performance levels and the voluntary measures have been installed in the project consistent with the project drawings.

III. Post Construction

Documentation Requirements

1. At post construction, provide the project's LEED review summary from the USGBC, demonstrating that the project has achieved the anticipated rating.

Enforcement:

1. CCDC to review that the project provided documentation from the USGBC to demonstrate achievement of the specified LEED rating within 9 months from its certificate of occupancy.

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
LEED									
Achieve a LEED Silver or higher rating using LEED for New Construction or LEED Core & Shell using the current version as adopted by the US Green Building Council.	X							LEED scorecard showing specific credits anticipated and calculations for EAc1 and WEc3 showing energy and water savings	
	X							Confirmation of LEED registration	
	X							Confirmation of LEED rating	
Complete the LEED tab of CCDC Checklist Tool.	X								

Exhibit 8: Compliance Review Responsibility Chart

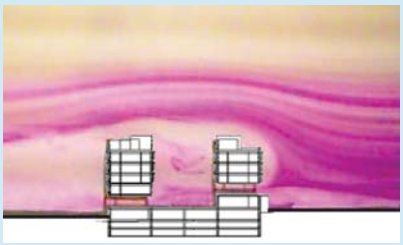


Figure 3: A water flow table can be used to test wind patterns to analyze techniques to improve natural ventilation.

3 Natural Ventilation

Requirement:

Ensure that 70% of the building square footage meets Title 24 2008 requirements for outside air ventilation via natural ventilation per Section 121(b)1.

Intent:

This measure improves the health and productivity of occupants in interior environments while saving natural resources by encouraging new developments to provide natural ventilation for building interiors.

Natural ventilation uses the natural forces of wind and buoyancy to deliberately introduce fresh air into buildings through operable windows or vents. Use of natural ventilation or mixed-mode conditioning can reduce HVAC energy use by more than half.

Benefits:

- **Reduces energy use:** Use of natural ventilation can reduce HVAC energy use by more than 45%[1]
- **Increases health and comfort:** Studies have shown that occupants of naturally ventilated spaces are comfortable with a wider range of temperatures than in mechanically ventilated spaces[2] and have fewer health symptoms related to indoor air quality, compared to people working in mechanically ventilated buildings[3]
- **Provides more leasable space:** Natural ventilation may allow reductions in HVAC equipment size and ducting which can reduce first costs, reduce energy costs, and may free up leasable space or reduce floor-to-floor heights
- **Protects against service interruptions:** Buildings designed for natural ventilation are more likely to remain functional in the case of an emergency that disrupts electricity or HVAC service

1 Bunn, R. and Cohen, R. "Learning from PROBE." Building Sciences. The CIBSE Journal. May 2001. Print

2 American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE). Thermal Environmental Conditions for Human Occupancy, ASHRAE Standard 55-2004, ISSN 1041-2336, page 9. Print

3 "Designing Commercial Buildings with Natural Ventilation." Energy Design Resources. e-News #61. energydesignresources.com. 11 December 2008. Web. 30 March, 2011 <http://www.energydesignresources.com/Resources/EmailNewsletters/eNews/tabid/234/articleType/ArticleView/articleId/392/Default.aspx>

CCG Indictors

Design:

Natural ventilation is accomplished by both cross ventilation (uses openings on opposing walls and wind-driven pressure differences to promote air movement from one side of a space to another) and by stack ventilation (uses openings low and high in a space and the buoyancy of warmed air to promote air movement). Issues to consider when designing with natural ventilation are the annual and seasonal wind patterns at a site, outside obstructions that may change the direction and/or strength of natural wind flows, interior obstructions that may inhibit air flow in parts of the space, coordination of the operable openings with mechanical cooling systems and protection of the operable openings from intrusion and rain

Design at least 70% of the building area to meet the naturally ventilated zone definition per Title 24 2008, Section 121 (b)1. Provide building occupants ready access to the operable openings whenever the building is occupied.

Resources:

For more information about natural ventilation design approaches, see the following:

- Title 24, Section 121 (b)1. California Energy Commission. Publication Number CEC-400-2008-001-CMF
- *Natural Ventilation*, Whole Building Design Guide, Andy Walker, National Renewable Energy Laboratory, last updated 6-15-2010, http://www.wbdg.org/resources/naturalventilation.php
- Collaborative for High Performance Schools (CHPS), Best Practices Manual, http://www.chps.net/dev/Drupal/node/288

Existing Law or Regulation:

Title 24 2008, Section 121 (b)1, defines naturally ventilated spaces as those permanently open to and within 20-25 feet of operable wall or roof openings to the outdoors with unobstructed openable area not less than 5 percent of the conditioned floor area of the naturally ventilated space. Controls for operable ventilation openings must be accessible to occupants.

3 Natural Ventilation

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Natural Ventilation tab of the CCDC Checklist Tool for Entitlement (see Exhibit 9)
3. Provide project window schedules or elevations denoting which windows will be operable and what their net open area will be on A sheets.

Enforcement:

1. CCDC shall review the Entitlement Commitment and verify that project size and natural ventilation areas comply with measure requirements.

Natural Ventilation

Centre City Green Requirement: 70% of the project square footage must be Naturally Ventilated Area

Naturally Ventilated Area = Meets the requirements for Minimum Outside Air via Natural Ventilation per Title 24 2008, Section 121(b)1

Entitlement Commitment

Project Square Footage Reported: 325,000 square feet

Project Area Required to Meet the Definition of Naturally Ventilated Area: 227,500 square feet

☐ **Yes, my project meets the Natural Ventilation requirement**

Signature

Date

Estimated energy savings from this measure: 2,593,715 **kWh per year**

Savings estimate is provided for informational purposes only.

Exhibit 9: Example Entitlement Commitment

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Complete the Natural Ventilation tab of the CCDC Checklist Tool for Plan Intake (see Exhibit 10). At Plan Intake, list all naturally ventilated spaces in the building and the total unobstructed area of operable ventilation openings in each space. Indicate all qualifying naturally ventilated areas on the project's construction documents.

Enforcement:

1. The reviewer and/or plan checker shall review the Plan Intake Form and confirm that the naturally ventilated area represents at least 70% of the total project area, that the reported area of ventilation openings represents the unobstructed opening area, and that windows and/or vents are shown as operable on the plans.

2. **On-Site Enforcement:** The inspector should review the permit set of plans to verify that the operable openings are present in the building and accessible to occupants.

3 Natural Ventilation

Natural Ventilation

Centre City Green Requirement: 70% of the project square footage must be Naturally Ventilated Area

Naturally Ventilated Area = Meets the requirements for Minimum Outside Air via Natural Ventilation per Title 24 2008, Section 121(b)1

Plan Intake

Complete the table below for all naturally ventilated spaces.

A	B			C	D	E	F	
	Type of Ventilation Opening (check all that apply)							
Room # Zone ID Areas	Operable Window	Trickle Vent	Other	Plan Reference	Floor Area of Room	Area of Operable Wall or Roof Openings (1)	Within 25 Feet of Operable Wall or Roof Openings	Naturally Ventilated Area (2)
	☐	☐	☐					0
	☐	☐	☐					0
	☐	☐	☐					0
	☐	☐	☐					0
	☐	☐	☐					0
	☐	☐	☐					0
	☐	☐	☐					0
	☐	☐	☐					0
	☐	☐	☐					0
	☐	☐	☐					0
	☐	☐	☐					0
	☐	☐	☐					0
	☐	☐	☑					0
TOTAL NATURALLY VENTILATED AREA, SQFT								**0**
PERCENTAGE OF PROJECT SQUARE FOOTAGE NATURALLY VENTILATED								**0%**
EXPECTED ANNUAL ENERGY SAVINGS FROM NATURAL VENTILATION, KWH								**0**
PROJECT QUALIFIES FOR CENTRE CITY GREEN DAYLIGHTING POINTS								**NO**

Signature

Date

Exhibit 10: Example Natural Ventilation Plan Intake Form for CCDC Checklist Tool

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
Natural Ventilation									
Design at least 70% of the building area to meet the naturally ventilated zone definition per Title 24 2008, Section 121 (b)1. as documented through the CCDC Checklist Tool.					X			Plans confirming all accessible, operable ventilation openings and all qualifying naturally ventilated spaces (tabulated as % of total project)	Engineering or Mechanical
Provide building occupants ready access to controls for operable openings whenever the building is occupied.					X				
Complete the Natural Ventilation tab of CCDC Checklist Tool.	X				X				

Exhibit 11: Compliance Review Responsibility Chart

Figure 4: Installing PV panels on the roof at the Research Support Facility, RSF.Schroeder, Dennis - NREL Staff Photographer. August 19,2010.

4 On-Site Photovoltaic Power

Requirement:

Install an on-site photovoltaic array of at least 30kW.

Intent:

This measure reduces the need for grid supplied power, reduces the peak demand on utilities, and replaces carbon generating sources.

More energy hits the Earth from the Sun in one hour that the whole world uses all year. Photovoltaics (PV) is a truly elegant means of producing electricity on site, directly from the sun, silently with little maintenance, no pollution, and does not rely on limited fossil fuels. San Diego's sunny, mild climate makes photovoltaic (PV) power generation especially attractive. One square foot of PV panel tilted at 33 degrees (approximately equal to San Diego's latitude) can generate about 0.5 kWhr of electricity per year.

The photovoltaic system may be purchased by the building project or may be owned by a third party which sells electricity back to the building on which it is mounted under a long-term contract. San Diego Gas and Electric (SDG&E) may offer incentives to offset a portion of the first costs for a PV installation.

Benefits:

- **Reduces energy use:** Saves limited natural resources by using locally generated PV power for electrical needs at the building level
- **Controls costs:** Locks in electricity costs and protects projects from the escalation of power markets
- **Reduces carbon emissions:** Saves carbon emissions associated with the avoided utility generation
- **Maintains power during electrical grid instability:** Local PV generation allows ongoing power stability during periods of grid fluctuations, ensuring safety and ongoing productivity
- **Reduces peak loads:** Takes load off the electricity grid by generating locally, thus reducing peak grid loads and associated peak demand charges to the project.

Design:

PV systems can be integrated to blend with traditional building designs

CCG Indictors

Energy/GHG

or may be used to create a high-technology, future-oriented appearance that signals an environmentally conscious project. Several product types are available that are either roof mounted or mounted on solar-facing un-shaded walls. Issues to consider when designing PV installations in Centre City San Diego are: location, orientation, and mounting of the PV panels, potential shading from adjacent properties & landscape, potential integration with building elements (such as window sunshades and overhangs), size of array, cost, and integration with the electric grid.

Resources:

For more information about PV systems, see the following:

- PV Watts, an online calculator for estimating power generation from a PV system. Available free at: http://rredc.nrel.gov/solar/calculators/PVWATTS/version2/
- *A Guide to Photovoltaic (*PV*) System Design and Installation*, Endecon Engineering, prepared for the California Energy Commission, June 14, 2001, http://www.energy.ca.gov/reports/2001-09-04_500-01-020.PDF

Existing Law or Regulation:

CALGreen 2010 Section A5.211.1 defines a voluntary on-site renewable energy measure for Tier 1 and Tier 2 achievement. To comply, on-site renewable energy must supply at least 1 percent of the electric power in addition to the electrical demand required to meet 1 percent of the natural gas and propane use.

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the PV tab of CCDC Checklist Tool for Entitlement (see Exhibit 12)
3. Provide outline specifications of panels that include output of the array

Enforcement:

1. CCDC shall review the Entitlement Commitment and verify that the project has committed to installing an on-site photovoltaic system of 30kW or greater.

4 On-Site Photovoltaic Power

On-site Photovoltaic Power

Centre City Green Requirement: Minimum 30 kW (DC) photovoltaic array

Entitlement Commitment

Photovoltaic system generation capacity required:	30	**kW DC**
Expected Photovoltaic system electrical generation capacity:	40	**kW DC**

☑ **Yes, my project meets the On-site Photovoltaic Power requirement**

Signature	Date

Estimated electricity production from this measure: 59,200 **kWh per year**

Savings estimate is provided for informational purposes only.

Exhibit 12: Example Entitlement Commitment

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the PV tab of CCDC Checklist Tool for Plan Intake (see Exhibit 13).
3. Provide PV system specifications and provide a one-line diagram of the system on E sheets

Enforcement:

1. The reviewer and/or plan checker shall review the Plan Intake Form and confirm that the information reported on the form matches the project documents and the one-line diagram.
2. The inspector shall review the permit set of plans to verify that the equipment noted on the project drawings has been installed and is functioning at the time of turnover.

On-site Photovoltaic Power

Centre City Green Requirement: Minimum 30 kW (DC) photovoltaic array

Plan Intake

Enter PV system specifications in the table below

1	DC Rating:	40	kW	
2	Array Type:	Fixed Tilt		
For Fixed-Tilt or 1-Axis Tracking Systems:				
3	Array Tilt:	32.73	degrees (0-90)	For a fixed PV array, the tilt angle is the angle from horizontal of the inclination of the PV array (0° = horizontal, 90° = vertical). For a sun-tracking PV array with one axis of rotation, the tilt angle is the angle from horizontal of the inclination of the tracker axis.
4	Array Azimuth:	180	degrees (0-360)	For a fixed PV array, the azimuth angle is the angle clockwise from true north that the PV array faces. For a sun-tracking PV array with one axis of rotation, the azimuth angle is the angle clockwise from true north of the axis of rotation.

System Meets Minimum System Size Eligibility	YES
Project Qualifies for Centre City Green On-site Photovoltaic Points?	YES
Expected Annual Energy Generation, kWh	59,214

Signature	Date

Exhibit 13: Example Plan Intake Form for CCDC Checklist Tool

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
On-Site Photovoltaic Power									
Install an on-site photovoltaic array of at least 30 kW.				X				Plans showing location of PV array with manufacturer and details demonstrating generation capacity	Engineering or Electrical
Complete the PV tab of CCDC Checklist Tool.	X			X					

Exhibit 14: Compliance Review Responsibility Chart

Figure5: NREL PIX # 8130, credit Capstone Turbine

5 Cogeneration

Requirement:

Install a 30 kW or larger Combined Heat and Power (CHP) system with a minimum overall efficiency of 60%.

Intent:

This measure promotes efficient us of energy resources, reduces impacts of new development on existing electrical grid infrastructure and reduces the dependence of downtown projects on the cost and availability of externally generated electricity by encouraging projects to install a Combined Heat and Power (CHP) system.

Combined CHP, also known as cogeneration, is an efficient, clean, and reliable approach to generating power and thermal energy from a single fuel source. CHP systems rely on micro-turbines, fuel cells or other systems to generate electricity on-site. CHP provides: 1) Onsite generation of electrical and/or mechanical power, 2) Waste-heat recovery for heating, cooling, dehumidification, or process applications, 3) Seamless system integration for a variety of technologies, thermal applications, and fuel types into existing building infrastructure. Installing a CHP system designed to meet the thermal and electrical base loads of a facility can greatly increase the facility's operational efficiency and decrease energy costs.

Benefits:

- **Reduces energy use:** Saves energy by using "waste" heat from electricity generation for space or water heating and/or adsorption cooling
- **Controls costs:** Some systems provide alternative fuel choices which allow owners to have some control over long term energy costs by switching from electricity to gas fuels in conjunction with peak utility rates
- **Maintains power during grid electricity instability:** Local generation allows ongoing power stability during periods of grid fluctuations
- **Reduces carbon emissions:** Saves carbon emissions associated with reduced demand from utility supplied power from transmission losses and waste heat capture
- **Reduces peak utility loads**: Takes load off the electricity grid by generating locally, thus reducing peak grid loads and delaying the

CCG Indictors

Energy/GHG

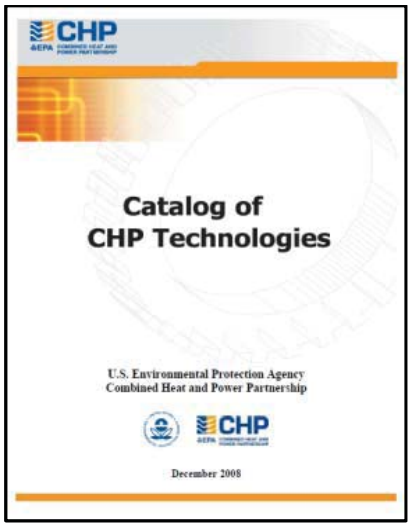
need to operate less efficient generation facilities

Design:

CHP is not a single technology, but an integrated energy system that can be modified depending upon the needs of the project and surrounding developments. Two common CHP system configurations are 1) a gas turbine or engine with heat recovery unit and 2) a steam boiler with steam turbine.

Issues to consider when designing a CHP system are the energy use profile of the project under consideration, opportunities for partnership with a third party or other surrounding developments, needs for system reliability and redundancy, first costs and lifecycle costs of the entire system, connection to the utility grid, and future projected utility cost escalation.

Provide a CHP system with an electrical generation capacity of at least 30kW and with an overall efficiency of at least 60%.



Resources:

For more information about combined heat and power, see the following:

- *Catalog of CHP Technologies*, US Environmental Protection Agency, 2008. http://www.epa.gov/chp/documents/catalog_chptech_full.pdf
- *Self Generation Incentive Program Handbook*, May 2010, http://energycenter.org/index.php/incentive-programs/self-generation-incentive-program

Existing Law or Regulation:

There is NO current law or regulation for this measure. The California Public Utilities Commission administers California's Self Generation Incentive Program (SGIP), which incentivize CHP installations that meet certain criteria. SGIP program requirements are the basis for this CCDC Green Measure.

5 Cogeneration

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

- Complete the CHP tab of the CCDC Checklist Tool for Entitlement (see Exhibit 15)
- Indicate the CHP system type, provide electrical generation capacity calculations, and outline specifications on E sheets

Enforcement:

1. CCDC shall review the Entitlement Commitment (Exhibit 15) and verify that the project has committed to install a CHP system of at least 30 kW capacity and 60% efficiency.

Combined Heat and Power (CHP)

Centre City Green Requirement: 30 kW or larger system with a minimum overall efficiency of 60%

Overall efficiency = Electrical Output + Useful Thermal Output (BTU) / Fuel input (LHV)

Entitlement Commitment

CHP system capacity required:	30	kW
Expected CHP system electrical generation capacity:	40	kW
CHP overall efficiency required:	60%	
Expected CHP system efficiency:		
Expected type of Electrical generating equipment:	Microturbine	

☑ **Yes, my project meets the CHP requirement**

Signature

Date

Estimated electricity production from this measure:	350,400	kWh per year
Estimated energy savings from this measure:	490,560	kWh per year

Savings estimate is provided for informational purposes only.

Exhibit 15: Example CHP Entitlement Commitment Form from CCDC Checklist Tool

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Complete the CHP tab of the CCDC Checklist Tool Plan Intake (Exhibit 16).

3. Provide the engineering and performance details to demonstrate the required minimum 60% efficiency on E sheets

4. Provide one line diagram plans indicating the and manufacturer of CHP equipment

5. Provide specifications that call out the sequence of operations for the system

Enforcement:

1. The DSD reviewer and/or plan checker shall review the Plan Intake Form (Exhibit 9) and confirm that the equipment noted on the project's construction documents matches the system described on the Plan Intake Form.

2. The inspector shall review the permit set of plans to verify that the equipment noted on the project drawings has been installed and shall perform a startup inspection.

5 Cogeneration

Combined Heat and Power (CHP)

Centre City Green Requirement: 30 kW or larger system with a minimum overall efficiency of 60%

Overall efficiency = Electrical Output + Useful Thermal Output (BTU) / Fuel input (LHV)

Plan Intake

A. Complete System Overview Table

1	**Prime Mover Technology**	Steam turbine		Type of electrical generating equipment; select from list.
2	**Rated Net Electrical Generating Capacity:**	75	kW	Full load net continuous rated capacity of the packaged prime mover at ISO conditions
3	**Ancillary Generating System Loads:**	5	kW	Any ancillary equipment loads necessary for the operation of the generator (e.g. fuel compressors, intercooler chillers, etc.) not accounted for in the Rated Net Generating Capacity.
4	**Fuel Consumption Rate (LHV):**	550,000	BTU/hour	Provided by the manufacturer or calculated from rated capacity and generator efficiency or heat rate specifications.
5	**Fuel Consumption Rate (HHV):**	600,000	BTU/hour	Provided by the manufacturer or calculated from rated capacity and generator efficiency or heat rate specifications.
6	**Waste Heat Recovery Rate:**	251,000	BTU/hour	Recoverable heat as specified by the manufacturer of the generator or waste heat recovery unit at full load conditions. This is not the total waste heat of the unit. The value provided should be supported by Generating System Specifications (if packaged unit), Waste Heat Recovery System specifications, or engineering analysis of recoverable waste heat.
7	**Uses of Waste Heat:**	☐ Space Heating ☐ Water Heating ☐ Space Cooling		Select all that apply.

B. Enter System Performance Details

Select one: ☐ Annual ☑ Monthly

	Generator Equivalent Full Load Hours per Month	Total of thermal loads selected in #7 above	Predicted Generator Electric Output	Useful thermal energy recovered
		Btu	kWh	Btu
Jan	720	89,500,000	50,400	89,500,000
Feb	620	80,550,000	43,400	80,550,000
Mar	722	72,495,000	50,540	72,495,000
Apr	700	65,245,500	49,000	65,245,500
May	730	58,720,950	51,100	58,720,950
Jun	700	52,848,855	49,000	52,848,855
Jul	700	47,563,970	49,000	47,563,970
Aug	700	52,320,366	49,000	52,320,366
Sep	700	57,552,403	49,000	57,552,403
Oct	700	63,307,643	49,000	63,307,643
Nov	700	69,638,408	49,000	69,638,408
Dec	700	76,602,249	49,000	76,602,249
Annual	8,392	786,345,344	587,440	786,345,344
Overall CHP System Efficiency				60.5%

System Meets Minimum System Size Eligibility	Pass
System Meets Minimum Operating Efficiency Eligibility	Pass
Project Qualifies for Centre City Green CHP Points?	YES
Expected Annual Energy Savings, kWh	230,397

Signature

Date

Exhibit 16: Example CHP Plan Intake Form

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
Cogeneration									
Install a 30 kW or larger Combined Heat and Power (CHP) system with a minimum overall efficiency of 60%.				X				CHP equipment location on plans with manufacturer and one-line diagram and sequence of operations. Performance details demonstrating electrical generation > 30kW and efficiency > 60%	Engineering or Electrical
				X				Submit listing of all electrical components	Engineering or Electrical
Complete the CHP tab of the CCDC Checklist Tool.	X			X					

Exhibit 17: Compliance Review Responsibility Chart

6 Exterior Shading

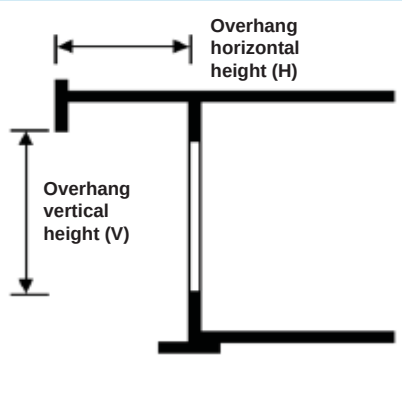


Figure 6: Building Energy Efficiency Standards. Nonresidential Compliance Manual. California Energy Commission. CEC 400-2008-017-CMF-Rev 1. Dec 2008. Revised August 2010. pg 3-26. Web. http://www.energy.ca.gov/2008publications/CEC-400-2008-017/CEC-400-2008-017-CMF-REV1.PDF Manual. Call

Requirement:

Provide exterior shading for 90% of south-facing glazing and 50% of east-and west-facing glazing, with overhangs that provide an overhang ratio (H/V) of at least 0.3 and that extend beyond both sides of the window jamb a distance equal to the overhang projection.

Intent:

This measure reduces solar gain loads on buildings and the associated energy use for air conditioning by rewarding projects that provide exterior window shading.

In San Diego's relatively sunny climate and latitude, well-designed sun control and shading devices can dramatically reduce building peak heat gain and cooling requirements and improve the natural lighting quality of building interiors.

Benefits:

- **Reduces operating expense:** In San Diego, building electricity use peaks on summer afternoons when air conditioning loads are highest. This increase in energy use establishes the peak building energy use, which subsequently sets the peak demand charge and peak capacity needs of cooling equipment. Window shading reduces solar heat gains during this peak afternoon period, thus reducing peak demand energy costs and the size of the chilling equipment.
- **Improves quality of interior daylight:** Shading devices improve occupant visual comfort by controlling glare and reducing contrast areas that can result from direct sun penetration into the space.
- **Improves views:** When shading devices are not available, occupants frequently lower shades to reduce glare. This obscures views and minimizes the connection with nature.
- **Improve occupant productivity & satisfaction:** Current research shows that reduction of glare and provision of good views can be associated with improved occupant productivity.[1]
- **Improves electricity grid capacity:** The peak electricity use system-wide is the upper constraint of the electricity transmission system.

1 Heschong Mahone Group, Inc. "Windows and Offices: A Study of Office Worker Performance and the Indoor Environment." California Energy Commission, PIER P500-03-082-A-9, October 2003. Print

CCG Indictors

Reducing peak demand with shading devices provides more buffer in system capacity to guard against brown-outs and to allow for future development without increased transmission infrastructure.

- **Reduces CO_2 emissions:** Reductions in energy use also reduce the associated CO2 emissions and their impact on global warming.

Design:

Window shading design with exterior overhangs depends on the orientation of the building facades and the predictable sun angles resulting from the latitude of the site. Horizontal overhangs most effectively reduce solar gains on south facing elevations, where sun angles are highest, and have more limited impact on east and west elevations. This measure requires an overhang ratio (H/V) of at least 0.30 (See Exhibit X) for 90% of south-facing windows and 50% of east and west windows. The overhang must also extend beyond both sides of the window jamb a distance equal to the overhang projection.

For a 6.5' high south-facing window this 0.3 overhang ratio would require a 2' horizontal overhang (H) located at the window head. At San Diego's latitude of 33°, this 2' overhang would fully shade the window from about April 21 to August 21 and would partially shade the window for other months of the year. In winter, the shade will be minimal, allowing for some solar heat gain if desired. Longer overhangs provide more protection from solar gains for more of the cooling season.

Note that if the overhang is raised above the window head height (e.g. if V is increased) its horizontal dimension must be enlarged (H increased) to provide an equivalent overhang ratio (H/V).

Resources:

For more information about window shading design, see the following:

- Free online shading design software is available from Sustainable by Design http://www.susdesign.com/tools.php
- Advanced Lighting Guidelines, New Buildings Institute, 2010 **http://www.algonline.org/**
- Collaborative for High Performance Schools (CHPS), Best Practices Manual, http://www.chps.net/dev/Drupal/node/288
- Southern Cal Edison AGTAC Energy Center, http://www.sce.com/b-sb/energy-centers/agtac/tour-agtac/

Existing Law or Regulation:

Title 24 2008, Section 143(a)5C defines maximum permissible "relative solar heat gain coefficients" for projects that use a prescriptive compliance approach to the energy code. Relative solar heat gain is calculated based on

6 Exterior Shading

Overhang Design

This tool provides visual feedback about the performance of a horizontal window overhang. Please read the important instructions, notes, and FAQ pages before using this tool.

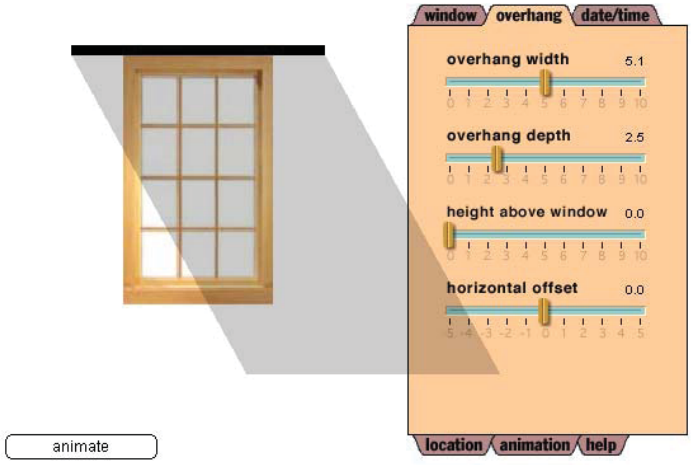


Exhibit 18: Graphic shading output from Sustainable by Design website

the glazing solar heat gain coefficient and the size of the window overhang. The overhang dimensions generate an H/V ratio, which is then used to calculate Overhang Factors for each elevation. These are multiplied by the glazing solar heat gain coefficient to generate the “relative solar heat gain” value. The 0.3 H/V value required by this measure represents an Overhang Factor of 0.69 for south-facing windows and 0.76 for east/west-facing windows (per Title 24, Table 3-7).

CALGreen 2010 Section A.5.106.7 specifies voluntary standards for window shading on the first 20 feet of south, east and west walls that can contribute to achievement of CALGreen Tier 1 or Tier 2 performance. The CALGreen voluntary standard requires 30% shading coverage on east and west walls, as calculated on the summer solstice at 10 AM for east-facing walls and at 3PM for west-facing walls. The shading requirements of this CCG Exterior Shading measure exceed the CALGreen requirements for a San Diego location.

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Complete the Shade tab of CCDC Checklist Tool for Entitlement (see Exhibit 19) and locate within A sheets
3. Provide exterior overhang diagram demonstrating overhang depth for each overhang and include in A sheets
4. Provide exterior elevations for E,W,& S facades showing overhang shadows on June 21st
5. Provide outline specification for exterior overhangs that indicates finish material

Enforcement:

1. CCDC shall review the Entitlement Commitment and verify that the project has committed to installing exterior shading for 90% of south glazing and 50% of east and west glazing.

Exterior Shading

Centre City Green Requirement:

Exterior shading for 90% of south-facing windows and 50% of east-and west-facing windows, with overhangs that provide an overhang ratio (H/V) of at least 0.3 and that extend beyond both sides of the window jamb a distance equal to the overhang projection (H).

Entitlement Commitment

Expected glazing area:	**South:**	10,000	square feet
	East:	9,000	square feet
	West:	8,400	square feet
Minimum shaded glazing area required:	**South:**	9,000	square feet
	East:	4,500	square feet
	West:	4,200	square feet

☑ **Yes, my project meets the Exterior Shading requirement**

Signature	Date

Estimated energy savings from this measure: 264,124 **kWh per year**

Savings estimate is provided for informational purposes only.

Exhibit 19: Example Exterior Shading Entitlement Commitment

6 Exterior Shading

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

Exterior Shading

Centre City Green Requirement:

Exterior shading for 90% of south-facing windows and 50% of east-and west-facing windows, with overhangs that provide an overhang ratio (H/V) of at least 0.3 and that extend beyond both sides of the window jamb a distance equal to the overhang projection (H).

Plan Intake

For all windows in the building, enter values from Title 24 Compliance form ENV-2C into the table below.

WINDOWS DETAILS

A	B			D	J	K	L		
Window Name (e.g., Window-1)	Window Area (1)	Window quantity	Total window area	Orientation (Select one)	Overhang Dimensions (ft) H	V	H/V	Percent improvement in SHGC due to shading	Meets Overhang Ratio Requirement? YES/NO
WindowA	40	1	40	South	3	10	0.30	31%	YES
WindowB	100	2	200	South	3	10	0.30	31%	YES
WindowC	100	1	100	East	4	10	0.40	38%	YES
WindowD	200	17	3400	West	2.5	10	0.25	26%	NO
WindowE	199	1	199	West	4	37	0.11	12%	NO
WindowF	400	1	400	South			0.00		NO
			0						

Percentage of South-facing glazing with qualifying exterior shading	38%
Percentage of East-facing glazing with qualifying exterior shading	100%
Percentage of West-facing glazing with qualifying exterior shading	0%
PROJECT QUALIFIES FOR CENTRE CITY GREEN EXTERIOR SHADING POINTS	NO
EXPECTED ANNUAL ENERGY SAVINGS FROM SHADING, KWH	298,924

Signature

Date

Exhibit 20: Example Exterior Shading Plan Intake Form from CCDC Checklist Tool

2. Complete the Shade tab of CCDC Checklist Tool for Plan Intake (see Exhibit 20) and locate within A sheets
3. Indicate all shading devices in section on the project's construction documents in A sheets and indicate their location on CCG-1.0.
4. Provide exterior elevations for E,W,& S facades showing overhang shadows on June 21st
5. Provide specifications for all exterior overhangs

Enforcement:

1. The reviewer and/or plan checker shall review the Plan Intake Form and confirm that all windows are listed in the table, that the overhang dimensions and location meet the measure requirements, and that the dimensions reported on the form match the section diagrams in the project's construction documents.
2. The inspector shall review the permit set of plans to verify that the specified shading devices have been installed.

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
Exterior Shading									
Provide exterior shading for 90% of south-facing glazing and 50% of east-and west-facing glazing, with overhangs that provide an overhang ratio (H/V) of at least 0.3 and that extend beyond both sides of the window jamb a distance equal to the overhang projection.					X			Notes on elevation and section diagrams of all south, west and east windows with overhang dimensions	Combo or Structural
Complete the Shade tab of CCDC Checklist Tool for Entitlement and Title 24 Compliance form ENV-2C.	X				X				

Exhibit 21: Compliance Review Responsibility Chart

7 Energy Star Equipment

Figure 7: The EPA's Energy Star logo indicates equipment that meet strict energy efficiency guidelines.

Requirement:

Install ENERGY STAR® qualified equipment and appliances for at least 70% of the project's anticipated plug load energy consumption.

Intent:

This measure reduces plug loads found within a project that can constitute a significant proportion of energy demand from a building's operation.

In a typical US office building, office equipment accounts for about 16% of the total building energy use[1]and thus represents an excellent opportunity for energy savings. Energy Star is a group of voluntary product labeling programs operated jointly by the Environmental Protection Agency (EPA) and the Department of Energy (DOE). These agencies enter into agreements with manufacturers who produce products meeting energy efficiency and performance criteria which entitle them to display the Energy Star label. A small investment in energy efficient equipment for computers, copiers, refrigerators, telephones, water coolers, etc., provides ongoing savings over the life of the equipment and quickly pays back any initial incremental cost.

Benefits:

- **Reduces energy use & carbon emissions:** Energy efficient equipment uses less energy, saving both non-renewable natural resources and the carbon emissions associated with their production and use. By using ENERGY STAR equipment, Americans saved enough energy in 2009 to avoid greenhouse gas emissions equivalent to those from 30 million cars[2].
- **Saves operating costs:** Energy savings translate into operating cost savings – the 2009 savings noted above simultaneously saved nearly $17 billion on utility bills.
- **Minimizes interior heat loads:** Reducing the energy needed for equipment, lowers the overall plug loads in a facility and the associated heat this equipment gives off to the interior environment. This can reduce air conditioning loads, potentially allowing smaller AC equipment to be installed.

CCG Indictors

Energy/GHG

1 Green Energy Payback LLC. "Pie Chart Energy Use by Building Type". GreenEnergyPayback.com. Web. 30 March 2011 <http://greenenergypayback.com/charts>

2 Energy Star. "About Energy Star." Energy Star. US Environmental Protection Agency. Web. 29 March 2011 <http://www.energystar.gov/index.cfm?c=about.ab_index>

- **Encourages market for efficient equipment:** Specifying Energy Star equipment stimulates the market for this efficient equipment and drives the efficiency effort ahead.

Design:

ENERGY STAR provides a trustworthy label on over 60 product categories (and thousands of models) for the home and office. The owner and design team should review the list of qualified products on the ENERGY STAR website (see below) to select the optimum equipment.

Specify ENERGY STAR® qualified equipment and appliances for at least 70% of the project's anticipated plug load energy consumption. Applicable equipment includes all items for which an Energy Star specification exists at the time of purchase, with the exception of lighting, HVAC and building envelope products.

Resources:

For more information about Energy Star equipment, see the following:

- Energy Star website http://www.energystar.gov/

Existing Law or Regulation:

There is NO current law or regulation for this measure.

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Energy Star tab of the CCDC Checklist Tool for Entitlement (see Exhibit 22)
3. Provide an outline specification for equipment that will be Energy Star certified.

Enforcement:

1. CCDC shall review the Entitlement Commitment and verify that the project has committed to installing Energy Star equipment for at least 70% of the project's anticipated plug load energy consumption.

7 Energy Star Equipment

Energy Star Equipment & Appliances

Centre City Green Requirement: Install Energy Star-qualified models for at least 70% of applicable equipment in the project

Entitlement Commitment

Provide quantities for equipment expected to be installed in the table below.

Quantity of Energy Star qualified units	Quantity of non-Energy Star qualified units	Equipment Type
Office Equipment		
3000	0	Monitors
100	0	Computers
0	0	Fax machines
10	300	Multifunction devices / copiers
0	0	Printers
Consumer Electronics		
0	50	TVs
0	0	VCRs
50	0	DVD players
0	0	Audio equipment
0	0	Cordless telephones
0	0	Set-top boxes
Residential Applicances		
0	0	Room air conditioners
0	0	Dehumidifiers
0	0	Room air cleaners
0	0	Ceiling fans
0	0	Dishwashers
0	0	Refrigerators and freezers
0	0	Clothes washers
Commercial Applicances		
0	0	Commercial clothes washers
0	0	Water coolers
0	0	Commercial solid-door refrigerators and freezers
0	0	Commercial hot food holding cabinets
0	0	Commercial fryers
0	0	Vending machines (refrigerated)
0	0	Vending machines (non-refrigerated)
Percentage of Equipment Energy Use for Energy Star qualified items		**74%**
PROJECT QUALIFIES FOR CENTRE CITY GREEN ENERGY STAR POINTS?		**YES**

Signature

Date

Estimated energy savings from this measure: **149,538** **kWh**

Savings estimate is provided for informational purposes only.

Exhibit 22: Example Energy Star Equipment Entitlement Commitment

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Energy Star tab of the CCDC Checklist Tool for Plan Intake (see Exhibit 23).
3. Indicate expected annual electricity consumption for each item, based on FTC Energy Guide or other manufacturer's documentation.
4. Provide an equipment schedule that lists manufacturer and model name and/or number of each item specified.
5. Provide cut sheets that indicate Energy Star qualification status for each item.

Enforcement:

1. The reviewer and/or plan checker shall review the Plan Intake Form and confirm that the information reported on the form matches the equipment schedule and cut sheets provided.
2. The inspector shall review the permit set of plans to verify that the equipment noted on the project drawings has been installed.

7 Energy Star Equipment

Energy Star Equipment & Appliances

Centre City Green Requirement: Install Energy Star-qualified models for at least 70% of applicable equipment in the project

Plan Intake

Provide quantities of specified equipment and manufacturer's reported annual energy use for each item in the table below.

Quantity of Energy Star qualified units	Quantity of non-Energy Star qualified units	Equipment Type
Office Equipment		
2540	0	Monitors
122	0	Computers
0	0	Fax machines
0	300	Multifunction devices / copiers
0	0	Printers
Consumer Electronics		
0	50	TVs
0	0	VCRs
50	0	DVD players
0	0	Audio equipment
0	0	Cordless telephones
0	0	Set-top boxes
Residential Applicances		
0	0	Room air conditioners
0	0	Dehumidifiers
0	0	Room air cleaners
0	0	Ceiling fans
0	0	Dishwashers
0	0	Refrigerators and freezers
0	0	Clothes washers
Commercial Applicances		
0	0	Commercial clothes washers
0	0	Water coolers
0	0	Commercial solid-door refrigerators and freezers
0	0	Commercial hot food holding cabinets
0	0	Commercial fryers
0	0	Vending machines (refrigerated)
0	0	Vending machines (non-refrigerated)
Baseline Equipment Energy Use, kWh		**522,564**
Expected Annual Equipment Energy Use, kWh		**394,650**
Percentage of Equipment Energy Use for Energy Star qualified items		**76%**
Expected Annual Energy Savings, kWh		**127,914**
PROJECT QUALIFIES FOR CENTRE CITY GREEN ENERGY STAR POINTS?		**YES**

Signature

Date

Exhibit 23: Example Energy Star Equipment Plan Intake Form from CCDC Checklist Tool

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
Energy Star Equipment									
Install ENERGY STAR® qualified equipment and appliances for at least 70% of the project's anticipated plug load energy consumption.				X				Equipment schedule that lists manufacturer, model name/number and annual electricity consumption of each item specified. Cut sheets verifying Energy Star qualification status	Engineering or Electrical
Complete the Energy Star tab of CCDC Checklist Tool.	X			X					

Exhibit 24: Compliance Review Responsibility Chart

8 High Efficiency Plumbing

Figure 8: The EPA's Water Sense label indicates efficient fixtures that reduce potable water demand.

Requirement:

Install plumbing fixtures which achieve at least 40% water savings compared to a baseline building, calculated per CALGreen Section 603.2.2.

Intent:

This measure works to reduce the impact of development on the on regional potable water supply and treatment resources by reducing water demand through efficient and non-water plumbing fixtures.

Urban centers depend on outlying watersheds for their supply of potable water and frequently for the disposal of lower quality water once these potable sources have been used. Minimizing the amount of potable water used in shower heads, faucets, toilets and urinals saves water for future developments and minimizes the urban infrastructure needed for conveyance and treatment.

Benefits:

- **Protects local water resources:** Minimizing waste of limited potable water resources increases the local water table, protects watershed habitats and assures water capacity for future development.
- **Reduces building operating expenses:** Reductions in water use translate directly to reductions in water utility costs and related sewage conveyance costs.
- **Reduces cost and size of conveyance and treatment infrastructure:** Savings in potable water use translate directly into reductions in the size and cost of conveyance and treatment systems required by the city and stretch the service capacity of already constrained existing systems.
- **Assures water quality:** Minimizing water use maintains capacity for peak storm events in combined sewer systems.
- **Reinforces the sense of place:** San Diego is a place of relatively low rainfall; efficient water systems remind residents and visitors of the value of this precious resource.

Design:

The following approaches are commercially available today to reduce water use in buildings by restricting the flow or by substituting a waterless process:

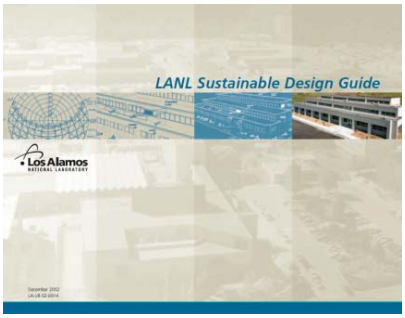
- Toilets: dual flush, low flow or composting
- Urinals: low flow or waterless
- Faucets, wash fountains and shower heads: low flow

CCG Indictors

Resources:

For more information about high efficiency plumbing fixtures, see the following:

- Plumbing and Water Fixtures, *Sustainable Design Guide,* Chapter 5 Lighting, HVAC and Plumbing, Los Alamos National Laboratory, 2002, page 109, http://apps1.eere.energy.gov/buildings/publications/pdfs/commercial_initiative/sustainable_guide_ch5.pdf



Existing Law or Regulation:

Chapter 4 of the California Plumbing Code establishes maximum allowable water use for plumbing fixtures and fittings. CALGreen 2010 Section 5.303.2 requires a 20% reduction in water use compared to a calculated baseline for all projects.

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Plumbing Fixture tab of the CCDC Checklist Tool for Entitlement (see Exhibit 25)
3. Provide outline specifications indicating the flow/flush rate that were used to calculate savings in the CCDC Checklist Tool

Enforcement:

1. CCDC shall review the Entitlement Commitment and verify that the project has committed to installing high efficiency plumbing fixtures, and that the resulting water savings are at least 40%.

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Plumbing Fixture tab of the CCDC Checklist Tool for Plan Intake (see Exhibit 26). At
3. Plan Intake, provide a plumbing fixture schedule that indicates flow rate for each fixture in the project's construction documents.

8 High Efficiency Plumbing

High Efficiency Plumbing Fixtures

Centre City Green Requirement: Install plumbing fixtures which achieve at least 40% water savings

40% Water Savings = Compared to a baseline building calculated per the CALGreen Section 603.2.2 methodology

Entitlement Commitment

How many days per year will the building operate?	250
Will the building have a cooling tower?	No

Provide information about planned plumbing fixtures in the table below.

Fixture Type	Check if installed	Expected Flow Rate (gpm/gpf)
Showerhead	☐	
Showerhead Residential	☐	1.5
Lavatory Faucets Residential	☐	0.5
Kitchen Faucets	☐	1.5
Wash Fountains	☐	
Dual flush (1.28 - 0.8 GPF)	☑	
Urinals: Select from list	☐	
Expected Percentage Water Savings:		40%
Project Meets Centre City Green Requirement:		YES

Signature

Date

Estimated water savings from this measure: 216,000 **gallons per year**

Savings estimate is provided for informational purposes only.

Exhibit 25: Example High Efficiency Plumbing Entitlement Commitment

Enforcement:

1. The reviewer and/or plan checker shall review the Plan Intake Form and confirm that the information reported on the form matches the fixtures and flow rates listed on the project's plumbing fixture schedule.

2. The inspector shall review the permit set of plans to verify that the specified fixtures and fittings have been installed.

High Efficiency Plumbing Fixtures

Centre City Green Requirement: Install plumbing fixtures which achieve at least 40% water savings

40% Water Savings = Compared to a baseline building calculated per the CALGreen Section 603.2.2 methodology

Plan Intake

Complete the table below with specifications of installed plumbing fixtures.

Fixture Type	Check if installed	Flow Rate (gpm/gpf)
Showerhead	☐	
Showerhead Residential	☐	
Lavatory Faucets Residential	☐	
Kitchen Faucets	☐	
Wash Fountains	☐	
Ultra low flush 0.8 GPF	✓	
Urinals: Select from list	☐	
Expected Water Savings per Year, gallons		270,000
Expected Percentage Water Savings:		50%
Project Meets Centre City Green Requirement:		YES

Signature

Date

Exhibit 26: Example High Efficiency Plumbing Intake Form from CCDC Checklist Tool

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
High Efficiency Plumbing									
Install plumbing fixtures which achieve at least 40% water savings compared to a baseline building, calculated per CALGreen Section 603.2.2.					X			Plumbing fixture schedule indicating all fixture flow rates	Engineering or Mechanical
Complete the Plumbing Fixture tab of CCDC Checklist Tool.	X				X				

Exhibit 27: Compliance Review Responsibility Chart

Figure 9: Cooling tower use can account for the majority of water use in commercial buildings.

9 Cooling Tower Potable Water Use Optimization

Requirement:

Implement pulse-power or ozone cooling tower treatment to reduce the use of potable water for cooling tower make-up.

Intent:

This measure helps to improve regional water quality and reduce the drain on potable regional water systems by encouraging projects to implement less toxic and more efficient cooling tower treatment systems.

Traditional cooling tower water treatment involves chemical treatment with a variety of metal compounds, organics, biocides, and pH stabilizers. The concentrated forms of these chemicals are often hazardous, and the residual chemicals released by periodic blowdown (elimination of a portion of the circulating water flow in order to maintain the amount of dissolved solids and other impurities at an acceptable level), evaporation, and drift are problematic. After only 3 cycles, this water needs to be replaced with make-up water. The poor quality of this wastewater makes it cost prohibitive to recycle/recover and the costs of replenishing the cooling tower water and discharge can be significant. Chemical free (pulse-power or ozone) treatment significantly increases the number of water cycles and produces higher quality wastewater.

Benefits:

- **Reduces water use:** Dramatic water savings are achieved by increasing the number of cycles from 3 to up to 50.
- **Improves wastewater quality:** Reduces or eliminates harmful chemicals in blowdown water.
- **Reduces costs:** Water savings and discharge payback for these systems can be less than 24 months.
- **Improves safety:** Reduces exposure to harmful chemicals.
- **Reduces maintenance:** Reduces erosion and scaling of dissolved solids in system plumbing lines.

Design:

Ozone treatment consists of on-site generation of ozone gas and injection into the cooling water to act as a strong oxidizer, disinfectant, and scale build-up inhibitor. By applying ozone, the number of water reuse cycles can be increased by up to 50 cycles. With a properly designed process train, the payback for the ozonation equipment can be less than 24 months.

Pulse Power treatment imparts pulses of a high frequency, electromagnetic field into the circulating water. The pulsed-power system

CCG Indictors

promotes precipitation of calcium carbonate into the bulk solution. The amorphous type calcium carbonate scale created by this process does not adhere to the pipe wall but remains with the bulk solution and is removed via blowdown and/or side-stream filtration. As the precipitate forms, it also encapsulates particulates and immobilizes bacteria, which act as the nucleating sites for crystal growth. Additionally, bacteria are further destroyed by the process of electroporation, which is similar to a pasteurization technique.

Install a pulse-power or ozone cooling tower water treatment system. Indicate the location and manufacturer of the treatment equipment on the project's construction documents.

Resources:

For more information about Cooling Tower Systems, see the following:

- Evaluation *of Non-Chemical Treatment Technologies for Cooling Towers at Select California Facilities*, California Department of Toxic Substances Control Office of Pollution Prevention and Green Technology, February 2009, http://www.dtsc.ca.gov/TechnologyDevelopment/upload/Final-NCCTS-Report.pdf
- *Ozone* Treatment *for Cooling Towers*, US Department of Energy, New Technology Demonstration Program, August 1998, http://www.spartanwatertreatment.com/articles/Ozone-Treatment-for-Cooling-Towers-Federal-Technology-Alert.pdf

Existing Law or Regulation:

There is NO current law or regulation for this measure.

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Cooling Tower tab of the CCDC Checklist Tool for Entitlement (see Exhibit 28)
3. Provide outline specifications for the cooling tower indicating pulse-power or treatment system that meet the intent of the measure

Enforcement:

1. CCDC shall review the Entitlement Commitment (Exhibit 28) and verify that the project has committed to installing either ozone or pulse power water treatment equipment.

9 Cooling Tower Potable Water Use Optimization

Chemical Free Cooling Tower Management

Centre City Green Requirement: Implement pulse-power or ozone cooling tower treatment to reduce make-up water requirements

Entitlement Commitment

Cooling Tower Size	200	tons
Efficiency Measure Implemented	☑	**Pulse-power treatment**
	☐	**Ozone Treatment**

☑ **Yes, my project meets the Chemical-free Cooling Tower Management requirement**

Signature	Date

Estimated water savings from this measure: **840,960** **gallons per year**

Savings estimate is provided for informational purposes only.

Exhibit 28: Example Cooling Tower Entitlement Commitment

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Cooling Tower tab of the CCDC Checklist Tool for Plan Intake (see Exhibit 29).
3. Provide specifications for the size of the cooling tower, water use rate,
4. Indicate operating hours, and water temperature differential based on manufacturer data and engineering calculations on MEP sheets.

Enforcement:

1. The DSD reviewer and/or plan checker shall review the Plan Intake Form (Exhibit 29) and confirm that the equipment noted on the project drawings matches the ozone or pulse power water treatment equipment reported in the form.
2. The inspector shall review the permit set of plans to verify that the equipment noted on the project drawings has been installed and is functioning at the time of turnover.

Chemical Free Cooling Tower Management

Centre City Green Requirement: Implement pulse-power or ozone cooling tower treatment to reduce make-up water requirements

Plan Intake

Cooling Tower Size	200	tons
Circulating Water Rate	600	gpm
Expected full-load hours per year	3650	hours
Water Temperature Differential (T_{in}-T_{out})	12	degrees F
Efficiency Measure Implemented:	☑	**Pulse-power treatment**
	☐	**Ozone Treatment**
Manufacturer of chemical-free treatment product selected:		
Expected water savings per year, gallons		**1,051,200**
Project Meets Centre City Green Cooling Tower Requirement:		**YES**

Signature

Date

Exhibit 29: **Example Cooling Tower Plan Intake Form from CCDC Checklist Tool**

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
Cooling Tower Potable Water Use Optimization									
Implement pulse-power or ozone cooling tower treatment to reduce the use of potable water for cooling tower make-up. Indicate the location and manufacturer of the treatment equipment on the project's construction documents					X			Engineering calculations and drawings showing location, manufacturer and model of both the cooling tower and alternative treatment system.	Engineering or Mechanical
Complete the Cooling Tower tab of the CCDC Checklist Tool.	X				X				

Exhibit 30: Compliance Review Responsibility Chart

10 Daylighting with Controls

Figure 10: Physical model testing for the impact from an interior daylight shelf.

Requirement:

Provide daylighting with either skylights or sidelighting for 60% of the project square footage and control the electric lighting in these areas with automatic daylighting controls. Daylit spaces must meet the definition of Primary or Secondary Daylight or Skylight area per Title 24 2008, Section 131(c).

Intent:

This measure both improves the quality and health of interior environments and reduces dependence on electric lighting by requiring an integrated envelope and system daylighting design.

Daylighting is the controlled admission of natural light into a space to reduce or eliminate electric lighting and to improve visual comfort. Daylighting helps create a visually stimulating and productive environment for building occupants, while daylight-responsive electric lighting controls can reduce total building energy costs by as much as one-third.

Benefits:

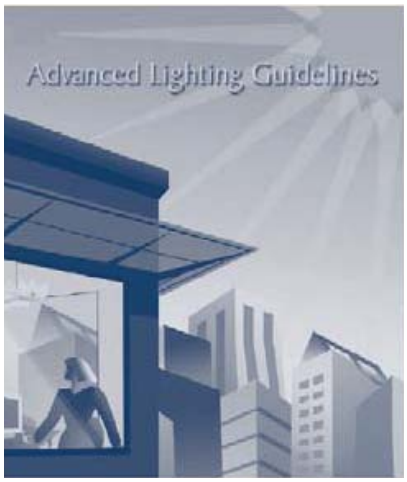
- **Reduces energy use:** Electric lighting energy use reductions of 30-70% have been measured in commercial buildings with good daylighting designs.
- **Increases productivity:** Good daylighting design produces quality lighting that has been correlated with increased worker productivity, reduced absenteeism rates and increased commercial building lease rates.
- **Increases safety & comfort:** Daylighting is a safety measure that allows building occupants to continue working or more safely exit a building if power is interrupted.

Design:

Daylight is introduced into buildings by either sidelighting (the use of windows and clerestories to bring daylight into adjacent perimeter spaces) or toplighting (the use of skylights and rooftop monitors to spread diffuse daylight across the floor area). Issues to consider when designing with daylight are size and orientation of windows and skylights, distribution of light in the space, heat gains and losses, view, glare control, the potential for natural ventilation through operable lites, and the integration with the electric lighting design. Good daylighting approaches integrate daylight and electric designs, turning off or dimming electric lights when daylight is present.

CCG Indictors

Design at least 60% of the building area to meet the daylighting zone definitions of Title 24 2008, Section 131 (c). Title 24 and this Daylighting Measure do not allow for double counting of skylit and daylit areas which overlap. Provide automatic daylighting controls for general lighting in daylit zones. Note that automatic daylighting controls are required in some zones per Title 24, Section 131(c). Additional automatic daylighting controls may be required in secondary sidelit areas to ensure that at least 60% of the project square footage is both daylit and has daylighting controls for electric lighting.



Resources:

For more information about daylighting design approaches, see the following:

- Title 24, Section 131 c
- Advanced Lighting Guidelines, New Buildings Institute, 2003 http://www.newbuildings.org/advanced-lighting-guidelines
- Collaborative for High Performance Schools (CHPS), Best Practices Manual, http://www.chps.net/dev/Drupal/node/288
- Southern Cal Edison AGTAC Energy Center, http://www.sce.com/b-sb/energy-centers/agtac/tour-agtac/

Existing Law or Regulation:

1. Title 24 2008, Section 131(c) defines four types of daylit areas and mandates installation of automatic multi-level daylighting control devices for general lighting in primary sidelit, primary skylit and secondary skylit areas.
2. Title 24 2008, Section 146(a)2E defines Power Adjustment Factors for installed lighting power for automatic multi-level daylighting control devices to provide credit for exceptional daylighting in a building's lighting power calculation.

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Daylight tab of CCDC Checklist Tool for Entitlement (see Exhibit 31)
3. Provide outline specifications for electric lighting controls

10 Daylighting with Controls

Enforcement:

1. CCDC shall review the Entitlement Commitment and verify that project size and daylit areas comply with measure requirements.

Daylighting & Controls

Centre City Green Requirement: 60% of the project square footage must be Daylit Area

Daylit Area = Meets the definition of Primary or Secondary Daylight or Skylight area per Title 24 2008, Section 131(c)

Meets mandatory automatic daylighting controls requirement of Title 24 2008, Section 131(c)2, OR qualifies for Automatic Multi-level Daylighting Controls Lighting Power Adjustment Factor per Title 24 2008, Section 146(a)2.E

Entitlement Commitment

Project Square Footage Reported: 325,000 square feet

Project Area Required to Meet the Definition of Daylit Area: 195,000 square feet

☑ **Yes, my project meets the Daylight & Controls requirement**

Signature

Date

Estimated energy savings from this measure: 931,037 **kWh per year**

Savings estimate is provided for informational purposes only.

Exhibit 31: Example Daylighting Entitlement Commitment

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Complete the Daylight tab of CCDC Checklist Tool for Plan Intake (see Exhibit 32). List all daylit spaces in the project and indicate whether automatic daylighting controls are provided for general lighting in each space.

3. Indicate all qualifying daylit spaces on the project's E sheets and identify the automatic daylighting control provided for each space.

4. Provide specifications for electric lighting controls used to meet the measure requirements

Enforcement:

- The reviewer and/or plan checker shall review the Plan Intake Form and confirm that the daylit area represents at least 60% of the total project area and that independent, automatic daylighting controls are provided for all areas counted as daylit.

- The inspector shall verify that automatic daylighting controls are installed in the daylit areas and are functioning at the time of turnover.

10 Daylighting with Controls

Daylighting & Controls

Centre City Green Requirement: 60% of the project square footage must be Daylit Area

Daylit Area = Meets the definition of Primary or Secondary Daylight or Skylight area per Title 24 2008, Section 131(c) Meets mandatory automatic daylighting controls requirement of Title 24 2008, Section 131(c)2, OR qualifies for Automatic Multi-level Daylighting Controls Lighting Power Adjustment Factor per Title 24 2008, Section 146(a)2.E

Plan Intake

Enter values from Title 24 Compliance form LTG-2C into the table below.

Enter both conditioned and unconditioned spaces.

A	B			C	D		J
	Type Daylight Controlled (1) (check only one)						
Room # Zone ID Areas	Skylit	Primary Sidelit	Secondary Sidelit	Plan Reference	Daylight Area (2)	Daylighting Control Device	Power Adjustments Factor (6)
101	✓			A02.01	300	Mandatory	
201		✓		A02.02	400	Additional-PAF	0.2
301			✓	A02.03	50	None	
401			✓	A02.04	220000	Additional-PAF	0.1
	✓						
Total Daylight & Controls Area							**220,700**
Percentage of Project Square Footage Qualifying as Daylit							**68%**
Expected Annual Energy Savings from Daylighting, kWh							**1,053,743**
PROJECT QUALIFIES FOR CENTRE CITY GREEN DAYLIGHTING POINTS							**YES**

Signature	Date

(1) If Primary and secondary sidelit daylight areas are controlled together, the PAF is determined base on the secondary sidelit effective aperature for both the primary and secondary sidelit daylight areas.

(2) Daylight Areas determined in accordance to Section 131(c)

(6) Power Adjustment Factor determined in accordance with Table 146-C

Exhibit 32: **Example Daylighting Plan Intake Form for CCDC Checklist Tool**

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
Daylighting with Controls									
Provide daylighting with either skylights or sidelighting for 60% of the project square footage and control the electric lighting in these areas with automatic daylighting controls. Daylit spaces must meet the definition of Primary or Secondary Daylight or Skylight area per Title 24 2008, Section 131(c).					X			Drawing or schedule showing all qualifying daylit spaces (tabulated as % of total project) and the automatic daylighting control provided for each	Engineering or Electrical
Provide automatic daylighting controls for general lighting in daylit zones. Note that automatic daylighting controls are required in some zones per Title 24, Section 131(c).					X				
Complete the Daylighting tab of the CCDC Checklist Tool	X				X				

Exhibit 33: Compliance Review Responsibility Chart

11 High Efficiency Condensing Boiler

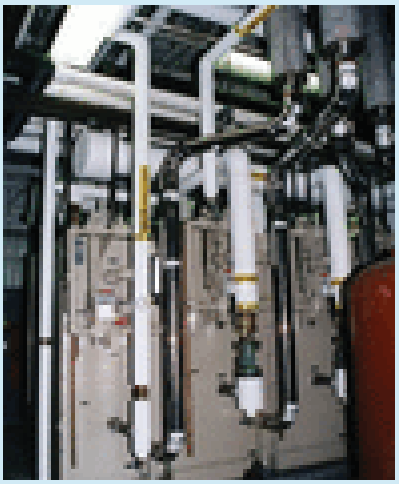


Figure 11: NREL.gov. Boiler Room, Crosby Elementary School, New York. Eddie Bell. 4/1/2001

Requirement:

Install condensing boilers and/or ENERGY STAR® qualified domestic water heaters.

Intent:

This measure reduces energy demand for heating water by rewarding projects that install efficient domestic water heating systems.

Water heating represents about 9% of the typical office building energy use[1]. Specifying energy efficient water heaters saves energy and operating costs over the long- term life of the product.

Benefits:

- Reduces energy use & carbon emissions: Energy efficient water heaters use less energy, saving both non-renewable natural resources and the carbon emissions associated with their production and use. High efficiency tank water heaters can reduce water heating energy use by up to 20%, while more innovative approaches, like on-demand, heat pump or solar water heaters can save 45-90%[2].
- Saves operating costs: Energy savings translate into operating cost savings over the life of the equipment.
- Encourages market for efficient equipment: Specifying ENERGY STAR and condensing boiler equipment stimulates the market for this efficient equipment.

Design:

The magnitude of energy savings depends on both the amount of hot water used and the efficiency of the equipment and installation. All projects should first minimize the amount of water used by installing water efficient plumbing fixtures (see High Efficiency Plumbing Measure) and then selecting the appropriate energy efficient water heating system. The efficiency of a hot water system is also affected by water temperature, location of the heating equipment (distance from the use) and amount of insulation for piping and tank.

CCG Indictors

1 Green Energy Payback LLC. “Pie Chart Energy Use by Building Type”. GreenEnergyPayback.com. Web. 30 March 2011 < http://www.greenenergypayback.com/charts>

2 US Environmental Protection Agency. “High Efficiency Water Heaters Provide Hot Water for Less.” Energy Star. Web. 30 March 2011 < http://www.energystar.gov/ia/new_homes/features/WaterHtrs_062906.pdf>

For water heating equipment with a capacity greater than 100 gallons, specify condensing boilers. For residential water heating equipment with a capacity of 100 gallons or less, specify ENERGY STAR qualified models. **Resources:**

For more information about high efficiency water heating, see the following:

- Selecting a New Water Heater, US Department of Energy, Energy Efficiency & Renewable Energy, http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=12770
- *Condensing Storage Water Heaters*, Jim Lunt, Journal of Light Construction, June 2009, http://www.luntmarymor.com/condensing_heaters.pdf

Existing Law or Regulation:

Title 24 2008, Section 113(b) requires all water heating equipment to comply with California's Appliance Efficiency Regulations.

Title 24 2008, Section 151(f)8 defines specific efficiency requirements for water heating equipment serving single and multiple dwelling units in high-rise residential and hotel buildings using a prescriptive approach to energy code compliance.

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Water Heating tab of CCDC Checklist Tool for Entitlement (see Exhibit 34)
3. Provide outline specifications of water heating equipment

Enforcement:

1. CCDC shall review the Entitlement Commitment and verify that the project has committed to installing condensing boilers and/or ENERGY STAR qualified residential water heating equipment.

11 High Efficiency Condensing Boiler

High Efficiency Water Heating

Centre City Green Requirement: Install condensing boilers and/or Energy Star qualified domestic water heaters.

Entitlement Commitment

- ☑ **One or more central hot water boilers will be installed.**
- ☑ **All boilers will be condensing type.**
- ☑ **One or more residential water heaters will be installed.**
- ☑ **All residential water heaters will be Energy Star qualified.**

☑ **Yes, my project meets the High Efficiency Water Heating requirement**

Signature

Date

Estimated energy savings from this measure: 44,102 kWh

Savings estimate is provided for informational purposes only.

Exhibit 34: Example High Efficiency Condensing Boiler Entitlement Commitment

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Water Heating tab of CCDC Checklist Tool for Plan Intake (see Exhibit 35).
3. Provide an equipment schedule that lists manufacturer and model name and/or number of all units specified.
4. Provide water heater specifications and whether each unit is condensing or Energy Star qualified.
5. Provide a cut sheets for each unit specified.

Enforcement:

1. The reviewer and/or plan checker shall review the Plan Intake Form and confirm that the information reported on the form matches the equipment schedule and cut sheets provided.
2. The inspector shall review the permit set of plans to verify that the equipment noted on the project drawings has been installed.

High Efficiency Water Heating

Centre City Green Requirement: Install condensing boilers and/or Energy Star qualified domestic water heaters.

Plan Intake

List all water heating equipment specified in the table below.

Central Boilers and water heaters larger than 100 gallons				
Type	**Quantity**	**Capacity (each; gallons)**	**For gas models: Thermal Efficiency (Et) For electric models: Energy Factor (EF)**	**Check if condensing**
Gas	4	200	0.90	☑
Select one:				☐
Select one:				☐
Residential Water Heaters 100 gallons or less				
Type	**Quantity**	**Capacity (gallons)**	**Energy Factor (EF)**	**Check if Energy Star qualified**
Gas condensing	4	60	0.89	☑
Electric storage	1	20	0.95	☑
Select one:				☐

Expected Annual Energy Savings, kWh	**61,892**
Project Qualifies for Centre City Green High Efficiency Water Heating Points:	**YES**

Signature

Date

Exhibit 35: Example High Efficiency Condensing Boiler Intake Form from CCDC Checklist Tool

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
High Efficiency Condensing Boiler									
For water heating equipment with a capacity greater than 100 gallons, install condensing boilers. For residential water heating equipment with a capacity of 100 gallons or less, specify Energy Star qualified domestic water heaters.					X			Mechanical drawings showing location, manufacturer and model of high efficiency boiler or Energy Star system	Engineering or Mechanical

Exhibit 36: Compliance Review Responsibility Chart

Figure 12: Strata Apartments, The Hanover Company.

12 Eco-Roof

Requirement:

Install landscaped eco-roof area equivalent to at least 80% of the building's footprint and maintain the eco-roof for the life of the project.

Intent:

This measure promotes stormwater retention, habitat creation, and urban heat island reduction through the application of Eco-roofs.

Studies have shown that roof areas represent about 25% of urban surfaces[1]. Traditional roof areas funnel stormwater into city sewer systems, increase urban heat island effects, and do not foster wild bird populations. These negative impacts can be mitigated with an eco-roof – a vegetated roof planted in a growing medium over a waterproofing membrane. Eco-roof areas absorb rainwater, provide an insulation layer to the building below and can act as habitat for bird populations. In addition, they provide a protective layer for the waterproof roof membrane, extending its service life.

Benefits:

- Reduces stormwater runoff: Impervious surfaces represent over 90 percent of the surface area in most dense urban environments[2].
- Provides habitat: Habitat preservation and diversity improves the resilience of ecosystems.
- Mitigates urban heat island effect: Eco-roofs remove heat from the air through evapotranspiration reducing roof surface and surrounding air temperatures.
- Saves natural resources and reduces CO_2 emissions: Reduced air conditioning and increased roof insulation reduces overall building energy use, saving nonrenewable resources and reducing the associated demand and CO2 emissions from utility supplied power.

Design:

To achieve this measure, the eco-roof area must be designed to be a minimum of 80% of the building's footprint (above thirty-feet from grade.) The eco-roof area is defined as the landscaped area that is designed to sustain and support vegetation.

Eco-roofs (also known as green roofs) can be categorized as "extensive"

1 Keith, Vanessa. "Clip-on Architecture: Reforesting Cities." Urban Omnibus. 13 Jan 2010. Web. 30 March 2011 <http://urbanomnibus.net/2010/01/clip-on-architecture-reforesting-cities/>

2 Wikipedia. "Impervious Pavement". Web. 30 March 2011 <http://en.wikipedia.org/wiki/Impervious_surface>

CCG Indictors

or “intensive” depending on the depth of planting medium and maintenance requirements. Extensive eco-roofs are relatively shallow (2-6” of planting medium) and are usually designed to be self-sustaining with minimal maintenance. Intensive eco-roofs are frequently accessible, providing more park-like landscapes in deeper planning medium (8” to several feet). For either type, the weight of wet soil, in addition to plantings, substructure, etc., can add significant roof loads that impact the design of the roof structure.

Waterproofing and access to roof substructure for repairs are also important. Installation and maintenance of plantings has to address the composition of the planting medium (a carefully engineered mix of soil, aggregates and organic matter), viable plant species, available rainfall, irrigation needs (both during establishment and ongoing), appearance of plantings during both wet and dry seasons, habitat opportunities, and access and safety for maintenance people and equipment. To provide greatest benefit, an eco-roof should ideally be accessible as open space and provide a visible amenity for adjacent buildings.

Resources:

For more information about eco-roofs, see the following:

- San Diego Municipal Code, Chapter 15, Planned Districts, (PDO), Ch. 15, Art. 6, Div. 3, page 38, describes the existing density bonus provisions for eligible eco-roofs in downtown San Diego. http://www.ccdc.com/images/stories/downloads/planning/supplemental-information/2010_PDO.pdf
- Green Roof Specifications and Standards, Establishing an Emerging Technology, C. Wark and W. Wark, The Construction Specifier, August 2003, Vol. 56, No. 8, http://www.proenviroconstruction.com/pdf/GreenRoof.pdf
- Extensive Green Roofs, C. Miller, Whole Building Design Guide, National Institute of Building Sciences, 6-11-2010, http://www.wbdg.org/resources/greenroofs.php

Existing Law or Regulation:

San Diego Municipal Code, Chapter 15, Planned Districts (PDO), provides gradually increasing density bonuses when the total landscaped Eco-roof area represents 10%-30%, 31%-60% and over 60% of the building’s footprint (above thirty-feet from grade). In addition to the density bonus from the PDO, this Centre City Green measure provides additional rewards for projects that incorporate eco-roofs exceeding 80% of the building footprint.

12 Eco-Roof

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Eco-roof tab of the CCDC Checklist Tool for Entitlement (see Exhibit 37)
3. Provide outline specifications for the components of the eco-roof system

Enforcement:

1. CCDC shall review the Entitlement Commitment and verify that the project has committed to installing an eco-roof system for an area equivalent to at least 80% of the building footprint.

Eco-Roof

Centre City Green Requirement: Total landscaped eco-roof area equivalent to at least 80% of the building's footprint

Entitlement Commitment

Building Footprint Area:	7500	square feet
Eco-Roof Area Expected:	6500	square feet
Minimum Eco-Roof Area required:	6,000	square feet

☑ **Yes, my project meets the Eco-Roof requirement**

Signature

Date

Exhibit 37: Example Eco-roof Entitlement Commitment

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Eco-roof tab of the CCDC Checklist Tool for Plan Intake (see Exhibit 38). At plan intake,
3. Provide specifications for plant varieties, soil content, water retention systems, and supporting structural systems.

Eco-Roof

Centre City Green Requirement: Total landscaped eco-roof area equivalent to at least 80% of the building's footprint

Plan Intake

Building Footprint Area:	7500	square feet
Eco-Roof Area Designed:	6500	square feet
Minimum Eco-Roof Area required:	6,000	square feet

Project Qualifies for Centre City Green EcoRoof Points: YES

Signature

Date

Exhibit 38: Example Eco-roof Intake Form from CCDC Checklist Tool

4. Provide calculations confirming that the eco-roof represents at least 80% of the building's footprint above 30 feet from grade.

5. Provide building CC&Rs include maintenance of the eco-roof vegetation for the life of the project.

Enforcement:

- The reviewer and/or plan checker shall review the Plan Intake Form and confirm that the information reported on the form matches the plans provided and that maintenance of the eco-roof is included in the project CC&R's.

- The inspector shall review the permit set of plans to verify that the eco-roof noted on the project drawings has been installed.

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
Eco-roof									
Install landscaped eco-roof area equivalent to at least 80% of the building's footprint and maintain the eco-roof for the life of the project.	X	X				X		Drawing details and specs for plant varieties, soil depths, soil content, water retention systems, and supporting structural systems	Landscape
	X							Documentation demonstrating CC&Rs include maintenance of the eco-roof vegetation for the life of the project	
Complete the Eco-Roof tab of CCDC Checklist Tool.	X					X			

Exhibit 39: Compliance Review Responsibility Chart

13 Modular Interior Construction

Figure 13: Demountable partitions significantly reduce the impact to landfills from interior renovations.

Requirement:

Design interior spaces such that 75% or more of full height interior walls are built from reusable, modular construction assemblies that are GREENGUARD certified. (Excludes walls providing structural support, walls enclosing spaces requiring pressurization and walls required to be fire rated.)

Intent:

This measure reduces the waste and disruption of building and reconfiguring interior environments by encouraging the use of reusable, low emission modular interior construction elements.

Modular construction reduces the waste associated with conventional stud and drywall construction, where drywall is cut to fit the space, creating about one pound of waste for every square foot installed[1]. During renovations, rather than knocking down drywall and studs, disrupting the rest of the space with dust and noise, trucking the waste to the landfill, and then rebuilding it all again, movable walls, are just relocated to fit the new configuration.

Benefits:

- **Reduces waste:** Recycling drywall is only appropriate during initial construction when it is new and unpainted. Even then, energy and labor are required to manage recycle bins, transport waste to the recycling facility, remake it into new product, and ship it back out to market. Modular systems minimize this waste by standardizing module sizes, consolidating the process, and eliminating the need for demolition and reconstruction during remodels.
- **Improves air quality and health:** A recent NIOSH Health Hazard Evaluation found that drywall sanders were exposed to as much as 10 times the permissible exposure limit for total dust set by the Occupational Safety and Health Administration[2]. Use of modular systems eliminates the dust and particulate pollution from cutting and processing of drywall and wood during construction and remodeling, thus improving air quality and health for both workers and occupants. Additionally using GREENGUARD certified modular walls ensures that these modular elements are low VOC and provide a healthy interior environment.

CCG Indictors

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1 Iffrig, Andree. “Sustainable Design for Healthcare Interiors.” Sustainable Healthcare & Hospital Development Magazine. August, 2010. Web 30 March 2011 <http://www.healthcaredevelopmentmagazine.com/article/sustainable-design-for-healthcare-interiors.html>

2 Centers for Disease Control and Prevention. “Control of Drywall Sanding Dust Exposures.” CDC. June 1999. Web. 30 March 2011 <http://www.cdc.gov/niosh/docs/99-113/>

- **Provides longevity through flexibility:** Modular interior construction allows spaces to be reconfigured for changing work environments and technology, allowing a given space to accommodate evolutions in workgroup size and organization without triggering the waste, costs and time delays of remodeling or relocation.

Design:

Modular interior assemblies should be sturdy, easily maintained and designed for easy moving and/or demounting and reassembly. The system design should accommodate the variety of wall enclosures currently necessary and should anticipate future needs to ensure continued use. Selection of the modular system should take into consideration the sustainability of manufacturing processes, transportation to the site and materials used (GREENGUARD certified, high recycled content, locally manufactured, etc.).

Resources:

For more information about modular interior construction, see the following:

- Design for Disassembly, *DfD Guide*, Seattle Solid Waste Division, http://your.kingcounty.gov/solidwaste/greenbuilding/disassembly.asp
- For a list of GREENGUARD requirements and certified modular wall systems, see the GREENGUARD website at http://www.greenguard.org/en/QuickSearch.aspx

Existing Law or Regulation:

There is NO current law or regulation for this measure.

13 Modular Interior Construction

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Modular Interior tab of the CCDC Checklist Tool for Entitlement (see Exhibit 40)
3. Provide outline specifications for all modular walls indicating GREENGUARD certification

Enforcement:

1. CCDC shall review the Entitlement Commitment (Exhibit 40) and verify that the project has committed to installing modular interior assemblies for 75% of all full-height interior walls and that are GREENGUARD certified.

Modular Construction

Centre City Green Requirement:	**Greenguard Certified, modular interior construction for 75% of full height interior walls, not including walls providing structural support, walls enclosing spaces requiring pressurization and walls required to be fire rated.**

Entitlement Commitment

Expected full height wall area: (excluding walls providing structural support, walls enclosing spaces requiring pressurization and walls required to be fire rated)	58,000	square feet
75% Minimum modular wall area required:	43,500	square feet

Yes, my project meets the Modular Interior Construction requirement

Signature	Date

Estimated waste prevention from this measure: **43,500** **lbs**

Waste prevention estimate is provided for informational purposes only.

Exhibit 40: Example Modular Interior Construction Entitlement Commitment

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Modular Interior tab of the CCDC Checklist Tool for Plan Intake (see Exhibit 41).
3. Provide a floor plan in the A sheets that identifies fixed construction elements and the modular construction substitutes
4. Provide modular system specifications with a section detail of the modular components and proof of GREENGUARD certification for the full-height modular walls.

Enforcement:

1. The DSD reviewer and/or plan checker shall review the Plan Intake Form (Exhibit 41) and confirm that the modular assemblies noted on the project drawings/specifications match the modular equipment reported in the form.
2. The inspector shall review the permit set of plans to verify that the modular assemblies noted on the project drawings have been installed at the time of turnover.

13 Modular Interior Construction

Modular Construction

Centre City Green Requirement: **Greenguard Certified, modular interior construction for 75% of full height interior walls, not including walls providing structural support, walls enclosing spaces requiring pressurization and walls required to be fire rated.**

Plan Intake

Enter values from project drawings into the table below.

INTERIOR WALL DETAILS

	FULL HEIGHT PERMANENT WALLS*			FULL HEIGHT MODULAR WALLS			% Modular Interior Walls
Floor Level	Total Permanent Wall Length*	Total Permanent Wall Height	Total Permanent Wall Area	Total Modular Wall Length	Total Modular Wall Height	Total Modular Wall Area	
Floor 1	256	10.5	2688	1020	10.5	10710	80%
Floor 2	1233	10.5	12947	2400	10.5	25200	66%
Floor 3	345	10.5	3623	2200	10.5	23100	86%
Total Wall Area			**19257**			**59010**	**75%**

*(excluding, bathrooms, janitor closets and required fire-rated walls)

PROJECT QUALIFIES FOR CENTRE CITY GREEN EXTERIOR SHADING POINTS	**YES**
ESTIMATED INITIAL CONSTRUCTION WASTE DIVERTED FROM LANDFILL (LBS)	59,010

Signature	Date

Exhibit 41: Example Modular Interior Construction Intake Form from CCDC Checklist Tool

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
Modular Interior Construction									
GREENGUARD Certified, modular interior construction for 75% of full height interior walls, not including walls providing structural support, walls enclosing spaces requiring pressurization and walls required to be fire rated.		X						Architectural drawings and calculations showing location, manufacturer and model of modular wall systems and eligible permanent walls (excludes walls enclosing spaces requiring pressurization or fire rating)	Structural
		X						Proof of GREENGUARD Certification	
Complete the Modular Construction tab of the CCDC Checklist Tool.	X	X							

Exhibit 42: Compliance Review Responsibility Chart

14 Enhanced Transportation Measures

Figure 14: Portland Oregon bike corrals

Requirement:

Implement Transportation Demand Management measures to achieve a TDM score of 25 or greater.

Intent:

This measure reduces dependence on single occupancy vehicle travel and minimizes congestion and its related pollution in the downtown core by encouraging the use of public transit and alternative modes of transportation (carpools, efficient vehicles, bicycles, etc.).

The measure makes alternative transportation modes more attractive by increasing amenities associated with them, including upgrades to bus shelters (seating and lighting), preferred parking for alternative vehicles, access to alternative fueling stations, closer linkages between developments and public transit and programs to link riders for ride sharing.

Benefits:

- Saves time: Studies have shown that use of public transportation in America's most congested cities saved travelers over a billion hours in travel time[1]. Benefits accrue from reductions in road congestion and efficient public transit options.
- Saves money: Households that are likely to use public transportation on a given day save over $8,400 every year[2].
- Reduces fossil fuel use and associated carbon emissions: National studies have shown that access to bus and rail lines reduces driving by an average of 4,400 miles per household each year. Communities that invest in public transit reduce the nation's carbon emissions by 37 million metric tons annually[3].
- Increases health and reduces stress: Reductions in carbon monoxide and volatile organic compounds caused by transportation have been associated with lower rates of respiratory and heart disease. Alternative transportation, like bicycles promote exercise and healthier lifestyles[4].
- Provides mobility for all people: Improved public and alternative transportation provides mobility for the elderly, young people and other populations without access to single occupancy vehicles.

CCG Indictors

1 American Public Transportation Association. "Public Transportation, Benefits for the 21st Century." APTA. 2007. Web. 30 March 2011 <http://www.apta.com/resources/reportsandpublications/Documents/twenty_first_century.pdf>
2 American Public Transportation Association. "Transit Facts." Public Transportation Takes Us There. Web. 30, March 2011 <http://www.publictransportation.org/facts/>
3 ibid
4 ibid

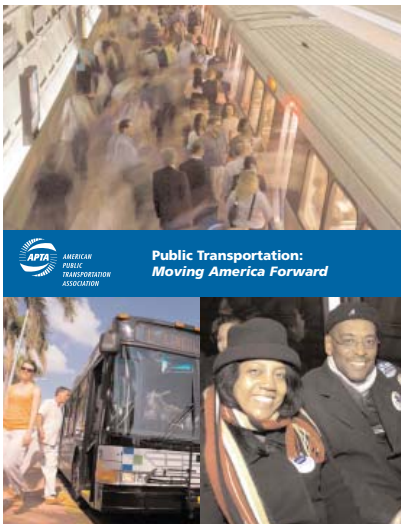
Design:

Rather than discourage use of single occupancy vehicles, this measure improves access to and comfort of service on alternative transportation modes. Developments should select options from the wide range of TDM possibilities listed for this measure to best complement the needs of building occupants and the surrounding neighborhood and to support the efficiency of connections to other neighborhood centers and outward to the region.

Resources:

For more information about enhanced transportation, see the following:

- Public Transportation Benefits for the 21st Century, American Public Transportation Association, http://www.apta.com/resources/reportsandpublications/Documents/twenty_first_century.pdf
- Draft Southern California Association of Governments Catalogue of Transportation Demand Management (TDM) GHG Reduction Policy Options, Southern California Association of Governments, Climate and Economic Development Project, http://cedp.scag.ca.gov/ewebeditpro/items/O84F23620.PDF



Existing Law or Regulation:

The City of San Diego Street Design Manual 2002 provides guidelines for the design of streets to encourage transit and pedestrian friendly environment while promoting mobility and minimizing congestion. This document provides guidelines, but does not establish a legal standard.

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Enhanced Transportation tab of the CCDC Checklist Tool for Entitlement (see Exhibit 43)

Enforcement:

- **Entitlement Commitment:** CCDC shall review the Entitlement Commitment (Exhibit 43) and verify that the project has committed to implementing the indicated transportation measures noted on the checklist.

14 Enhanced Transportation Measures

Enhanced Mobility

Centre City Green Requirement: Implement Transportation Demand Management measures to achieve a TDM score of 25 or greater

Entitlement Commitment

Estimated parking stalls to be provided: 250

Select TDM measures to be implemented:

	Estimated Project Requirement	Y/N	Points
5-year, 50% subsidy for transit passes for employee occupants		☐	20
Public accessible shuttle to all downtown and airport locations		☐	15
Vehicle parking to meet, but not exceed, minimum PDO requirements	562 Parking stalls	☐	15
"Shared use vehicles" for property tenants - Minimum 1 vehicle per 33 occupants - Vehicles provided have CARB classification of ULEV, SULEV, PZEV, or ZEV - Preferential parking	14 Shared vehicles	✓	15
Electric, natural gas, or fuel cell fueling stations - Minimum 1 station per 30,000 s.f. (office); 1 per 100 rooms (hotel) - Minimum 50% of stations are electric vehicle charging stations	11 Fueling stations, including 6 Electric	✓	15
On-site daycare		☐	10
Bicycle storage - minimum 1 space per 20 occupants	23 Bicycle spaces	☐	5
Upgraded transit stop adjacent to development, including shelter, seating, lighting and ongoing maintenance		☐	5
Preferential parking for low emission vehicles - CARB classifications ULEV, SULEV, PZEV, and ZEV	13 LEV stalls	☐	5
Preferential carpool and/or vanpool parking - minimum 5% of permitted parking	13 Carpool stalls	☐	5
On-site shower facilities available to all tenants/employees of a building - Minimum 1 shower per 100,000 s.f. (office); 1 per 100 rooms (hotel)	4 Shared showers	☐	5
Participation by building management and tenants in carpool coordination, ridesharing and car-sharing programs		☐	5
Discounted parking rates for low emission vehicles - CARB classifications ULEV, SULEV, PZEV, and ZEV		☐	5
Discounted parking rates for carpools containing 3 or more adults - Minimum 20% discount		☐	5
Preferential parking for car-sharing vehicles (at least one space)		☐	5
Proximity to public transit stop/station (1,320 feet or fewer)		☐	1
On-site transit pass sale, maps and information		✓	1
Total points for Selected Measures			31

☑ **Yes, my project meets the Enhanced Transit requirement**

Signature

Date

Exhibit 43: Example Enhanced Transportation Entitlement Commitment

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Complete the Enhanced Transportation tab of the CCDC Checklist Tool for Plan Intake (see Exhibit 44).

3. Provide specifications, plans and details of designed measures, such as signage, striping details, bicycle racks, showers, etc.

4. Provide building CC&Rs for any parking discounts for carpools, fuel efficient vehicles, or shared ownership vehicles indicating that they will be provided for the life of the building project.

Enforcement:

1. The DSD reviewer and/or plan checker shall review the Plan Intake Form (Exhibit 44) and confirm that the transportation measures noted on the project drawings match the measures reported in the form.

2. The inspector shall review the permit set of plans to verify that the transportation measures noted on the project drawings have been implemented at the project site.

3. CCDC shall review all CC&Rs that are required for the measures indicated.

14 Enhanced Transportation Measures

Enhanced Mobility

Centre City Green Requirement: Implement Transportation Demand Management measures to achieve a TDM score of 25 or greater

Plan Intake

Provide requested information and select TDM measures to be implemented below.

Mixed-Use Building:	Identify the square footage dedicated to each commercial/Retail	10,000
	Office	40,000

		Points Earned
Parking required for the project per PDO	562	
Total number of parking spaces provided	200	0
Number of preferred parking spaces provided for carpool/vanpool	2	0
Number of preferred parking spaces provided for low emission vehicles	8	0
Number of preferred parking spaces provided for shared use vehicles	15	5
Number of shared use vehicles provided	14	
CARB classification of shared use vehicles provided	ULEV	15
Number of alternative fueling stations provided	10	
Number of electric vehicle charging stations provided	6	0
Average parking rate (dollars per hour)	$5	
Parking rate for low emission vehicles (dollars per hour)	$5	0
Parking rate for carpool vehicles (dollars per hour)	$5	0
Number of bicycle storage spaces provided	100	5
Number of shower facilities provided	20	5
Distance to public transit stop from furthest building entrance (feet)	1500	0
☐ 5-year, 50% subsidy for transit passes for employee occupants		0
☐ Public accessible shuttle to all downtown and airport locations		0
☑ On-site daycare		10
☐ Upgraded transit stop adjacent to development, including shelter, seating, lighting and ongoing maintenance		0
☐ Participation by building management and tenants in carpool coordination, ridesharing and car-sharing programs		0
☑ On-site transit pass sale, maps and information		1
Total TDM Points Earned:		41
Project Qualifies for Centre City Green Enhanced Transit Points:		YES

Signature

Date

Exhibit 44: **Example Enhanced Transportation Plan Intake Form from CCDC Checklist Tool**

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
Enhanced Transportation Measures									
Implement Transportation Demand Management measures to achieve a TDM score of 25 or greater.	X							Plans showing location and design details for selected measures	
Complete the Enhanced Transportation tab of CCDC Checklist Tool.	X								

Exhibit 45: Compliance Review Responsibility Chart

15 Enhanced Green Street Elements

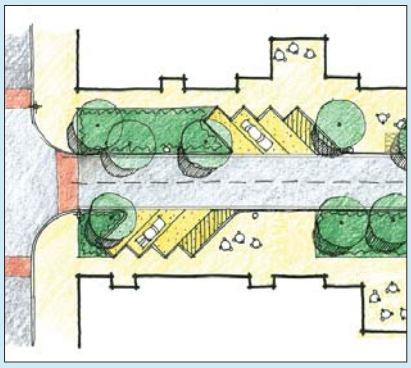


Figure 15: Green Street diagram from Centre City Green: Downtown's Sustainability Master Plan

Requirement:

Implement Green Street elements from the menu of options provided to achieve a score of 20 or greater.

Intent:

This measure improves the livability of Centre City by accelerating the development and enhancement of designated Green Streets.

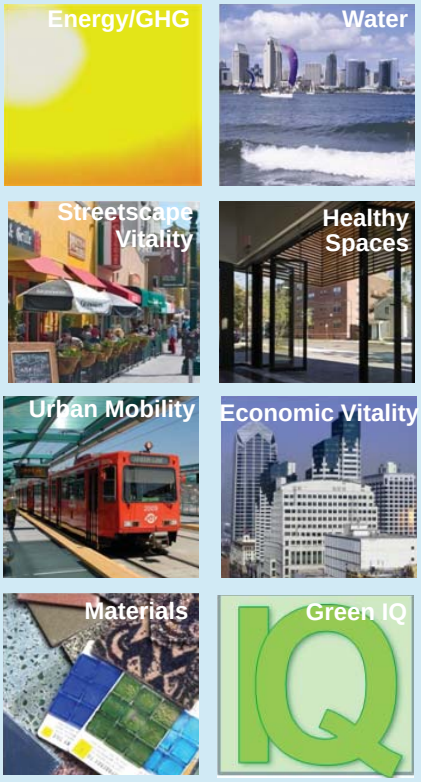
Green Street elements encourage pedestrian activity while enhancing pedestrian comfort and safety, fostering the use of sidewalk space as a community space and marketplace. In addition, Green Street landscaping elements help generate habitat, mitigate stormwater runoff, minimize heat island impacts and improve air quality.

Benefits:

- **Encourages streetscape activity:** Green Street elements may include amenities like wider sidewalks, seating, sidewalk enterprises, bicycle racks and transit shelters that encourage pedestrian activity and provide opportunities for casual civic interactions.
- **Manages stormwater runoff:** Landscaping elements can be used to manage stormwater runoff to minimize impacts on city infrastructure systems.
- **Cools surrounding spaces:** Shading from street trees cools surrounding paved areas, providing a comfortable pedestrian environment and minimizing energy use in surrounding buildings. Shaded pavement in an urban environment can reduce peak outdoor temperatures by 3°C, leading to an estimated 20% reduction in air conditioning use.
- **Improves air quality:** Landscaping helps to trap dust and particulate matter and buffer sounds, creating a healthier urban environment. During photosynthesis, plants take in carbon dioxide (CO2) and give off oxygen (O2) as a by-product. One estimate indicates that during the active growing season, a healthy lawn area of 25 square feet will provide enough O2 for one adult person for one day[1].
- **Generates habitat:** Green street elements can be used to both link and extend the habit areas from established parks and open spaces.

1 Roberts, E. C. and Roberts, B. C., Lawn and Sports Turf Benefits, The Lawn Institute, Pleasant Hill, TN, 1987, 31pp.

CCG Indictors

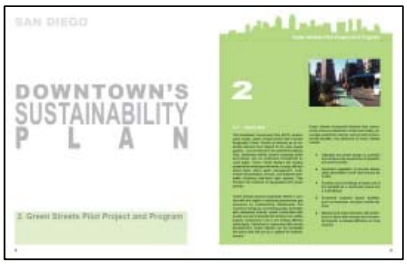


Design:

Developments should choose from the wide range of Green Street elements listed for this measure to capitalize on the character and needs of the surrounding neighborhood. A cohesive package of elements should be developed that build on each other to increase mobility, connectivity and the ambience of the pedestrian environment.

For more information about Green Street Elements, see the following:

- *Green Streets Pilot Project and Program*, Downtown's Sustainability Plan, CCDC and City of San Diego, 2011



Existing Law or Regulation:

San Diego Downtown Community Plan Figure 7-1 indicates identified green streets and Box 7-1: Street Typologies describes desired attributes for these streets.

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Green Streets tab of the CCDC Checklist Tool for Entitlement (see Exhibit 44)
3. Provide outline specifications for all green street measures selected for the project

Enforcement:

1. CCDC shall review the Entitlement Commitment (Exhibit 46) and verify that the project has committed to installing Green Street elements providing a score of 20 or higher.

15 Enhanced Green Street Elements

Green Streets

Centre City Green Requirement: At designated Green Streets, implement Green Street elements to achieve a score of 20 or greater.

Entitlement Commitment

Select Green Street measures to be implemented from the list below.

		Points Possible
☐	An additional 10 feet of sidewalk area provided on private property	20
☑	Incorporate transit shelters into development	20
☐	Open space greater than 250 SF or 5% of lot, whichever is larger	15
☐	Street trees that will shade 50% of the sidewalk area within 5 years	15
☐	Sidewalk enterprises, such as exterior sales kiosks, cafes, and retail sales	10
☐	Benches and or movable seating maintained by the building owner	10
☑	Landscaped stormwater management systems at the curb edge containing local plantings	10
☐	Street recycling that will be managed by the building owner	5
☐	On-street bicycle corrals	10
☐	Efficient Exterior Lighting (LED or Induction)	10
☐	100% of materials locally manufactured or include at least 10% recycled content	5
☐	Native landscaping at additional ROW landscaped area	5
☐	Public art that is located at the focal point of the development	5
☐	Sustainability educational display that is accessible to the public	1
Total points for Selected Measures		**30**

☑ **Yes, my project meets the Green Street requirement**

Signature

Date

Exhibit 46: Example Enhanced Green Street Elements Entitlement Commitment

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Green Streets tab of the CCDC Checklist Tool for Plan Intake (see Exhibit 45).
3. Provide design details for the implemented Green Street elements in the project construction documents
4. Provide specifications for all green street measures selected for the project

Enforcement:

1. The DSD reviewer and/or plan checker shall review the Plan Intake Form (Exhibit 47) and confirm that the Green Street elements noted on the project drawings match the elements reported in the form.
2. The inspector shall review the permit set of plans to verify that the Green Street elements noted on the project drawings have been installed at the time of turnover.

15 Enhanced Green Street Elements

Green Streets

Centre City Green Requirement: At designated Green Streets, implement Green Street elements to achieve a score of 20 or greater.

Plan Intake

Provide requested information and select Green Street measures to be implemented below.

		Points Earned
☐	An additional 10 feet of sidewalk area provided on private property	0
☑	Incorporate transit shelters into development	20
☑	Open space greater than 250 SF or 5% of lot, whichever is larger	15
☐	Street trees that will shade 50% of the sidewalk area within 5 years	0
☐	Sidewalk enterprises, such as exterior sales kiosks, cafes, and retail sales	0
☐	Benches and or movable seating maintained by the building owner	0
☐	Landscaped stormwater management systems at the curb edge containing local plantings	0
☐	Street recycling that will be managed by the building owner	0
☐	On-street bicycle corrals	0
☐	Efficient Exterior Lighting (LED or Induction)	0
☐	100% of materials locally manufactured or include at least 10% recycled content	0
☐	Native landscaping at additional ROW landscaped area	0
☐	Public art that is located at the focal point of the development	0
☐	Sustainability educational display that is accessible to the public	0
Total Green Street Points Earned:		**35**
Project Qualifies for Centre City Green Green Street Points:		**YES**

Signature

Date

Exhibit 47: Example Enhanced Green Street Elements Plan Intake Form from CCDC Checklist Tool

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
Enhanced Green Street Elements									
Implement Green Street elements from the menu of options provided to achieve a score of 20 or greater.	X							Plan drawings showing green street elements and their design details	
Complete the Green Streets tab of CCDC Checklist Tool.	X								

Exhibit 48: Compliance Review Responsibility Chart

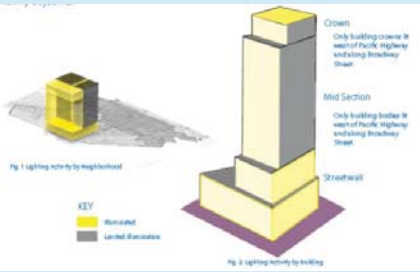


Figure 16: Centre City Lighting Master Plan

16 Energy Efficient Exterior Architectural Lighting

Requirement:

Achieve savings on exterior lighting power allowance relative to Title 24 requirements by reducing installed wattage and time of use per a prescriptive schedule based on evening and night-time allowances.

Intent:

This measure reduces dependence on natural resources and helps San Diego meet carbon emissions goals by encouraging new developments to install energy efficient exterior architectural lighting and controls. Exterior architectural lighting refers to exterior lighting that is regulated by Title 24.

The application of exterior lighting can constitute a significant use of energy while failing to accent architectural features by over-lighting entire facades and hardscape areas. Over-lighting is sometimes promoted to increase pedestrian safety and building security, but in practice increases risk to both concerns by creating large differences between lit and unlit areas that the human eye cannot adjust to. By being selective about lighting architectural features and designing evenly lit hardscape areas at a lower level, aesthetics, safety, security and energy use can be balanced.

Benefits:

- **Reduces energy costs and associated carbon emissions:** Exterior lighting is one of the best places to make use of energy efficient lamps because of their long hours of use. Energy savings translate directly to utility cost savings. Over the life of the lighting, these savings can be many times greater than the incremental cost of more efficient lamps. In addition, these energy savings reduce the associated carbon emissions from demand of utility supplied power.
- **Provides a more comfortable nighttime environment: Well-designed energy efficient exterior lighting reduces glare and increases security.**
- **Potential to reduce maintenance costs:** Many efficient new technologies, such as LED and induction, have longer lamp life that reduces associated maintenance costs over the life of the lighting.

Design:

Exterior lighting design is a careful balance of lighting for safety, comfort, and nighttime ambiance. “More is better” doesn’t apply to exterior lighting design. Over-lighting can increase glare, decrease visibility and waste energy. The best exterior lighting designs provide even, non-glare light to

CCG Indictors

surfaces and facial features, use efficient lamps and fixtures, and include controls to turn off lights when they're not needed. Use of cutoff fixtures reduces environmental impacts of light trespass to the night sky and the associated energy waste. A well-designed schedule of lighting controls can minimize energy use for exterior lighting on weekday evenings and in the middle of the night by reducing energy use of façade and decorative lighting while maintaining safety and security in pedestrian areas.

The energy and control allowances in this measure are relative to Title 24 and vary based on the section of the building (Street Wall, Mid Section and Crown) being illuminated and the neighborhood in which the project is located. Note that, per the Title 24 protocol, only "illuminated" hardscape and façade areas may be counted in the lighting allowance. The illuminated hardscape area is defined in Title 24, Section 147(d) 1A, and the illuminated façade, in Table 147-B. All of Centre City is classified as Lighting Zone 3 (LZ3) per the Title 24 Table 10-114-A.

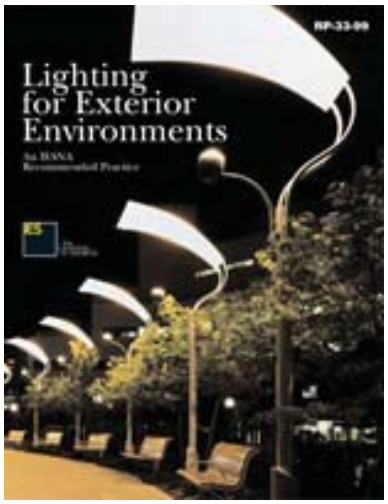
Calculate the reduced lighting allowance for each lighted surface based on the highest percentage shown for that building section in the Entitlement Commitment Form for the project neighborhood.

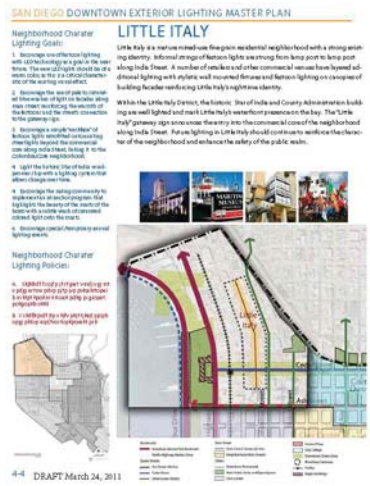
Design energy efficient exterior architectural lighting that does not exceed the reduced exterior lighting power allowance determined above. Design a control system to achieve the additional power reductions noted for times of low occupancy (weekday evenings from sunset to 11PM and late night from 11PM to sunrise and weekends late night from 11PM to sunrise).

Resources:

For more information about efficient exterior lighting, see the following:

- Lighting for Exterior Environments, RP-33, by the Illuminating Engineering Society of North America is one of the most helpful publications on exterior lighting. It can be ordered from their website www.iesna.org
- Reduction of Outdoor Lighting, California Energy Commission, http://www.energy.ca.gov/efficiency/lighting/outdoor_reduction.html
- The International Darksky Association website at www.darksy.org provides a wealth of free information, including examples of good and bad outdoor lighting
- Advanced Lighting Guidelines, New Buildings Institute, 2010, http://www.algonline.org/
- City of San Diego, Outdoor Lighting Regulations, Municipal Code, Chapter 14, Section 142.0740. The regulations include allowed types of lamps, requirements due to relationship with observatories and hours of use.





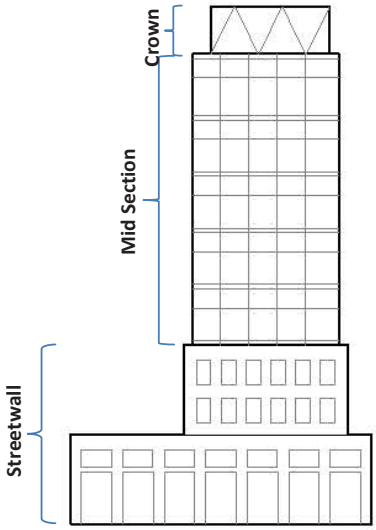


Exhibit 49: Vertical lighting zones as described in the CCDC Lighting Master Plan

16 Energy Efficient Exterior Architectural Lighting

San Diego Downtown Lighting Master Plan (currently in development) establishes guidelines and requirements for exterior lighting in San Diego's downtown neighborhoods.

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Complete the Exterior Lighting tab of CCDC Checklist Tool for Entitlement (see Exhibit 50) and locate within E sheets. Evaluate the Title 24 exterior lighting zone requirements for Lighting Zone 3 and determine the associated exterior lighting power allowance for

Efficient Exterior Architectural Lighting

Centre City Green Requirement: **Achieve savings on exterior lighting power allowance relative to Title 24 requirements by reducing installed wattage and time of use per a prescriptive schedule based on evening and night-time allowances**

Entitlement Commitment

Neighborhood **HORTON PLAZA/GASLAMP**

Lighitng Power Allowance

	Energy Consumption Allowance** (As % of Title 24)	
WEEKDAY	**Sunset - 11 pm***	**11 pm - Sunrise**
Façade - Upper Tower	50%	10%
Façade - Tower/Mid	0%	0%
Façade - Streetwall	80%	10%
Hardscape	80%	50%

	Energy Consumption Allowance** (As % of Title 24)	
WEEKEND	**Sunset - 11 pm***	**11 pm - Sunrise**
Façade - Upper Tower	100%	10%
Façade - Tower/Mid	50%	0%
Façade - Streetwall	100%	10%
Hardscape	100%	50%

* Commercial business may be allowed to stay on until business closes

** Add 10% if within 20' of an intersection (Do not exceed 100%)

☐ **Yes, my project meets the maximum allowed wattage for each façade element and hardscape area noted above**

☐ **Yes, my project includes controls to reduce energy consumption per the weekday and weekend schedule noted above**

Signature

Date

Exhibit 50: Example Energy Efficient Exterior Architectural Lighting Entitlement Commitment

hardscape and building facades. Determine the project façade areas constituting the Street Wall, Mid Section and Crown of the building (See Exhibit 49).

Enforcement:

1. CCDC shall review the Entitlement Commitment (Exhibit 50) and verify that the project has committed to installing exterior architectural lighting that does not exceed Title 24 requirements and has a control system and schedule that achieve this measure's specified exterior lighting power reductions on weekday evenings and middle of the night.

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Complete the Exterior Lighting tab of CCDC Checklist Tool for Plan Intake (see Exhibit 51) and locate within E sheets. Note any changes that were made to the design since Entitlement Review.

3. Indicate the location and manufacturer of all exterior light fixtures on the E sheets, including cut sheets for exterior light fixtures and provide details/schedules for the controls strategy.

Enforcement:

1. The reviewer and/or plan checker shall review the Plan Intake Form and confirm that all windows are listed in the table, that the overhang dimensions and location meet the measure requirements, and that the dimensions reported on the form match the section diagrams in the project's construction documents.

2. The DSD reviewer and/or plan checker shall review the Plan Intake Form (Exhibit 51) and confirm that the equipment and controls noted on the project drawings match the exterior architectural lighting equipment reported in the form.

3. The inspector shall review the permit set of plans to verify that the exterior lighting equipment and controls noted on the project drawings have been installed and are functioning at the time of turnover.

16 Energy Efficient Exterior Architectural Lighting

Efficient Exterior Architectural Lighting

Centre City Green Requirement: **Achieve savings on exterior lighting power allowance relative to Title 24 requirements by reducing installed wattage and time of use per a prescriptive schedule based on evening and night-time allowances**

☐

Plan Intake

How many days per year will the building operate? 250

Project Lighting Zone: Zone 3

Neighborhood LITTLE ITALY

ENERGY CALCULATION SUMMARY CHARTS

FAÇADE CALCULATIONS

	North Façade	East Façade	South Façade	West Façade	Total		
Upper Tower Area (sf)	10000	10000	10000	10000			
Upper Tower Allowed (50% of Title 24)	1750	1750	1750	1750	7,000	35%	= Upper Tower % of Allowed
Upper Tower Installed	614	614	614	614	2,456		
Tower Area (sf)	10000	10000	10000	10000			
Tower Allowed (= Title 24)	3500	3500	3500	3500	14,000	71%	= Tower % of Allowed
Tower Installed	3000	938	3000	3000	9,938		
Street Wall Area (sf)	10000	10000	10000	10000			
Street Wall Allowed (= Title 24)	3500	3500	3500	3500	14,000	86%	= Street Wall % of Allowed
Street Wall Installed	3000	3000	3000	3000	12,000		

HARDSCAPE CALCULATIONS

	# Building Entrances or Exits	Outdoor Sales Frontage (lf)	Hardscape Ornament (square ft)	Non-Sales Canopies (square ft)	Outdoor Dining (square ft)	Other Hardscape	Hardscape Area Allowance	Hardscape Linear Allowance	Hardscape Initial Allowance	Total
Zone Allowance							0.092	0.92	770	
Quantity							200000	10000		
Allowed Wattage							18400	9200	0	27,600
Installed Wattage										10,200

Hardscape % of Allowed = 37%

Title 24 Allowance (Watts) =

Installed Watts =

Annual Energy Savings Relative to Title 24 =

☐ **Yes, my project meets the maximum total allowed wattage requirement**

Signature

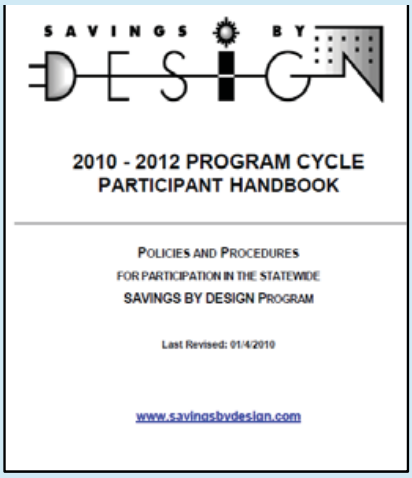
Date

Exhibit 51: Example Energy Efficient Exterior Architectural Lighting Plan Intake Form from CCDC Checklist Tool

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
Energy Efficient Exterior Architectural Lighting									
Achieve savings on exterior lighting power allowance relative to Title 24 requirements by reducing installed wattage and time of use per a prescriptive schedule based on evening and night-time allowances.				X				Electrical drawings showing exterior light fixtures with control zones and controls schedule demonstrating time of use reductions per the prescriptive schedule for the project neighborhood	Electrical
Complete the Exterior Lighting tab of CCDC Checklist Tool.	X			X					

Exhibit 52: Compliance Review Responsibility Chart


SAVINGS BY DESIGN

2010 - 2012 PROGRAM CYCLE
PARTICIPANT HANDBOOK

POLICIES AND PROCEDURES
FOR PARTICIPATION IN THE STATEWIDE
SAVINGS BY DESIGN PROGRAM

Last Revised: 01/4/2010

www.savingsbydesign.com

Figure 17: Savings by Design Program

17 Savings By Design

Requirement:

Register the project in the Savings By Design program and participate in the Design Assistance consultation service.

Intent:

This measure encourages energy savings and reductions in associated carbon emissions by awarding projects that engage in an analysis of the most energy efficient design alternatives and evaluate them for inclusion in the final project design.

Sponsored by the California utility companies, Savings By Design is a statewide program encouraging high performance nonresidential building design and construction. This program offers design assistance, owner and designer incentives, and access to tools, training and in-depth information on efficient technologies and strategies.

Benefits:

- **Provides incentives to reduce first cost:** Financial incentives are available to projects that demonstrate savings that exceed the Savings By Design threshold, which is usually 10% below the Title 24 standard. These incentives can offset the incremental first costs of measures installed.
- **Reduces long term operating costs:** Efficient design saves energy, resulting in lower utility use and demand charges.
- **Increases comfort, health and productivity:** Many efficient design approaches also improve thermal comfort, increase air quality and provide more comfortable, productive lighting, including daylighting. All of these can have significant impacts on health and productivity[1].

Design:

The Savings By Design program addresses new construction projects and has two paths: 1) The Whole Buildings Approach awards projects that use an integrated design process to demonstrate energy savings relative to Title 24 and 2) the Systems Approach recognizes projects for implementing efficient individual systems, like daylighting, HVAC, service hot water, etc. The particular path and measures chosen will depend on the project goals and opportunities available. To have the greatest impact on savings, projects should register for the program early in the design process, at a time when design changes are feasible (preferably

1 Boue, George. "Linking Green Buildings, Productivity and the Bottom Line." GreenBiz.com. 08 July 2010. Web. 30 March 2011 <http://www.greenbiz.com/blog/2010/07/08/linking-green-buildings-productivity-and-bottom-line>

CCG Indictors

the conceptual or schematic design phase). Projects too far along in the design process may not be eligible for the program.

Resources:

For more information about Savings By Design, see the following:

- Savings By Design, San Diego Gas & Electric, http://www.savingsbydesign.com/Bios/sdgebios.htm

Existing Law or Regulation:

There is NO current law or regulation for this measure.

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Complete the Savings By Design tab of the CCDC Checklist Tool for Entitlement (see Exhibit 53)

Enforcement:

1. CCDC shall review the Entitlement Commitment (Exhibit 53) and verify that the project has committed to registering in the Savings By Design program.

Savings By Design

Centre City Green Requirement: Register the project in the Savings By Design program and participate in the Design Assistance consultation service.

Entitlement Commitment

Savings By Design commitment:

- ☐ **Yes, my project is registered in the Savings by Design program**
- ☐ **I have attached the registration form for the project**

Signature

Date

Exhibit 53: Example Savings by Design Entitlement Commitment

17 Savings By Design

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Complete the Savings By Design tab of the CCDC Checklist Tool for Plan Intake (see Exhibit 54).

3. Provide the registration documentation and report of recommended measures from the utility staff.

Enforcement:

1. The DSD reviewer and/or plan checker shall review the Plan Intake Form (Exhibit 54) and confirm that the project has registered in Savings By Design and has participated in the Design Assistance service.

2. No on-site action required.

Savings By Design

Centre City Green Requirement: Register the project in the Savings By Design program and participate in the Design Assistance consultation service.

Plan Intake

Describe the measures recommended by the Savings By Design consultation and indicate whether they have been incorporated into the project:

Measures	INCORPORATED? YES/NO
1	SELECT ONE
2	SELECT ONE
3	SELECT ONE
4	SELECT ONE
5	SELECT ONE
6	SELECT ONE
7	SELECT ONE

Select the Sustainability Indicators that benefit from the designed measures described above:

- ☐ Energy and Greenhouse Gas Emissions
- ☐ Water
- ☐ Materials
- ☐ Streetscape Vitality
- ☐ Economic Vitality
- ☐ Healthy Space
- ☐ Urban Mobility
- ☐ Green IQ

Estimate of annual energy savings from the measures incorporated _____ **kWh**

Estimate of annual water savings from themeasures incorporated _____ **gallons**

☐ **Yes, my project has participated in the Savings By Design**

☐ **I have attached the Savings By Design report summary**

Signature

Date

Exhibit 54: Example Savings by Design Plan Intake Form from CCDC Checklist Tool

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD							
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review	Enforcement	Inspection
Savings By Design									
Register the project in the Savings By Design program and participate in the Design Assistance consultation service.	X							Proof of registration of the project in the Savings By Design program and the report of recommended measures from the utility staff	
Complete the Savings By Design tab of CCDC Checklist Tool.	X								

Exhibit 55: Compliance Review Responsibility Chart

18 Innovation

Requirement:

Implement an alternative high performance building or site feature (other than those prescribed) with measurable impact on one or more CCDC Sustainability Indicators.

Intent:

This measure provides flexibility for design teams to respond creatively to sustainability opportunities at particular sites and/or to be rewarded for implementing new sustainability measures that have surfaced since the introduction of this incentive program.

Measures implemented must be shown to have a measurable impact on one or more CCDC Sustainability Indicators and must have prior approval of eligibility for the program by CCDC.

Benefits:

Benefits will vary based on the measures proposed and implemented.

Design:

Propose and obtain approval from CCDC for the Innovation measure and calculate the impact on one or more of San Diego's Sustainability Indicators. Design and install the described Innovation measure(s). Indicate the location and details for the measure on the project's construction documents and estimate the energy and water savings anticipated from the measure(s).

Resources:

The following resources can provide ideas about alternative strategies for sustainability in urban developments:

- *LEED 2009 Green Neighborhood Development Reference Guide*, US Green Building Council, http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148
- *Sustainable Urban Design, An Environmental Approach*, 2nd Edition, R. Thomas and A. Ritchie, Taylor & Francis, New York and London, 2009

Existing Law or Regulation:

Laws and regulations will vary based on measures proposed and implemented.

CCG Indictors

I. Entitlement Submission

Documentation Requirements:

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)
2. Complete the Innovation tab of the CCDC Checklist Tool for Entitlement (see Exhibit 56)

Innovation

Centre City Green Requirement: Implement high performance building or site features with measurable impact on one or more CCDC Sustainability Indicators, other than those prescribed.

Entitlement Commitment

Describe the proposed innovation:

Select the Sustainability Indicators that benefit from the Innovation described above:

- [x] Energy and Greenhouse Gas Emissions
- [ ] Water
- [ ] Materials
- [ ] Streetscape Vitality
- [ ] Economic Vitality
- [ ] Healthy Space
- [x] Urban Mobility
- [ ] Green IQ

Preliminary estimate of annual energy savings from this Innovation _____ **kWh**

Preliminary estimate of annual water savings from this Innovation _____ **gallons**

- [ ] **Yes, my project meets the Innovation requirement**
- [x] **I have attached drawings, manufacturer's data, and/or calculations to substantiate the savings estimate(s) reported.**

Signature

Date

Exhibit 56: Example Innovation Entitlement Commitment

Enforcement:

1. CCDC shall review and approve the proposed Innovation measure and coordinate with the DSD of the City of San Diego.

2. CCDC shall review the Entitlement Commitment (Exhibit 56) and verify that the project has committed to installing the indicated measure(s), that it positively impacts CCDC's Sustainability Indicators, and that it has been approved for eligibility by CCDC.

II. Plan Intake Submission

Documentation Requirements

1. Create CCG-1.0 drawing sheet that includes the CCG Checklist, measure description approach, and location of additional information found in the submission (drawings & specs)

2. Complete the Innovation tab of the CCDC Checklist Tool for Plan Intake (see Exhibit 57).

3. Provide details of the measure(s), including CCDC approval, drawings, manufacturer's data, specifications and/or calculations to substantiate the savings estimate(s) reported.

Enforcement:

1. The DSD reviewer and/or plan checker shall review the Plan Intake Form (Exhibit 57) and confirm that the measure(s) noted on the project drawings matches the measure(s) reported in the form

2. The inspector shall review the permit set of plans to verify that the measure(s) noted on the project drawings has been installed and is functioning at the time of turnover.

Innovation

Centre City Green Requirement: Implement high performance building or site features with measurable impact on one or more CCDC Sustainability Indicators, other than those prescribed.

Plan Intake

Describe any changes to the proposed innovation since Entitlement:

Select the Sustainability Indicators that benefit from the Innovation described above:

- ☐ Energy and Greenhouse Gas Emissions
- ☐ Water
- ☐ Materials
- ☐ Streetscape Vitality
- ☐ Economic Vitality
- ☐ Healthy Space
- ☐ Urban Mobility
- ☐ Green IQ

Final estimate of annual energy savings from this Innovation _____ **kWh**

Final estimate of annual water savings from this Innovation _____ **gallons**

☐ **Yes, my project meets the Innovation requirement**

☐ **I have attached drawings, manufacturer's data, and/or calculations to substantiate the savings estimate(s) reported.**

Signature

Date

Exhibit 57: Example Innovation Plan Intake Form from CCDC Checklist Tool

Compliance Review Responsibility Chart

Requirements	Responsibilities								
	CCDC	DSD						Enforcement	Inspection
	Planning	Structural	Engineering	Electrical	Mechanical	Landscape	PRS Review		
Innovation									
Implement an alternative high performance building or site feature (other than those prescribed) with measurable impact on one or more CCDC Sustainability Indicators.	X							A detailed description of the implemented measure(s), including CCDC approval, drawings, manufacturer's data, and/or calculations to substantiate the savings estimate(s) reported and the CCDC sustainability indicators impacted	TBD
Complete the Innovation tab of CCDC Checklist Tool.	X								

Exhibit 58: Compliance Review Responsibility Chart

Centre City
Development
Corporation

Paladino

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