I. Introduction

Community and site design features and environmentally conscious building practices can have a substantial effect on air quality emissions and energy consumption. In recognition of this, the City of Chula Vista has been progressive in its approach to advancing the practices of energy conservation and reduction of greenhouse gas emissions. This is evident through the City's Growth Management Ordinance (CVMC 19.09), Carbon Dioxide (CO_2) Reduction Plan, Climate Change Working Group (CCWG) Implementation Measures, and Green Building and Increased Energy Efficiency Ordinances (CVMC 15.12, and 15.26.030, respectively). These programs promote energy conservation and reduction of greenhouse gas emissions by requiring applicants to implement the best available community site design practices such as providing alternative modes of transportation, transit-friendly, walkable communities, and sustainable building design.

The City's Growth Management Ordinance, requires an Air Quality Improvement Plan (AQIP) to be submitted with all Sectional Planning Area (SPA) Plans or major development projects consisting of 50 dwelling units or greater (or non-residential or mixed use projects with equivalent dwelling units (EDUs) to a residential project of 50 or more dwelling units). As required by Growth Management Ordinance, the AQIP shall provide an analysis of air pollution impacts which would result from the project, and will be required to demonstrate the best available design to reduce vehicle trips, maintain or improve traffic flow, reduce vehicle miles traveled, including implementation of appropriate traffic control measures, and other means of reducing emissions (direct or indirect) from the project.

To further enhance opportunities to improve air quality and energy conservation, applicable action measures contained in the City's Carbon Dioxide (CO_2) Reduction Plan must also be addressed in the AQIP. The City's CO_2 Reduction Plan was adopted in late 2000 and establishes a strategy for the City to reduce energy consumption, promote alternative transportation and design transit-friendly, walkable communities. As part of the AQIP, applicants will be required to demonstrate how their project was designed to help implement the action measures contained in this plan.

In addition, although not required for AQIPs, at the time a building permit application is submitted, the developer/applicant will be required to comply with the provisions of the City's Green Building and Increased Energy Efficiency Standards, CVMC 15.12 and 15.26.030 respectively. These standards focus on implementing environmentally friendly construction practices and materials, and improving building energy conservation above current California State Title 24 Energy Code requirements. The environmentally conscious planning efforts developed in conjunction with the project's AQIP will facilitate compliance with CVMC 15.12 and 15.26.030 and expedite the building permit process.

Through the AQIP, applicants must demonstrate how their project has been designed consistent with each of these programs and thus represents the best available design in terms of improving energy efficiency and reducing greenhouse gas emissions. These guidelines have been developed to provide direction in the preparation of AQIPs.

II. City Requirements for AQIPs

A. Sectional Planning Area Plans, Tentative Maps, and Other Major Projects

In accordance with the City's Growth Management Ordinance (19.09), the developer/applicant shall prepare and submit an AQIP with applications for all SPA Plans, Tentative Maps, or for any major development projects that meet the following criteria:

- Residential projects of 50 dwelling units or greater.
- Commercial projects of 12 or more acres (or equivalent square footage).
- Industrial projects of 24 or more acres (or equivalent square footage).
- Mixed Use projects with a cumulative threshold equal to that of 50 residential dwelling units or greater (refer to Attachment A, Exhibit 1 for examples of AQIP equivalent dwelling unit determinations).

As described further below, the AQIP must include a qualitative and quantitative analysis of the proposed project to demonstrate how the project has met the City's thresholds for reducing air quality impacts and improving energy conservation. Key components of the AQIP will address:

- Air pollution impacts from project.
- Project efficiency through quantitative project evaluation.
- Community and site design features.
- Eligibility requirements to receive energy efficiency credit toward CVMC 15.26.030.

Additional details regarding AQIP requirements and format are provided in Attachment A: Required Content and Format for Air Quality Improvement Plans.

III. AQIP Format and Structure

As noted above, the key components of the AQIP must address: air pollution impacts of the proposed project, quantitative project evaluation through modeling, community and site design features, and eligibility requirements receive energy efficiency credit. Each of these key topic areas is further discussed below.

A. Summary of Air Pollution Impacts

The Applicant shall summarize the effect of the project's mobile and stationary emission sources on local and regional air quality. It is expected that this section will focus on highlighting the findings contained in the air quality impact analysis prepared as part of the project's respective Environmental Impact Report (EIR). This section of the AQIP must address the following:

" Federal, State, and Local rules and regulations related to assessing air quality impacts.
" Project's mobile and stationary emission sources and related criteria pollutants (including those associated with short-term construction and long-term implementation).
" Effect of project emissions on local and regional air quality.
" A summary of CEQA Mitigation Measures that will be implemented to reduce the project's effect on air quality.

B. Quantitative Project Design Evaluation

The Applicant(s) shall perform a quantitative analysis through one of two computer-modeling options in order to demonstrate that the project has met the City's required thresholds for community design considerations such as land use mix, street system connectivity, and pedestrian network. The primary means to accomplish this is through an INDEX PlanBuilder (INDEX) model developed specifically for the City (Option 1). As an alternative to the INDEX program, Developers/Applicants have the option to use other modeling tools similar to INDEX provided that the results can be translated to clearly demonstrate compliance with the City's established thresholds (Option 2). A summary of each of the two options is provided below.

(1) Option 1: INDEX PlanBuilder

INDEX is an interactive GIS-based planning tool designed to assist in community planning by evaluating proposed community/site designs against a set of performance standards. Applicants choosing this option shall have their project evaluated against a set of 'Key Indicators' that measure the performance characteristics of the project in relation to required minimum baseline scores. An INDEX program has been developed specifically to model major projects in Chula Vista through a required set of Key Indicators focusing on air quality and energy efficiency. The Key Indicators that will be measured through the INDEX model are presented in Table 1. Definitions for each of the Key Indicators and the minimum scores for each are provided in Attachment A, Exhibit 2.

TABLE 1: List of INDEX Key Indicators

INDEX Key Indicators	
■ Land-Use Use Mix	■ Intersection Density
■ Land-Use Use Balance	■ Pedestrian Network Coverage
■ Neighborhood Completeness	■ Residential Multi-Modal Access
■ School Proximity to Housing	■ Residential Building Energy Use
■ Transit Proximity to Housing	■ Non-Residential Building Energy Use
■ Park Proximity to Housing	■ Residential Building CO2 Emissions
■ Internal Street Connectivity	■ Non-Residential Building CO2 Emissions
■ Transit Proximity to Employment	■ Daily Auto Driving (Density, Diversity, and Design)

1. VMT: Vehicle Miles Traveled

The Applicant is responsible for the costs of retaining the consultant to perform the INDEX modeling services and may choose to either 1) enter into a three-party agreement with the City and the consultant providing the INDEX modeling services or, 2) contract directly with the consultant providing the INDEX modeling services. Additional details describing the timing of the modeling efforts, and required format of project information the Applicant will need to provide in order to run the INDEX model is provided in Attachment B.

(2) Option 2: Alternative Modeling Programs

As an alternative to the INDEX model, applicants may choose an alternative compliance program modeling software such as LEED ND, Community Viz, or PLACE3S, among possible others, provided that the results address the topics on the Key Indicators List (Table 1), and can be translated to clearly demonstrate equivalent compliance with the minimum threshold scores established through INDEX for each of the required Key Indicators. AQIPs prepared through alternative modeling programs must summarize the modeling results in a format comparable to that generated through INDEX. Refer to Attachment A, Section II.7.5 for additional requirements pertaining modeling Option 2.

Applicants choosing to model their project through a program other than INDEX are responsible for the costs of retaining a consultant to perform the necessary modeling services. Applicants may choose to either: 1) enter into a three-party agreement with the City and the consultant providing the alternative modeling services or, 2) contract directly with the consultant providing the quantitative modeling services. If the applicant chooses to contract directly with the consultant, the applicant will be required to submit a deposit to the City for third party peer review of the modeling outputs to ensure consistency with the thresholds established through INDEX.

(3) Compliance with City Required Modeling Thresholds

In order to deem the proposed project consistent with the City's adopted strategies for improving air quality and energy conservation, the project must demonstrate at or beyond the City's performance threshold scores for each key indicator as shown in Table A-1 of Attachment A. If the initial modeling results indicate that the project does not satisfy the City's minimum performance thresholds, the Developer/Applicant shall refine/redesign the project accordingly, and have it reevaluated through the applicable model until consistency with the established performance thresholds has been achieved.

In the event that a project is unable to reasonably comply with all key indicator thresholds due to unique circumstances involving project land use make up, design, and/or pre-existing environmental/land-use conditions, the Developer/Applicant may request, in writing to the City's Development Services Director (or their designee), a waiver from those particular key indicators. The written request must substantiate the reasons why the indicator thresholds cannot reasonably be met. The discretion to waive performance requirements for certain key indicators from project evaluation rests exclusively with the City's Development Services Director (or their designee).

C. Community Design/Site Planning Features

(1) Use of Smart Growth Principles

The AQIP shall provide a qualitative discussion describing the effect community design can have on air quality in terms of site planning, transportation, and energy efficiency. The focus of this discussion is to elaborate the on the specific project features that were used in conjunction with the quantitative modeling requirements. The discussion should be project specific, referencing as appropriate, acreages, unit counts, distances, etc. A list of typical design features with general definitions will not be acceptable. Applicants that incorporate smart growth design features targeted at reducing vehicle miles traveled (VMT) are more likely to receive favorable scores during the initial quantitative modeling, thus reducing the potential for additional modeling efforts. Some examples of commonly recognized principles of smart growth projects are provided in Attachment A, Exhibit 3.

(2) Project Consistency with CO2 Reduction Plan

The AQIP shall provide a comparative evaluation of the project's community/site design and other features and how these serve to implement the applicable action measures contained in the City's Carbon Dioxide (CO2) Reduction Plan. Details regarding report content and format as well as a listing of the action measure to be evaluated are provided in Attachment A, Section II.7.7.

(3) Compliance Monitoring

The applicant shall provide a checklist to track and monitor implementation of all contributing aspects (mitigation measures, site/project design features, credit options) of the approved AIQP following the entitlement process. In order to track compliance with the project features contained in the AQIP, the checklist shall indicate the method and timing of verification, along with the responsible party to ensure the project features described in the AQIP are sufficiently implemented. A sample checklist format is provided in Attachment A, Section II.7.9.

IV. Credit Option for Building Energy Efficiency Ordinance Requirements

The following discussion is intended for informational purposes only. Detailed provisions related to the calculation and application of credits are currently under development and subject to subsequent review and approval of City Council.

As noted in the introduction, under the City's Energy Efficiency Ordinance (CVMC 15.26.030), all new buildings must exceed minimum energy efficiency requirements under the State's current 2008 Title 24 Energy Code. This includes future buildings in SPA Plan areas with AQIPs prepared pursuant to these AQIP Guidelines. In recognition that community design and other planning considerations made at the SPA level contribute to overall energy savings in new development, new SPA Plan areas (those approved subsequent to the adoption of Energy Efficiency Ordinance) may be granted a partial credit toward meeting the more stringent building energy efficiency requirements under CVMC 15.26.030, if the SPA Plan conforms to a set of progressive community/site design threshold standards evaluated as part of the AQIP.

If the results of the additional quantitative modeling do not meet the progressive set of qualifying thresholds, the applicant must modify the project design in order to meet the qualifying scores, or the credit cannot be granted. Applicants that are successful in demonstrating that their SPA Plan or project has met the qualifying energy savings thresholds will be eligible to receive the energy savings credit at the time of building permit. Following the successful completion of the progressive modeling, the City's Development Services Director (or their designee) shall issue a written communication to the applicant confirming that the project is eligible to receive an energy savings credit towards compliance with CVMC 15.26.030. The applicant shall include this letter as part of the building permit application at which time the credit can be applied as appropriate.

ATTACHMENT A

Required Content and Format for Air Quality Improvement Plans

The following outline has been developed to direct the content and format of Air Quality Improvement Plans (AQIPs) prepared for all major projects residential projects (i.e., 50 or more dwelling units). Equivalent dwelling unit determinations for non-residential or mixed use projects with equivalent dwelling units (EDUs) to a residential project of 50 or more dwelling units are provided in Exhibit 1. Please note that the Section numbers have been predetermined in order to accommodate the formatting requirements for Sectional Planning Area (SPA) Plans. Major project's that do not require the preparation of a SPA Plan shall apply a conventional numbering system.

II.7.1 Executive Summary

This section of the AQIP shall provide a brief summary describing the intent of the AQIP, the project's goal with regards to community site design, specific planning features incorporated to achieve project goals, and the effectiveness of community design as demonstrated through preliminary modeling of the proposed project.

II.7.2 Introduction

This Section of the AQIP shall describe the need to prepare an AQIP pursuant to the City's Growth Management (CVMC 19.09.050B) and how the AQIP has been prepared based on best available design practices which, in turn, will serve to implement several of the key aspects of the City's CO2 Reduction Plan and Green Building and Energy Efficiency Ordinances, CVMC 15.12 and 15.26.030 respectively.

II.7.2a. Purpose & Goals

This section will describe the purpose of providing an Air Quality Improvement Plan. Provide a brief explanation of the regulatory framework identifying the authority and scope of the various Federal, State, and Local jurisdictions with regards to improving air quality, increasing energy efficiency, and CO2 reduction. As it pertains to local plans and policy, the AQIP shall describe how the project fulfills the City's commitment to improving air quality through compliance with the City's Growth Management Ordinance, Carbon Dioxide (CO2) Reduction Plan, and adopted Green Building and Increased Energy Efficiency Standards.

II.7.3 Project Description

The project description shall include land use information, acreage, number of housing units, unit types and mixed-use areas. The project description shall include a Site Utilization Plan illustration from the SPA Plan document or similar site plan illustration for those projects that do not file a SPA Plan.

II.7.4 Effect of Project on Local/Regional Air Quality

This section shall provide a generalized discussion on the proposed projects potential short-term and long term effects on local and regional air quality, including the projects contribution to global climate change or global warming. The discussion shall describe the project's mobile and stationary emission sources and related criteria pollutants (including those associated with short-term construction and long-term implementation), effect of project emissions on local and regional air quality, and community/site design features and mitigation measures that have been developed to reduce the projects effect on air quality.

II.7.5 Quantitative Project Evaluation

Option 1: INDEX PlanBuilder (INDEX)

This section of the document shall summarize the results of the INDEX modeling performed for the project. The section shall contain a written description of the project attributes that were considered in the modeling and the effect each of them had in terms of improving air quality, and reducing energy consumption and CO2 emissions. This discussion shall be supplemented with a table (refer to Table A-1 below) comparing the project's INDEX scores to the threshold scores for each Key Indicator. Definitions for each of the INDEX key indicators is provided in Exhibit 2.

ATTACHMENT A

TABLE A-1: Summary of Quantitative Modeling Results

Element	Indicator	Units	Threshold Score[1]	SPA Plan Score	Compliance Status Y/N
Land Use	Use Mix	0-1 scale	0.10	-	-
	Use Balance	0-1 scale	0.60	-	-
	Neighborhood Completeness	% of key uses	60	-	-
Housing	School Proximity to Housing	avg walk ft to closest	3,200	-	-
	Transit Proximity to Housing	avg walk ft to closest stop	2,900	-	-
Employment	Transit Proximity to Employment	avg walk ft to closest stop	2,600	-	-
Recreation	Park Proximity to Housing	avg walk ft to closest park	1,700	-	-
Travel	Internal Street Connectivity	cul-de-	0.70	-	-
	Intersection Density	intersections/sq mi	210	-	-
	Pedestrian Network Coverage	% of streets w/sidewalks	81.0	-	-
	Residential Multi-Modal Access	%DU w/3+ modes w/i 1/8 mi	40.0	-	-
	Daily Auto Driving (3Ds Methodology)	VMT/capita/day	22.0	-	-
Climate Change	Residential Building Energy Use	MMBtu/yr/capita	29.0	-	-
	Non-Residential Building Energy Use	MMBtu/yr/emp	19.0	-	-
	Residential Building CO_2 Emissions	lbs/capita/yr	4,800	-	-
	Non-Residential Building CO_2 Emissions	lbs/emp/yr	3,100	-	-

Notes: 1. The threshold scores have been rounded from the INDEX baseline neighborhood composite scores.

Option 2: Alternative to INDEX

As noted in the AQIP Guidelines, developers/applicants have the option to run an alternative program such as LEED ND, Community Viz, PLACE3S, etc. provided that the results can be translated to clearly demonstrate equivalent compliance with thresholds established through INDEX for each of the required Key Indicators. AQIPs prepared through alternative modeling programs must summarize the modeling results in a format similar that which is described in Table A-1 and contain an equivalency spreadsheet demonstrating, to the satisfaction of the Director of Development Services, that the that energy and air quality improvements have been achieved consistent with the thresholds established through INDEX.

11.7.6 Community Design and Site Planning Features

This section shall describe the effect the project's community design and site planning features have on air quality in terms of transportation, energy efficiency, and CO_2 reduction. The focus of this discussion is to describe the specific strategies that have been integrated into the project to create a sustainable community; highlighting those project attributes designed to reduce air quality impacts through a combination of site design features intended to promote walking and alternate travel modes (transit, bikes, etc.), reduce vehicles miles traveled and improve energy conservation. It is expected that this discussion be project specific, referencing as appropriate, acreages, unit counts, residential proximity to schools, transit facilities, parks, etc. Providing a generic list of community design and site planning features will not be accepted.

For projects located within Otay Ranch, additional information related to the Otay Ranch General Development Plan (GDP) implementing policies and how they can reduce CO_2 emissions is provided in Appendix C of City's CO_2 Reduction Plan.

II.7.7 Chula Vista CO2 Reduction Plan

This section the document shall provide a comparative evaluation between the project's community/site design features and the energy efficiency and emission reduction action measures contained in the City's Carbon Dioxide (CO_2) Reduction Plan. The following table (Table A-2) contains action measures as identified in the CO_2 Reduction Plan and shall be included in each AQIP to demonstrate how the project has been designed to help implement the action measure listed in the City's CO_2 Reduction Plan. (Note: Action measures 1-5, and 17 will be implemented by the City and are not included in the table and do not need to be addressed in the AQIP.)

TABLE A-2: Summary Project Consistency with CO2 Reduction Action Measures

Action Measure	Project/Community Design Features	Describe how project design will Implement CO2 Reduction Action Measures
Measure 6 (Enhanced Pedestrian connections to Transit): Installation of walkways and crossings between bus stops and surrounding land uses.		
Measure 7 Increased Housing Density near Transit: General increase in land use and zoning designations to reach an average of at least 14-18 dwelling units per net acre within ¼ mile of major transit facilities.		
Measure 8 (Site Design with Transit Orientation): Placement of buildings and circulation routes to emphasize transit rather than auto access; also includes bus turn-outs and other transit stop amenities.		
Measure 9 (Increased Land Use Mix): Provide a greater dispersion/variety of land uses such as siting of neighborhood commercial uses in residential areas and inclusion of housing in commercial and light industrial areas.		
Measure 10 (Reduced Commercial Parking Requirements): Lower parking space requirements; allowance for shared lots and shared parking; allowance for on-street spaces.		
Measure 11 (Site Design with Pedestrian/bicycle Orientation): Placement of buildings and circulation routes to emphasize pedestrian and bicycle access without excluding autos; includes pedestrian benches, bike paths, and bike racks.		
Measure 12 (Bicycle Integration with Transit and Employment): Provide storage at major transit stops and employment areas. Encourage employers to provide showers at the place of employment near major transit nodes.		
Measure 13 (Bike Lanes, paths, and Routes): Continued implementation of the City's bicycle master plan. Emphasis is to be given to separate bike paths as opposed to striping bike lanes on streets.		
Measure 14 (Energy Efficient Landscaping): Installation of shade trees for new single-family homes as part of an overall city-wide tree planting effort to reduce ambient temperatures, smog formation, energy use, and CO2.		
Measure 15 (Solar Pool Heating): Mandatory building code requirement for solar heating of new pools or optional motorized insulated pool cover.		
Measure 16 (Traffic Signal & System Upgrades): Provide high-efficiency LED lamps or similar as approved by the City Engineer.		
Measure 18 (Energy Efficient Building Recognition Program): Reducing CO2 emissions by applying building standards that exceed current Title 24 Energy Code requirements.		
Measure 20 (Increased Employment Density Near Transit): General increase in land-use and zoning designations to focus employment-generating land-uses within ¼ mile of major transit stops throughout the City.		

II.7.8 Credit Towards Increased Minimum Energy Efficiency Standards

Detailed provisions related to the calculation and application of credits are currently under development and subject to subsequent review and approval of City Council.

II.7.9 Compliance Monitoring

This section of the AQIP shall provide a written description and a checklist summarizing the project design features and mitigation measures that have been identified to reduce the projects effects on air quality and improve energy efficiency. The following checklist shall be completed with input provided by the City and included in the project AQIP to ensure the project features described in the AQIP are sufficiently implemented:

TABLE A-3: Compliance Monitoring Checklist

[insert project title]	Air Quality Improvement Plan Compliance Monitoring Checklist						
	Method of Verification[1]	Timing of Verification				Responsible Party [2]	Project Consistency & Compliance Documentation[3]
		TM	Pre Cons.	Cons	Post Cons.		
Planning							
AQIP Project Design Features/Principles							
-							
Mitigation Measure							
-							
Building							
Green Building Standards							
-							
Energy Efficiency Standards							
-							

Notes:
1. Method of verification may include, but is not limited to, plan check, permit review, site inspection.
2. Identify the party responsible for ensuring compliance (City of Chula Vista, San Diego APCD, Other)
3. This column shall include all pertinent information necessary to confirm compliance including document type, date of completion, plan/permit number, special notes/comments, and contact information.

ATTACHMENT A - EXHIBIT 1

Examples of AQIP Equivalent Dwelling Unit Determinations

The City's Growth Management Ordinance, requires an Air Quality Improvement Plan (AQIP) to be submitted with all Sectional Planning Area (SPA) Plans or major development projects consisting of 50 dwelling units or greater (or non-residential or mixed use projects with equivalent air quality impacts to a residential project of 50 or more dwelling units). The following equivalencies apply to non-residential or mixed-use projects:

■ Commercial projects of 12 or more acres (or equivalent square footage). Applying typical height and site development standards from the City's commercial zones, equivalent building square footage for a 12-acre commercial project is 210,000 square feet.

■ Industrial projects of 24 or more acres (or equivalent square footage). Applying typical height and site development standards from the City's industrial zones, equivalent building square footage for a 24-acre industrial project is 420,000 square feet.

■ Mixed Use projects with a cumulative threshold equal to that of 50 or more residential dwelling units. Using the example calculations provided below, mixed use projects with a score greater than 1.0 will be required to prepare an AQIP pursuant CVMC 19.09.050B.

Example Mixed Use Calculations:

Example 1: Proposed Mixed-Use Project　　　　　Equivalency Calculation
Residential: 20 dwelling units　　　　　　　　　　　20/50 = 0.4
Commercial: 8 acres　　　　　　　　　　　　　　　　8/12 = 0.67
Industrial: 0 acres　　　　　　　　　　　　　　　　0/24 = 0
　　　　　　　　　　　　　　　　　　　　　　　　　Total 1.07 (Score > 1.0: AQIP Required)

Example 2: Proposed Mixed-Use Project Equivalency Calculation
Residential: 10 dwelling units　　　　　　　　　　　10/50 = 0.2
Commercial: 8 acres　　　　　　　　　　　　　　　　8/12 = 0.67
Industrial: 0 acres　　　　　　　　　　　　　　　　0/24 = 0
　　　　　　　　　　　　　　　　　　　　　　　　　Total 0.87 (Score < 1.0: AQIP Not Required)

Example 3: Proposed Mixed Use Project Equivalency Calculation
Residential: 0 dwelling units　　　　　　　　　　　0/50 = 0
Commercial: 5 acres　　　　　　　　　　　　　　　　5/12 = 0.67
Industrial: 18 acres　　　　　　　　　　　　　　　　18/24 = 0.75
　　　　　　　　　　　　　　　　　　　　　　　　　Total 1.16 (Score > 1.0: AQIP Required)

ATTACHMENT A - EXHIBIT 2

INDEX Indicator Definitions

ELEMENT	INDICATOR	DEFINITION
Land Use	Use Mix	Proportion of mixed or dissimilar developed land-uses among a grid of cells of user-defined size, expressed on a scale of 0 to 1. Includes vertical dissimilarity in mixed-use cells.
	Use Balance	Proportional balance of developed land-uses, by land area, expressed on a scale of 0 (low) to 1 (high).
	Neighborhood Completeness	Percent of the following key uses present inside the SPA: 1) fire/police station, 2) library, 3) park, 4) school, and 5) general retail opportunities.
Housing	School Proximity to Housing	Average walk distance from all dwellings to closest designated school.
	Transit Proximity to Housing	Average walk distance from all dwellings to closest designated transit stop.
Employment	Transit Proximity to Employment	Average walk distance from all businesses to closest designated transit stop.
Recreation	Park Proximity to Housing	Average walk distance from all dwellings to closest public or private park.
Travel	Internal Street Connectivity	Ratio of street intersections versus intersections and cul-de-sacs or dead-ending streets.
	Intersection Density	The number of street intersections per square mile.
	Pedestrian Network Coverage	Percent of total street frontage with improved sidewalks on both sides.
	Residential Multi-Modal Access	Percent of dwellings within 1/8 mi. of three or more travel modes (bike, car, transit, or walk).
	Daily Auto Driving (3Ds Methodology)	Average daily vehicle miles traveled per capita. Threshold value is used as the baseline score; proposed SPA plan value calculated from 3D Methodology indicator elasticities.
	Street Network Density	*Density of streets in centerline miles per square mile.*
	Pedestrian Network Coverage	*Percent of total street frontage with improved sidewalks on both sides.*
	Street Route Directness	*Weighted average ratio of shortest drivable route distance versus straight-line distance, from residents and employees of developed parcels to central node destination.*
Climate Change	Residential Building Energy Use	Annual MMBtu per capita for residential structural energy use. Units in MMBtu/yr/capita.
	Non-Residential Building Energy Use	Annual MMBtu per employee for retail, office, and general commercial building operations energy use. Units in MMBtu/yr/emp.
	Residential Building CO_2 Emissions	CO_2 pollution emitted from residential buildings, including operations and embodied CO_2. Units in lbs/capita/year.
	Non-Residential Building CO_2 Emissions	CO_2 pollution emitted from retail, office, and general commercial buildings, including operations and embodied CO_2. Units in lbs/capita/year.

Commonly Recognized Principles and Practices of Smart Growth

EXAMPLES SMART GROWTH	DESCRIPTIONS
Transit-oriented development (TOD)	Encouraging transit travel by developing moderate-to high-density housing, shopping, and employment centers at key access points along a regional transit system, with enhanced pedestrian access.
Transportation Options (Multi-model Streets)	Design streets to create balance for all modes of transportation, including pedestrians, bicyclists, vehicles and public transit
Mixed-use development	Development that locates complementary land uses such as housing, retail, office, services, and public facilities within walking distance of each other. This can include both vertical mixing (such as residential above shops) as well as horizontal.
Pedestrian-oriented development.	Providing a combination of land use and urban design elements that encourage and make people want to walk thereby creating pedestrian oriented neighborhoods.
Developing concentrated activity centers	Encouraging pedestrian and transit travel by creating "nodes" of high density mixed development, that can be more easily linked by a transit network
Strengthening downtowns:	Encouraging pedestrian and transit travel by making central business districts concentrated activity centers that can be the focal point for a regional transit system
Sustainable Design	Incorporate "Green Building" and/or energy efficiency techniques that can have a positive effect on building sustainability and resource conservation.
Jobs/housing balance	Reducing the disparity between the number of residences and the number of employment opportunities by directing employment developments to areas with housing, and vice versa.
Landscape Design	Incorporate landscaping in a manor that reduces heat islands and energy costs by providing shading and improves air quality by reducing/filtering common air pollutants (i.e. carbon sequestering).

The smart growth strategies listed above are commonly recognized by organizations such as the Environmental Protection Agency (EPA), Urban Land Institute (ULI), National Association of Home Builders (NAHB), San Diego Association of Governments (SANDAG), and the Smart Growth Network. The Applicant may apply comparable principles and techniques from alternative sources that are deemed acceptable by the City. Additional information, fact sheets, case studies, and publications related to current smart growth design practices is available through the following organizations:

EPA: http://www.epa.gov/smartgrowth
SANDAG's "Designing for Smart Growth", January 2009: http://www.sandag.org
NAHB: http://www.nahb.org
ULI: http://www.uli.org/CommunityBuilding/RegionalLeadershipandCooperation/Smart%20Growth.aspx
Smart Growth Network: http://www.smartgrowth.org

ATTACHMENT B

INDEX Modeling Information and Administrative Procedures

Step 1: City Review of Project Submittal

Prior to initiating any quantitative modeling, the City shall review of the applicant's project submittal to ensure that the project represents the best available design to improve air quality and energy efficiency consistent with the City's Growth Management Ordinance, Municipal Code Section 19.09.050B, Carbon Dioxide (CO2) Reduction Plan, and Green Building and Increased Energy Efficiency Ordinances (CVMC 15.12, and 15.26.030, respectively). The City's initial review will focus primarily on community site design. Following the City's review, staff may suggest refinements to the proposal that may in turn result in more favorable modeling results.

Step 2: Consultant Contracting

The applicant shall have their project modeled in conjunction with the City's second review of the SPA Plan. The Applicant is responsible for the costs of retaining the consultant to perform the INDEX modeling services and may choose to either: 1) enter into a three-party agreement with the City and the consultant providing the INDEX modeling services or, 2) contract directly with the consultant providing the INDEX modeling services. If the applicant chooses to contact directly with the consultant, then the applicant will be required to provide the City with cash deposit for third party independent review.

Step 3: Submittal of Documents

As part of the second draft SPA Plan review, the applicant must submit, to the City, the following project information in GIS Shapefile:

IMPUT SHAPEFILE	DATA TYPE	IMPUT ATTRIBUTE
Case (neighborhood) Boundary	Polygon	Regional Population1
		Regional Employment2
Land Uses - (parcels)	Polygon	Land-Use Type
		Dwelling Unit Count
		Residential Population per DU (based DU type - MF or SF)
		Employment Count
		Employment Floor Area (sqft)
Pedestrian Routes - (streets + off road pedestrian trails; freeways & ramps excluded)	Line	None
Points of Interest	Point	Interest Group (central node, amenity - typically grocery or school)
Street Centerlines	Line	Street Group (functional class)
		Percent of Segment with Sidewalks
Supplementary Land Uses	Polygon	Parcels with multiple uses that include the following: parks, schoolyards, and open space.
Transit Routes	Line	Transit Group (bus, light rail, heavy rail)
		Route Number
Transit Stops	Point	Transit Group (bus, light rail, heavy rail)

Notes: 1,2. Regional census data can be obtained through SANDAG and must be provide through a separate spreadsheet.

Step 4: Verification of Required INDEX Input Attributes

Once the City has received electronic copies of all required project input attributes, the City will submit the project documentation to the consultant providing the INDEX modeling. The consultant will then review the submittal to verify that all required information has been provided and has been converted into a GIS format acceptable to run the INDEX model. Only after the City has received confirmation from the INDEX modeling consultant that all necessary material has been provided and is in the proper format, may the quantitative modeling may proceed.

Step 5: Quantitative Modeling

Based on the information submitted by the applicant, the consultant providing the INDEX modeling, will model the project thorough a selection of twenty key indicators that will measure the project's attributes and performance characteristics against the City's required minimum baseline scores. In order to deem the proposed project consistent with the City's adopted strategies for improving air quality and energy conservation, the project must demonstrate improvements at or beyond the City's performance threshold scores established for each of the key indicators.

If the initial modeling results indicate that the project does not satisfy the City's minimum performance thresholds, the applicant shall refine/design the project accordingly, and have it reevaluated through the model until consistency with the established performance thresholds has been achieved.

Step 6: Project Approval

Upon successful completion of the INDEX modeling, the consultant providing the INDEX Modeling services shall provide written confirmation to the City's Director of Development Services that the project as proposed represents improvements at or beyond the City's performance threshold scores established for each of the key indicators. In the event that a project is unable to comply with all key indicator thresholds do to unique circumstances involving project design and/or pre-existing environmental/land-use conditions, the Developer/Applicant may request, in writing to the City's Development Services Director (or their designee), a waiver to exclude those key indicators that, in the applicant's opinion, are not applicable to their project. The discretion to exclude certain key indicators from project evaluation rests exclusively with the City's Development Services Director (or their designee).