4 Analysis of Alternatives

The California Environmental Quality Act (CEQA) mandates consideration and analysis of alternatives to the proposed General Plan. According to CEQA Guidelines, the range of alternatives "shall include those that could feasibly accomplish most of the basic purposes of the project and could avoid or substantially lessen one or more of the significant impacts" (CEQA Guidelines Section 15126.6 (d) (2)). The discussion must also include an evaluation of the No Project Alternative to allow decision-makers to compare the impacts of approving the proposed General Plan against the impacts of not approving it.

Case law suggests that the discussion of alternatives need not be exhaustive and that alternatives be subject to a construction of reasonableness. The impacts of the alternatives may be discussed "in less detail than the significant effects of the project proposed" (CEQA Guidelines Section 15126.6 (d)). Additionally, the CEQA Guidelines permit analysis of alternatives at a less detailed level for general plans and other program EIRs than that which is required for project EIRs. The CEQA Guidelines do not specify what constitutes an adequate level of detail, though they require that the EIR provide sufficient information to allow meaningful evaluation, analysis and comparison of each alternative. CEQA Guidelines require that this analysis identify the environmentally superior alternative among those analyzed. Quantified information on the alternatives is presented where available; however, in some cases only partial quantification can be provided because of data or analytical limitations.

4.1 Background on Development of Alternatives

The No Project Alternative is the continuation of the existing General Plan. Additional alternatives considered in this analysis are the three land use concepts formulated after the community-visioning phase of the planning process. They were developed based on technical research conducted for a series of existing conditions working papers, as well as community input from workshops, stakeholder interviews, public meetings, and other public forums. The land use concepts, which represented alternative strategies for accommodating projected population and employment growth in Carlsbad while reflecting the core values identified in the Carlsbad Community Vision, were presented in the 2012 Land Use Concepts Report (see Appendix G of this EIR).[1] The report describes the distinct approaches of each land use concept to key

[1] The analysis in this chapter is based the relative impacts of each alternative according to the conditions in the 2012 Land Use Concepts Report. Land use conditions have changed since the development of the report, including the approval of the Quarry Creek Master Plan in 2013, and changed land use designations in the Barrio neighborhood. The proposed General Plan reflects City Council approval of these land use designations. The report, however,

components such as land use, housing, residential and non-residential development, open space and parks, sustainability, and circulation, as well as their implications. The land use concepts allowed planners to elicit feedback from community members and decision-makers on specific land use ideas and potential outcomes, which was then used to formulate the proposed General Plan.

4.2 Description of Alternatives

The three alternatives based on the initial land use concepts differ in their visions for the form and location of future development within the city. They do share some characteristics, however, as each seeks to address the following issues:

1. **Creating Destinations.** In the Northwest Corridor (Focus Area 1), each of the alternatives show mixed use in the Village and Barrio[2] neighborhoods, describing continued investment to create a greater mix of activities. On the power plant site (within Focus Area 1), each alternative includes visitor serving commercial such as restaurants, hotels, and retail shops as well as open space and beach access. This goal was a result of the desire expressed by Carlsbad residents to have destinations that build on the city's location adjacent to the ocean.
2. **Employment-Focused Development in Palomar Corridor.** The Palomar Corridor (Focus Area 7) is shown as an employment growth area under each alternative. This area has robust regional access and includes the McClellan-Palomar Airport. Although the dominant future uses here will be non-residential, mixed use and residential uses are explored in two of the alternatives.
3. **Street Connectivity.** One of the major features of the alternatives is improved street connectivity, particularly in terms of east-west connections. The alternatives show potential streets that could enhance connectivity and facilitate circulation. Marron Road is extended, connecting Plaza Camino Real Commercial Corridor (Focus Area 2) with Quarry Creek (Focus Area 3). A connection is proposed for College Blvd through Sunny Creek Commercial (Focus Area 5) and Cannon Road is extended east north of Sunny Creek Commercial. Also proposed is the connection of Poinsettia Lane through Aviara (Focus Area 10).
4. **Enhanced Bicycle and Pedestrian Connections**. Each of the alternatives assumes improvements to pedestrian and bicycle pathways.
5. **Open Space.** The alternatives support the continuation of the open space and park planning efforts by the city. Any future development on opportunity sites located in areas adjacent to sensitive biological resources, such as lagoons and hillsides, must comply with the city's HMP and open space regulations to ensure that habitats are preserved and open space is provided.
6. **Preservation of Existing Neighborhoods.** Land uses in the majority of the city remain the same in all of the alternatives. Most existing established neighborhoods would not see a land use or intensity change.

reflects land use designations at the time it was prepared, and highlights the decision-making process leading towards the development of the proposed General Plan.

[2] With the exception of Alternative 2, which has no mixed use in the Barrio.

ALTERNATIVE 1—CENTERS

Alternative 1 is based on the concept of centers, which directs development to the Village and several new neighborhood commercial centers. The centers are placed in strategic, visible locations along transit corridors, and distributed to maximize accessibility from residential neighborhoods. Each center would include local shopping as a pedestrian-oriented focus for the surrounding neighborhood, accessible to local residents. High and medium density housing, in addition to new parks and open spaces, would surround the retail centers or be integrated in mixed-use buildings. Although some centers would be neighborhood oriented, others—such as the Village and the redeveloped Plaza Camino Real—would be citywide and regional draws.

A significant majority of the city's future housing needs would be accommodated in the centers, enabling people to live close to shops and services and along transit corridors. All centers will have transit access—bus or rail—and pedestrian connections between the centers and the surrounding neighborhoods will be improved to enhance walkability.

New centers will be located along El Camino Real, Palomar Airport Road and adjacent to the Poinsettia COASTER Station. Residential uses are located along the eastern city limits, in proximity to local shopping in adjacent cities. The Village and Barrio will see increases in housing and amenities, while the Power Plant will be redeveloped with hotels, retail, and other non-residential uses. This redevelopment will include enhanced beach and lagoon access as well as additional open space along the lagoon. Quarry Creek would include new housing as well as a new campus and ample open space.

Table 4.2-1 presents a summary of the residential capacity and reasonably anticipated non-residential development on the opportunity sites within the focus areas in Alternative 1. Figure 4.2-1 shows the proposed land use under this alternative.

Table 4.2-1: Alternative 1 (Centers) – New Development On Opportunity Sites Within Focus Areas

	Residential (Dwelling Units)	*Commercial (Sq Ft)*	*Industrial/ Office (Sq Ft)*	*Campus (Sf)*	*Hotel Rooms*	*Open Space/ Parks (Acres)*
Northwest	2,117	3,087,000	1,121,000	-	2,160	50.2
Northeast	1,612	451,000	3,307,000	316,000	-	68.8
Southwest	1,496	1,262,000	1,019,000	-	640	46.4
Southeast	500	248,000	673,000	-	-	-
Total	**5,725**	**5,049,000**	**6,119,000**	**316,000**	**2,800**	**165.4**

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Figure 4.2-1

Alternative 1
Concept A: Centers

Northwest Coastal 1

Plaza Camino Real Commercial Corridor 2

Quarry Creek 3

Marja Acres 4

Sunny Creek Commercial 5

Mandana 6

Palomar Corridor 7

Southern Freeway Corridor 8

Ponto/ Southern Waterfront 9

Aviara 10

South El Camino Real 11

Village Redevelopment Area

Barrio

Hotels/Retail & other Visitor-serving Commercial

Carlsbad Boulevard Realignment Concept

Walmart Kohls Albertsons

Vista Palomar Park

City of Oceanside

City of Vista

City of San Marcos

City of Encinitas

Pacific Ocean

Buena Vista Lagoon

Agua Hedionda Lagoon

Batiquitos Lagoon

Calavera Lake

Squires Reservoir

MCCLELLAN-PALOMAR AIRPORT

COAST HWY

CARLSBAD VILLAGE DR

MARRON RD

CARLSBAD BLVD

EL CAMINO REAL

TAMARACK AVE

COLLEGE BLVD

CANNON RD

LAKE BLVD

MELROSE DR

SHADOWRIDGE DR

SYCAMORE AVE

BUSINESS PARK DR

FARADAY AVE

PALOMAR AIRPORT RD

CAMINO DE LA ROBLE

PASEO DEL NORTE

AVIARA PKWY

POINSETTIA LN

ALGA RD

AVENIDA ENCINAS

RANCHO SANTA FE RD

LA COSTA AVE

SAN DIEGO NORTHERN RR

OLIVENHAIN RD

LEUCADIA BLVD

0 1/4 1/2 1 2 MILES

January 9, 2012

Proposed Land Uses

- Very Low Density Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Mixed Use
- Commercial
- Campus
- Industrial/Office
- Employment Intensification
- Park/Open Space

Existing Land Uses

- Single Family Residential
- Multi-Family Residential
- Commercial
- Hotel, Motel, Resort
- Office
- Education/Institutional
- Industrial
- Agriculture
- Park/Recreation
- Open Space/Conservation
- Undeveloped
- Commercial Center outside City Limits

Boundaries

- Focus Area
- City Limits
- Village Area Boundary
- Barrio Boundary
- Airport Safety Zones
- 1/2 Mile Radius (walking distance) from Commercial Center

Circulation

- Train Station
- Carlsbad Blvd Realignment Concept
- Major Road
- Planned Road
- Railroad

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ALTERNATIVE 2—ACTIVE WATERFRONT

The Active Waterfront alternative would place greater development along the ocean waterfront, enabling residences, hotels, and other uses to be close to the ocean. Residents and visitors will enjoy waterfront dining, shopping, and lingering experience in clusters of restaurants, cafés, and smaller stores up and down the coast. The Power Plant will be developed with a mix of residential, hotel, and retail uses, with community-accessible open spaces along Agua Hedionda Lagoon. The redevelopment of the Power Plant site will result in enhanced access to the beach and lagoon and reinforce Carlsbad's beach community character.

New development along the coast will enhance connections for existing neighborhoods to the east by providing access points and linkages to the beach. About half of the city's new residential growth will be in the waterfront focus areas (Focus Areas 1, 8, and 9).

Plaza Camino Real Commercial Corridor will have a mix of uses, while Quarry Creek will have new residential uses. These focus areas will accommodate most of the other new residential growth and will locate residents near Carlsbad's natural amenities such as lagoons and open spaces. Palomar Corridor will continue to contain only employment uses.

Table 4.2-2 presents a summary of residential capacity and reasonably anticipated non-residential development on the opportunity sites within the focus areas in Alternative 2. Figure 4.2-2 shows the proposed land use under this alternative.

Table 4.2-2: Alternative 2 (Active Waterfront) – New Development On Opportunity Sites Within Focus Areas

	Residential (Dwelling Units)	*Commercial (Sq Ft)*	*Industrial/ Office (Sq Ft)*	*Hotel Rooms*	*Open Space/ Parks (Acres)*
Northwest	2,059	2,939,000	1,049,000	1,960	57.1
Northeast	1,457	484,000	3,457,000	-	101.3
Southwest	1,624	575,000	878,000	610	91.3
Southeast	474	-	883,000	300	-
Total	**5,614**	**3,998,000**	**6,267,000**	**2,870**	**249.7**

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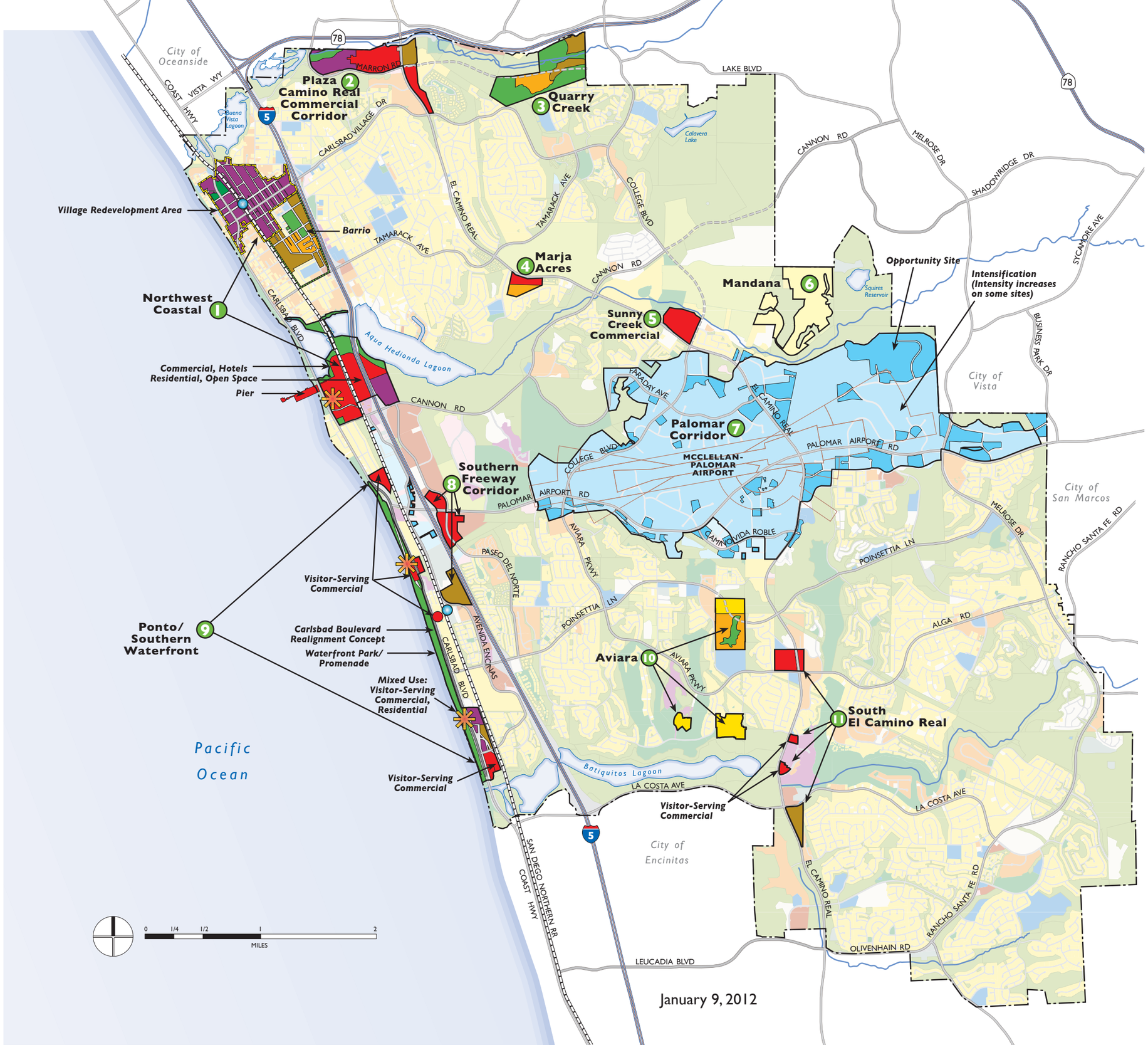
Figure 4.2-2

Alternative 2
Concept B: Active Waterfront



Proposed Land Uses
- Very Low Density Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Mixed Use
- Commercial
- Industrial/Office
- Employment Intensification
- Park/Open Space
- Activity Center

Existing Land Uses
- Single Family Residential
- Multi-Family Residential
- Commercial
- Hotel, Motel, Resort
- Office
- Education/Institutional
- Industrial
- Agriculture
- Park/Recreation
- Open Space/Conservation
- Undeveloped

Boundaries
- Focus Area
- City Limits
- Village Area Boundary
- Barrio Boundary
- Airport Safety Zones

Circulation
- Train Station
- Carlsbad Blvd Realignment Concept
- Major Road
- Planned Road
- Railroad

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ALTERNATIVE 3—CORE FOCUS

In this alternative, new residential and commercial uses will be placed at strategic locations at the edges of Carlsbad's employment core in the geographic center of the city—enabling workers to live close to jobs, and stores and restaurants to enjoy patronage from both residents and workers. Shuttles and enhanced bicycle and pedestrian paths would link residential and employment clusters. Although some sites currently envisioned for employment uses will be developed with residential and commercial uses, there remains enough area to accommodate office and industrial uses, ensuring enough capacity for continued employment growth.

Just over a third of the new housing growth will be in central Carlsbad, while the rest will be dispersed at different locations. The Power Plant and southern portion of Carlsbad Boulevard will primarily accommodate hotel and visitor-serving commercial uses and will provide access to the beach and lagoon for the community.

Table 4.2-3 presents a summary of residential capacity and reasonably anticipated non-residential development on the opportunity sites within the focus areas in Alternative 3. Figure 4-3 shows the proposed land use under this alternative.

Table 4.2-3: Alternative 3 – New Development on Opportunity Sites Within Focus Areas

	Residential (Dwelling Units)	*Commercial (Sq Ft)*	*Industrial/ Office (Sq Ft)*	*Commercial Recreation (Sf)*	*Hotel Rooms*	*Open Space/ Parks (Acres)*
Northwest	2,081	3,096,000	974,000	-	2,110	56.9
Northeast	1,610	901,000	3,163,000	-	270	101.3
Southwest	1,070	643,000	580,000	103,000	500	40.6
Southeast	583	281,000	674,000	-	-	-
Total	**5,344**	**4,920,000**	**5,391,000**	**103,000**	**2,880**	**198.8**

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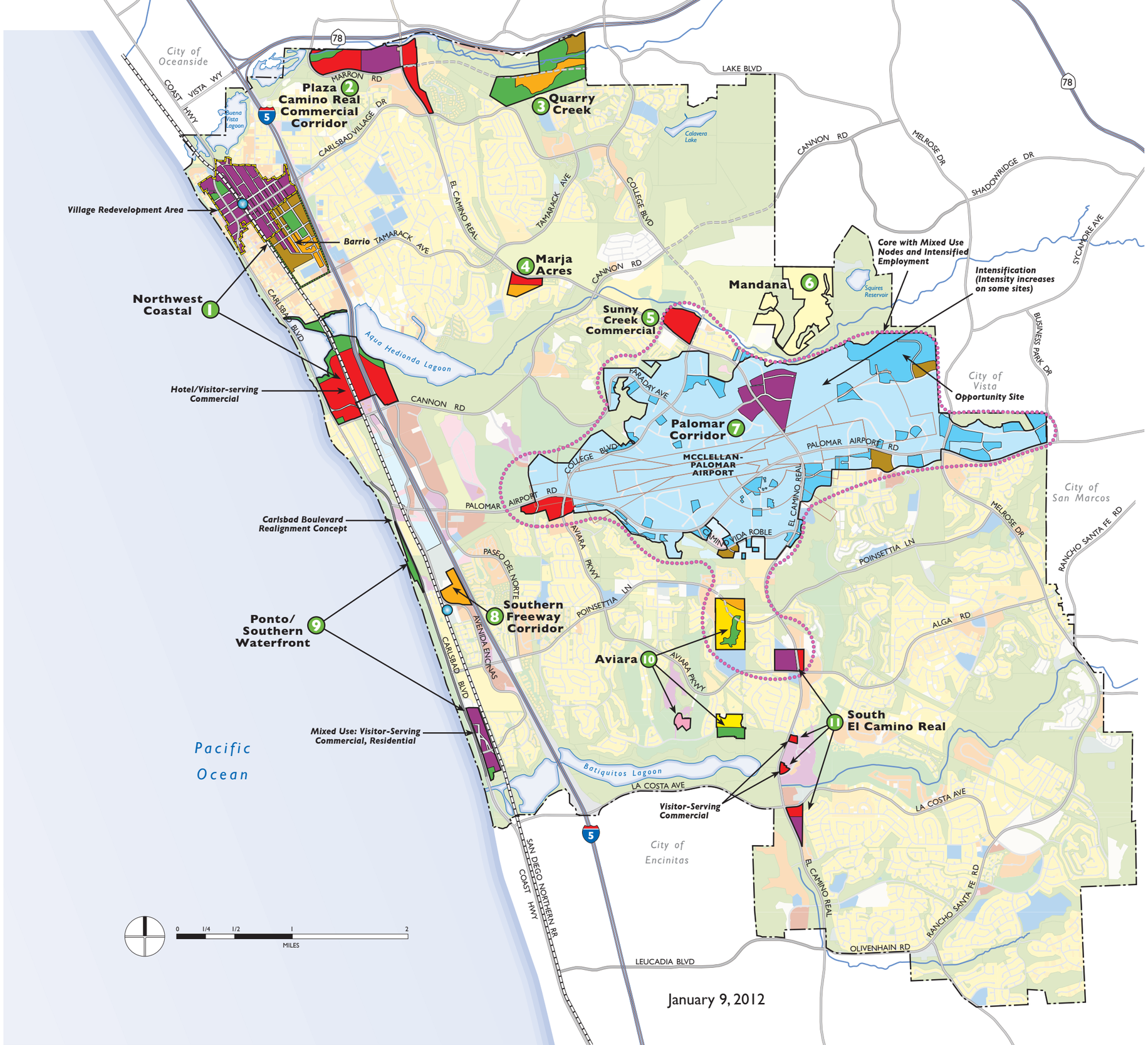
Figure 4.2-3

Alternative 3
Concept C: Core Focus



January 9, 2012

Proposed Land Uses
- Very Low Density Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Mixed Use
- Commercial
- Industrial/Office
- Employment Intensification
- Park/Open Space
- Commercial Recreation

Existing Land Uses
- Single Family Residential
- Multi-Family Residential
- Commercial
- Hotel, Motel, Resort
- Office
- Education/Institutional
- Industrial
- Agriculture
- Park/Recreation
- Open Space/Conservation
- Undeveloped

Boundaries
- Focus Area
- Core Focus
- City Limits
- Village Area Boundary
- Barrio Boundary
- Airport Safety Zones

Circulation
- Train Station
- Carlsbad Blvd Realignment Concept
- Major Road
- Planned Road
- Railroad

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NO PROJECT ALTERNATIVE

The purpose of evaluating the No Project Alternative is to allow decision-makers to compare the potential impacts of approving the project with the potential impacts of not approving the project. The No Project analysis discusses both the existing conditions at the time the NOP is published as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved. The No Project alternative is depicted in Figure 4.2-4.

The No Project scenario represents the continuation of the current General Plan (adopted in 1986, last comprehensively updated in 1994) land use designations. It assumes that the existing General Plan and Zoning Ordinance would continue to guide development in Carlsbad until buildout in 2035. There are many differences between the proposed General Plan and the No Project Alternative. In relationship to the proposed General Plan, the No Project Alternative:

- Has different land uses;
- Densities/intensities are lower, and mixed-use development and development of centers and walkable communities is not promoted to the level in the proposed General Plan;
- Is based on a different set of core values/goals and objectives;
- Has lower residential capacity;
- Has reduced alternate modes of transportation, connectivity, and street capacity; and
- Lacks elements addressing the economy, business diversity and tourism; and sustainability; and corresponding goal and policies.

No Project Alternative assumes continuation of land development under the existing General Plan and the current Zoning Ordinance. The existing General Plan land use is shown in Figure 4.2-4. The buildout residential capacity under the No Project Alternative is shown below in Table 4.2-7.

PROPOSED GENERAL PLAN

The description of the proposed General Plan is located in Chapter 2 of this Program EIR. Its proposed Land Use Map is shown above in Figure 2.3-1.

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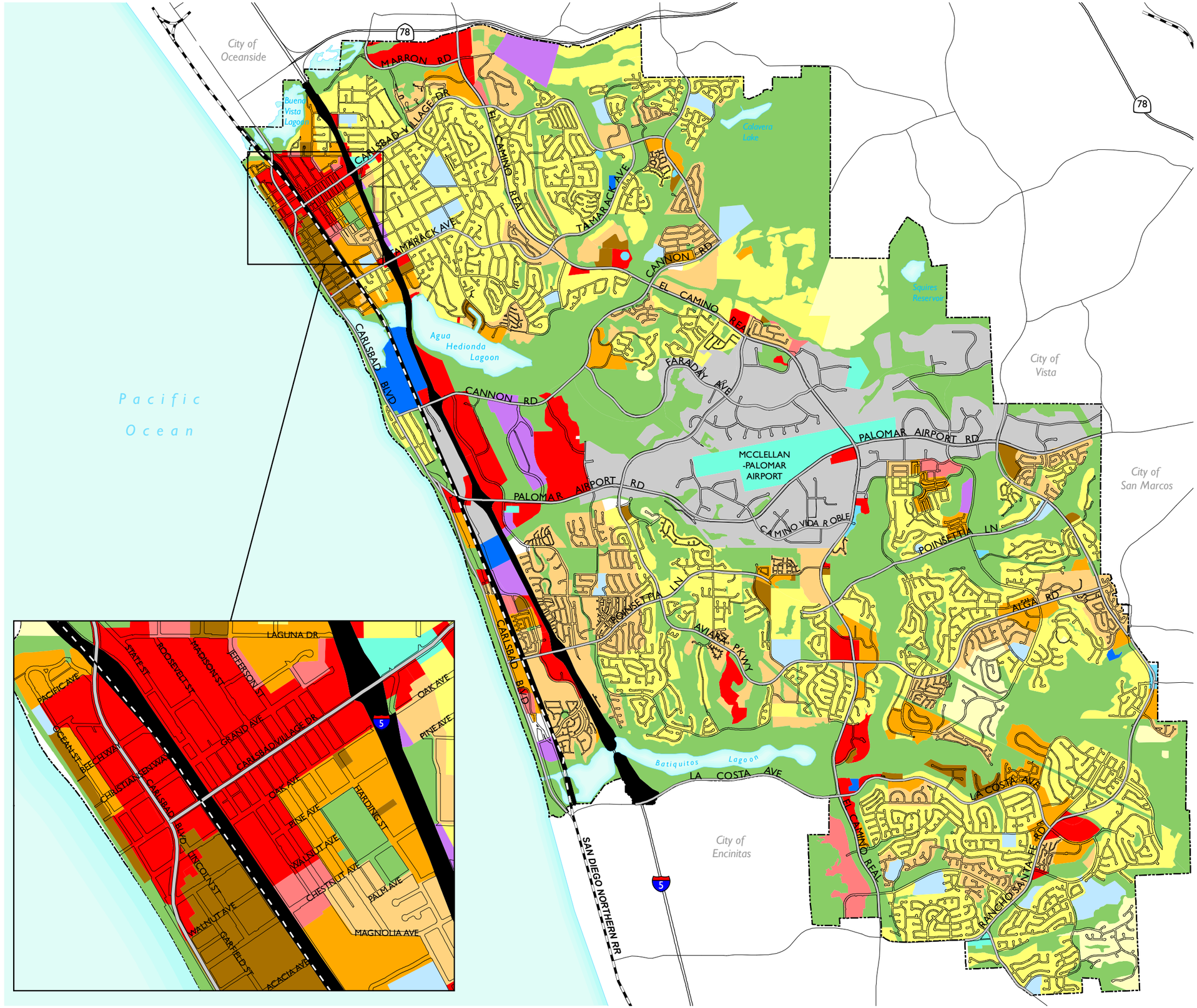
Figure 4.2-4

PROPOSED GENERAL PLAN
No Project Alternative



- Low Density Residential
- Low-Medium Density Residential
- Medium Density Residential
- Medium-High Density Residential
- High Density Residential
- Mixed Use Residential
- Mixed Use
- Commercial
- Education
- Community Facilities
- Government Facilities
- Public Utilities
- Transportation Corridor
- Planned Industrial
- Open Space
- Unknown

- Highways
- Major Roads
- Railroad
- City Limits

0 0.5 1 2
Miles

Source: City of Carlsbad, 2009; SANDAG, 2008; Dyett & Bhatia, 2009.

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Comparative Impact Analysis of Alternatives

This section compares the environmental impacts of each alternative to the proposed General Plan, by resource topic. Alternatives are compared subject to the same significance criteria. It is assumed that alternatives 1, 2, and 3 would generally include the same policies as those defined for the proposed General Plan, excluding site specific polices that would not apply because of differences in planned land use.

AESTHETICS

Differences in aesthetic impacts between the proposed General Plan and the alternatives are minor and relate primarily to the intensity of development in different locations throughout Carlsbad. Alternatives 1, 2, and 3 would focus development in centers, the waterfront, and the core, respectively. As each of the alternatives directs development into already urbanized infill areas and would provide visual compatibility within these areas, none of the alternatives would be expected to have a significant adverse impact on Carlsbad's scenic resources. In addition, each alternative would generally include the same policies as those defined in the proposed General Plan. These policies reduce the impact on aesthetics, and ensure that alternatives would not substantially degrade the existing visual character or quality of Carlsbad and its surroundings.

The No Project Alternative would result in less development overall than either the proposed General Plan or Alternatives 1, 2, and 3. It follows that this alternative will produce fewer view obstructions, fewer sources of light and glare, and less construction activity. However, the proposed General Plan and Alternatives 1, 2, and 3 would result in reuse of the Power Plant site with uses and intensities more compatible with its waterfront setting. Additionally, without the benefit of the new policies in the proposed General Plan, the No Project Alternative will not have updated community design policies for visual resources.

AIR QUALITY

Air quality impacts are evaluated on a citywide basis because of the regional, cumulative characteristics of air quality and air pollution problems. As the goals, policies, and objectives of the alternatives are assumed to be the same, the proposed General Plan policies protecting air quality would apply to each of the alternatives, but not the No Project alternative. Because the policies for each alternative would be the same as policies in the proposed General Plan, impacts are expected to be similar, and less than significant in terms of policy-related impacts. The No Project alternative would include goals, policies, and objectives from the existing General Plan, many of which are similar to the proposed General Plan, therefore resulting in a less than significant impact related to achieving regional air quality goals and protecting public health.

In order to compare the air quality impacts of each alternative and the No Project Alternative, Table 4.2-4 juxtaposes the rate of increase in VMT to the rate of increase in population. As noted in Impact 3.2-2, the proposed General Plan would result in an increase in operational emissions of VOC, NO_x, CO, PM_{10} and $PM_{2.5}$ exceeding SDAPCD's operational emissions thresholds, primarily due to the motor vehicle emissions. In order to determine the relative impact of the alternatives, the growth in VMT was compared among each alternative. Alternative 1 would result in the second greatest increase in VMT relative to baseline, resulting in the second highest

air pollutant emissions. Alternative 2 would produce the least growth in VMT among the 3 alternatives, and therefore produce the lowest emissions of air pollutants. Alternative 3 would result in the greatest increase in VMT among the alternatives, and the highest levels of air pollutant emissions. The No Project alternative would result in the least overall amount of VMT, and therefore the lowest emissions overall. However, as operational emissions from the proposed General Plan would substantially exceed thresholds of VOC, NO_x, CO, PM_{10} and $PM_{2.5}$, air quality impact from the three alternatives and the No Project alternative would be significant in all scenarios.

Table 4.2-4: Comparison of Change in VMT and Population Under the Alternatives

Year	*Population*	*Population % Change from Baseline*	*Annual VMT*[2]	*VMT % Change from Baseline*
2008 Baseline[1]	96,274	n/a	506,034,156	n/a
Proposed General Plan	131,152[3]	36.2%	651,973,969[4]	28.8%
Alternative 1	134,481	39.7%	771,248,372	52.4%
Alternative 2	134,213	39.4%	757,546,847	49.7%
Alternative 3	133,526	38.7%	778,611,994	53.9%
No Project	126,587	31.5%	650,910,395	26.6%

1. Baseline VMT data is based on data from the year 2008, therefore this analysis also considers population growth from 2008.
2. VMT data has been adjusted to exclude the effect of pass-through traffic, as explained in the draft Climate Action Plan.
3. The population projection for the proposed General Plan assumes a minimum reduction of 327 residential units from the number of units currently proposed by the draft General Plan Land Use Map. During the city's public hearing process to adopt the proposed General Plan, the proposed General Plan Land Use Map will be modified as to reduce the northeast quadrant's residential capacity by a minimum of 327 units, based on the Growth Management Control Point density, to ensure that the Growth Management dwelling unit limitation is not exceeded.
4. The VMT projection for the proposed General Plan was determined for the maximum number of residential units allowed by the proposed General Plan Land Use Map, including the 327 units in excess of the northeast quadrant Growth Management limitation, in order to describe the effects of the worst-case scenario.

Source: Dyett & Bhatia, 2012, Fehr & Peers, 2012.

BIOLOGICAL RESOURCES

The proposed General Plan and all alternatives would protect Carlsbad's habitat by focusing development in currently built up areas and including policies that would help protect Carlsbad's grassland, coastal sage scrub, chaparral, woodland, riparian, marsh and other wetlands, and open water habitats.

The opportunity sites in all three alternatives are infill sites that lie outside of existing Habitat Management Plan (HMP) hardline conservation areas, which are areas established to preserve and protect sensitive biological resources within Carlsbad. Although the opportunity sites are outside of existing HMP hardline conservation areas, some opportunity sites may include biological resources, such as native habitat, wetland habitat, sensitive species or function as segments of wildlife movement corridors, though some of these areas are categorized as disturbed habitat.

As the opportunity sites are similar across the three alternatives, the amounts of urbanized area and development that will occur in all three alternatives are similar. In addition, the amounts of urbanized area in the three land use concepts do not differ much from what the current General Plan designates for development. The three alternatives, however, include strategies that recognize areas that may include potential biological resources and designates these areas as open space. For example, the area along Agua Hedionda Lagoon along the Power Plant site (Focus Area 1) is designated as open space in the proposed General Plan and three alternatives. In addition, much of the area in Quarry Creek (Focus Area 3) was designated as open space in the three alternatives compared to the No Project Alternative (current General Plan), which designates most of Quarry Creek as Low-Medium Density Residential.

For comparison purposes, the following describes potential impacts that may occur as a result of the alternatives. These calculations are conservative estimates based on regional vegetation data provided by SANDAG in 2003. Each alternative would not impact areas within the existing HMP hardline conservation areas. Alternative 1–Centers could impact the largest area of vegetation among the alternatives, including Grassland, Coastal Sage Scrub, Chaparral (Undifferentiated Types), Southern Maritime Chaparral, Oak Woodland, Eucalyptus Woodland, Riparian Scrub, Woodland and Forest, Marsh, Estuarine, Freshwater and Other Wetlands, as well as disturbed habitat.

Alternative 2–Active Waterfront could impact less vegetation than Alternative 1, including Grassland, Coastal Sage Scrub, Chaparral (Undifferentiated Types), Southern Maritime Chaparral, Oak Woodland, Eucalyptus Woodland, Riparian Scrub, Woodland and Forest, Marsh, Estuarine, Freshwater and Other Wetlands, as well as disturbed habitat.

Alternative 3–Core Focus could impact the least amount of vegetation among the alternatives, including Grassland, Coastal Sage Scrub, Chaparral (Undifferentiated Types), Southern Maritime Chaparral, Oak Woodland, Eucalyptus Woodland, Riparian Scrub, Woodland and; Forest, Marsh, Estuarine, Freshwater and Other Wetlands, as well as disturbed habitat. All three alternatives could result in a disturbance of a similar amount of undisturbed habitat, with Alternative 3–Core Focus resulting in slightly less impact to natural vegetation.

The No Project Alternative would also impact areas that lie outside of the existing HMP hardline conservation areas, which may include biological resources, but to a somewhat lesser extent than the other three alternatives, since there would be less total development under the No Project Alternative.

ENERGY, GREENHOUSE GASES AND CLIMATE CHANGE

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere and consist of, but are not limited to, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). These three gases are the most common GHGs that result from human activity. The global warming potential of GHGs is expressed in terms of CO2 equivalents (CO_2e) and is typically quantified in metric tons (MT) or millions of metric tons (MMT).

The draft 2014 City of Carlsbad Climate Action Plan (CAP) found the largest single source of community GHG emissions was from the transportation sector, representing 38.8 percent of total

emissions. Due to this fact, the three alternatives were evaluated based on the GHG emissions resulting from vehicles driving within the city. Vehicle miles traveled (VMT) is used as a key factor to calculate greenhouse gas emissions in the transportation sector. Utilizing the total VMT for each land use concept, CO_2 emissions from motor vehicle trips were quantified using the EMFAC 2011 model, which is the Air Resources Board's tool for estimating emissions from on-road vehicles.[3] Emissions of CH_4 and N_2O were accounted for by multiplying the EMFAC 2011 CO_2 emissions by a factor based on the assumption that CO_2 represents 95% of the CO_2e emissions associated with passenger vehicles.[4]

Table 4.2-5 shows the resulting transportation GHG emissions for each alternative, compared to the proposed General Plan and the No Project Alternative. The effect of the CAP GHG reduction measures was included in each of the alternatives, and would not apply to the No Project alternative. The proposed General Plan would produce the least amount of transportation CO_2e emissions by far, since it includes the effect of the proposed General Plan circulation system. Among the alternatives, Alternative 2 (Active Waterfront) results in the lowest vehicle miles traveled (VMT), as explained below in "Transportation," and the resulting GHG emissions are also the lowest. However, when comparing transportation GHG emissions per service population (population and jobs), all of the alternatives result in an approximate 0.8 $MTCO_2e$. The No Project alternative would have the highest overall GHG emissions, as it would not include CAP GHG reductions measures, and would result in 1.0 $MTCO_2e$ per person.

Table 4.2-5: Transportation GHG Emission Estimates Comparison

Quadrant	*Proposed General Plan[1]*	*Alternative 1- Centers*	*Alternative 2- Active Waterfront*	*Alternative 3- Core Focus*	*No Project (Existing General Plan GMCP)*
Annual VMT[1]	651,973,969	771,248,372	757,546,847	778,611,994	650,910,395
Yearly Metric Tons CO2e Transportation Emissions[2]	124,346	175,867	172,588	177,394	210,224
Service Population (Jobs + Population)	216,368	221,660	219,282	216,295	207,069
Transportation Emissions (Metric Tons CO2e per Service Population)	**0.6**	**0.8**	**0.8**	**0.8**	**1.0**

1 VMT for alternatives scaled to remove effect of pass-through traffic, as explained in the Draft Climate Action Plan
2 Draft CAP GHG Reduction Measures are incorporated in proposed General Plan and three alternatives. The No Project alternative would not include the effect of CAP GHG Reduction Measures. The No Project GHG emissions were determined using SEEC model, with the effect of Pavley I fuel economy standards.

Source: SANDAG and Fehr & Peers, 2014; Dyett and Bhatia, 2014

[3] CARB (California Air Resources Board). 2011. Mobile Source Emission Inventory – Current Methods and Data. Accessed January 3, 2011 at: http://www.arb. ca.gov/msei/modeling.htm#emfac2011_web_based_data

[4] EPA (U.S. Environmental Protection Agency). 2005. Greenhouse Gas Emissions from a Typical Passenger Vehicle (EPA420-F-05-004). EPA Office of Transportation and Air Quality. February 2005. Accessed at http://www.epa.gov/otaq/climate/420f05004.pdf

GEOLOGY, SOILS, AND SEISMICITY

There are no active faults that run through Carlsbad. The California Geologic Survey does not include the City of Carlsbad on its list of cities affected by Alquist-Priolo Earthquake Zones. Carlsbad is located within a seismically active region and earthquakes do have the potential to cause ground shaking. Each of the three alternatives has the potential to expose a greater number of people to seismic risks than the proposed General Plan, as they propose greater amounts of development. The No Project Alternative would expose fewer people to seismic risks. However, current state and federal regulations require specific engineering and design criteria to minimize impacts related to seismic and geologic hazards. These regulations apply equally to development under the proposed General Plan and each of the alternatives.

Impacts to geology and soil resources would similarly be greater under the three alternatives than the proposed General Plan due to potential construction impacts. The No Project Alternative proposes development that is smaller in scope to those anticipated under the proposed General Plan. Therefore, compared to the proposed General Plan, this alternative would result in the least amount of impacts to geology and soil resources.

HAZARDOUS MATERIALS

Hazardous materials impacts would be similar for each of the alternatives and the proposed General Plan. Generally, these impacts are determined by the level and nature of job growth. Jobs in the industrial sector, for example, could indicate the presence of hazardous materials related to industrial uses. Office or retail jobs might be expected to generate less than those in the industrial sector, but more than residential homes. Redevelopment is another potential indicator, as the demolition of older buildings can expose people and the environment to asbestos and lead-based paint.

The greatest number of industrial jobs would occur under Alternative 2 (13,750 net job increase), followed by Alternative 1 (12,210 net job increase), and Alternative 3 (8,960 net job increase), indicating that the largest number of industrial workers potentially exposed to hazardous materials would occur in Alternative 2, followed by Alternatives 1 and 3. The No Project Alternative would produce the least amount of industrial jobs, and therefore the least amount of potential exposure to hazards and hazardous materials. The proposed General Plan would produce a net job increase of 11,501 industrial jobs, indicating a relative impact greater than Alternative 3 and less than Alternative 1.

AIRPORT SAFETY AND WILDFIRES

Development under the three alternatives and the No Project Alternative would be consistent with the McClellan-Palomar Airport Land Use Compatibility Plan (ALUCP), which was adopted in January 2010 and last amended in December 2011. The ALUCP promotes compatibility between the McClellan-Palomar Airport (airport) and land uses that surrounded the airport.

As new development would replace existing structures built before modern building codes for fire safety and building systems were in place with buildings with improved fire safety, increased construction would improve fire safety. Alternative 1 would result in the greatest increase in the

construction of structures with improved fire safety, followed by Alternative 2, Alternative 3, and the No Project alternative. Therefore, the No Project alternative would result in more structures with outdated fire safety systems, with Alternative 3, Alternative 2 and Alternative 1, respectively, having a lesser impact.

HISTORIC, ARCHEOLOGICAL, AND PALEONTOLOGICAL RESOURCES

The comparison of impacts to historic, archeological, and paleontological resources by alternatives is based on the degree and location of new development proposed within each alternative. Cultural resources include buildings of historical importance, registered historic sites and archaeological resources.

A 1990 report titled Cultural Resources Survey City of Carlsbad provides a summary of prehistoric and historic resources in Carlsbad. Of a total of 325 potential historic properties, five were further identified as potentially eligible for nomination to the National Register of Historic Places and seven were identified as potential California Historical Landmarks. Several of the city's local historic resources have gone through the process to be listed in or determined eligible for listing in the National and California Registers as individual resources. The National Register of Historic Places has identified two listed properties within the city; the California Office of Historic Preservation has two historic landmarks listed in Carlsbad; and the San Diego Archaeological Center has identified two historic sites within Carlsbad. Other potential resources have been identified by the City of Carlsbad, the Save Our Heritage Organization, and the Carlsbad Historical Society that are not officially listed federal, state or local historic resources. The listed historic resources are mostly concentrated within Carlsbad Village and the Barrio area.

All three alternatives would focus mixed-use development in the Village, and high and medium density residential and parks and open space in the Barrio area. Any site bearing a historic resource will be protected from development by proposed General Plan policies. Although the sites will be protected from development, views to and from sites in the Village and the Barrio may be blocked as a result of higher density development in the neighborhoods. However, the impact is expected to be similar to that of the proposed General Plan and under the existing General Plan.

The No Project Alternative proposes development that is smaller in intensity than any of the prior alternatives and is expected to cause the least impact to cultural resources.

HYDROLOGY, FLOODING, AND WATER QUALITY

Urban development can bring about an increase in impervious surfaces that could lead to increased run-off rates and flooding in downstream areas. The proposed General Plan and alternatives focus new development in currently built-up areas, which limits impacts to hydrology and flooding. Additionally, they include policies that would minimize surface water run-off through best management practices (BMPs) and would prevent development in 100-year flood zones, thereby reducing exposure to flooding hazards. Consequently, impacts to hydrological resources and flooding are expected to be minimal.

Alternatives 1, 2, and 3 will result in a higher level of development than the proposed General Plan—resulting in greater construction activities. Construction activities may cause temporary impacts to the region's hydrology due to earth movement. Nevertheless, the overall impact is not significant, as the majority of new developments are planned at infill sites along the main transportation corridors outside flood prone areas.

The No Project Alternative will result in the least amount of development—resulting in the least amount of impervious surfaces and lowest level of construction activity associated with development. Consequently, the overall impact to hydrology and flooding would be less than any of the other alternatives.

LAND USE, HOUSING, AND POPULATION

Housing Units and Population

The following tables compare estimates of housing unit and population growth at full buildout across the three alternatives. While the three alternatives have different geographic strategies, housing and population growth resulting from the concepts is similar, with increase in housing units ranging from 8,827 in Alternative 3 (Core Focus) to 9,208 in Alternative 1 (Centers). Tables 4.8 and 4.9 summarize the net increase in housing and population projected for full buildout of each alternative. These estimates take into account land availability and development constraints, and estimate growth likely to occur. Table 4.2-9 shows a comparison of the citywide population at buildout under each alternative and the No Project Alternative. Population would be greatest under Alternative 1, followed by Alternatives 2 and 3. The No Project Alternative would have the lowest citywide population.

Residential Capacity Comparison Among Alternatives

Table 4.2-6 shows a comparison of the residential capacity of the proposed General Plan, Alternatives 1, 2, and 3, and the No Project Alternative. Alternatives 1, 2, and 3 have higher proposed residential capacity than the proposed General Plan, by approximately 1,000 units. The No Project Alternative has lower residential capacity than the proposed General Plan, by approximately 1,800 units.

Table 4.2-6: Residential Capacity Comparison (Units)

	Northwest	*Northeast*	*Southwest*	*Southeast*	*Total*
Proposed General Plan	15,097	9,042[1]	11,512	16,669	52,320
Alternative 1: Centers	15,217	8,970	12,248	17,213	53,648
Alternative 2: Active Waterfront	15,163	8,815	12,376	17,187	53,541
Alternative 3: Core Focus	15,181	8,968	11,822	17,296	53,267
No Project (Based on Existing General Plan GMCP)	14,979	8,238	10,733	16,549	50,499

1. The residential capacity shown in this table is 327 dwelling units fewer than the total units yielded by the proposed new residential sites shown on the proposed Land Use Map in the northeast quadrant. During the city's public hearing process to adopt the proposed General Plan, residential land use designation changes proposed in the northeast quadrant will need to be modified (reduced by a minimum of 327 units) to ensure the Growth Management dwelling unit cap for said quadrant is not exceeded. Nevertheless, the addition or subtraction of these units does not alter the relative impact of the proposed General Plan relative to the other alternatives.

Source: City of Carlsbad Planning Department, 2011; SANDAG, 2011; Dyett & Bhatia, 2012.

Table 4.2-7: Estimated New Housing Unit Comparison Summary

Quadrant	*Proposed General Plan*	*Alternative 1 (Centers)[1]*	*Alternative 2 (Active Waterfront)[1]*	*Alternative 3 (Core Focus)[1]*	*No Project (Existing General Plan GMCP[2])*
Northwest	2,869	2,989	2,935	2,953	2,751
Northeast	3,109[3]	3,037	2,882	3,035	2,305
Southwest	1,361	2,097	2,225	1,671	582
Southeast	541	1,085	1,059	1,168	421
Citywide Total	**7,880**[3]	**9,208**	**9,101**	**8,827**	**6,059**

1. Housing unit estimates for alternatives 1, 2, and 3 have been adjusted from those presented in the Land Use Concepts Report to more accurately reflect full buildout conditions rather than reasonably expected buildout conditions in order to compare with the full buildout estimate of the proposed General Plan.

2. Existing General Plan GMCP represents conditions at preparation of the Land Use Concepts Report

3. The total number of new residential dwelling units shown in this table is 327 dwelling units fewer than the total units yielded by the proposed new residential sites shown on the proposed Land Use Map in the northeast quadrant. During the city's public hearing process to adopt the proposed General Plan, residential land use designation changes proposed in the northeast quadrant will need to be modified (reduced by a minimum of 327 units) to ensure the Growth Management dwelling unit cap for said quadrant is not exceeded. Nevertheless, the addition or subtraction of these units does not alter the relative impact of the proposed General Plan relative to the other alternatives.

Source: Dyett & Bhatia, 2013; City of Carlsbad Planning Department, 2011; SANDAG, 2011.

Table 4.2-8: Net Population Increase Comparison Summary[1]

Quadrant	*Proposed General Plan*	*Alternative 1 (Centers) 1*	*Alternative 2 (Active Waterfront) 1*	*Alternative 3 (Core Focus) 1*	*No Project (Existing General Plan GMCP)*
Northwest	7,192	7,493	7,357	7,402	6,896
Northeast	7,793	7,613	7,224	7,608	5,778
Southwest	3,412	5,257	5,577	4,189	1,459
Southeast	1,356	2,720	2,655	2,928	1,055
Citywide Total	**19,753**	**23,082**	**22,814**	**22,127**	**15,188**

1. Population estimates in this table are applicable only to the new housing units resulting from each alternative, as shown in Table 4.2-8. The total population increase at buildout will be higher to account for anticipated increased population (persons per household) in existing housing. For example, the total population increase at buildout estimated for the proposed General Plan is 22,906. Table 4.2-9 accounts for the total population increase (resulting from existing and new housing units) at buildout estimated for each alternative.

Note: Population estimates for Alternatives 1, 2, and 3 have been adjusted from those presented in the Land Use Concepts Report to more accurately reflect full buildout conditions rather than reasonably expected buildout conditions in order to compare with the full buildout estimate of the proposed General Plan.

Source: Dyett & Bhatia, 2014; City of Carlsbad Planning Department, 2011; SANDAG, 2013.

Table 4.2-9: Citywide Population at Buildout Comparison

Quadrant	*Proposed General Plan*	*Alternative 1 (Centers)[1]*	*Alternative 2 (Active Waterfront)[1]*	*Alternative 3 (Core Focus)[1]*	*No Project (Existing General Plan GMCP)*
Northwest	37,844	38,145	38,009	38,055	37,548
Northeast	22,666	22,485	22,097	22,480	20,650
Southwest	28,857	30,702	31,023	29,634	26,905
Southeast	41,785	43,148	43,083	43,356	41,484
Citywide Total	**131,152**	**134,481**	**134,213**	**133,526**	**126,587**

a. Population estimates assume a 5.5% vacancy rate and 2.63 persons per household as projected by SANDAG 2050 Regional Growth Forecast for 2040, and an additional .86% of household population in group quarters.

b. Numbers may not add up due to rounding.

1. Population estimates for alternatives 1, 2, and 3 have been adjusted from those presented in the Land Use Concepts Report to more accurately reflect full buildout conditions rather than reasonably expected buildout conditions in order to compare with the full buildout estimate of the Proposed General Plan.

Source: Dyett & Bhatia, 2011; Working Paper 3, 2011; SANDAG, 2011.

Residential Development and Growth Management Capacity

In the mid-1980s, the city was experiencing an era of rapid growth, which raised community concerns about how growth would affect quality of life—the community's "small town" identify, open space, natural habitat, and the adequacy of public facilities to serve new growth. In July

1986, to address these concerns, the city adopted the Growth Management Plan, which was ratified by voter approval of Proposition E in November 1986. Through Proposition E, voters limited the number of dwelling units in the city to 54,599, and established a maximum number of dwelling units that could be built in each of the city's four quadrants.

Pursuant to Proposition E, the city cannot approve any General Plan amendment, zone change, subdivision map or other discretionary permit that could result in residential development that exceeds the dwelling unit limit in each quadrant. To increase the Proposition E dwelling unit limit in any city quadrant requires approval by Carlsbad voters.

Table 4.2-10 compares the Growth Management limits to the dwelling unit capacities by city quadrant for the proposed General Plan, the three alternatives and the No Project. To accommodate the anticipated demand for housing that will result from the forecasted future population and employment growth in Carlsbad, each of the alternatives propose an increase in the number of residential units allowed on some of the opportunity sites.

The residential capacities resulting from the three alternatives and the No Project will not exceed the Growth Management Dwelling Unit Cap. For the proposed General Plan, the total number of new residential dwelling units shown in Table 4.2-10 is 327 dwelling units fewer than the total units yielded by the proposed new residential sites shown on the proposed Land Use Map in the northeast quadrant. During the city's public hearing process to adopt the proposed General Plan, residential land use designation changes proposed in the northeast quadrant will need to be modified (reduced by a minimum of 327 units) to ensure the Growth Management dwelling unit cap for said quadrant is not exceeded.

Table 4.2-10: Dwelling Unit Capacities and Proposition E - Growth Management

			Estimated Dwelling Unit Capacity			
Quadrant	*Growth Management Dwelling Unit Cap*	*Proposed General Plan*	*Alternative 1 (Centers)*	*Alternative 2 (Active Waterfront)*	*Alternative 3 (Core Focus)*	*No Project (Existing General Plan)*
Northwest	15,370	15,097	15,217	15,163	15,181	14,979
Northeast	9,042	9,042[1]	8,970	8,815	8,968	8,238
Southwest	12,859	11,512	12,248	12,376	11,822	10,733
Southeast	17,328	16,669	17,213	17,187	17,296	16,549
Citywide	**54,599**	**52,320**	**53,648**	**53,541**	**53,267**	**50,499**

1. The total number of new residential dwelling units shown in this table is 327 dwelling units fewer than the total units yielded by the proposed new residential sites shown on the proposed Land Use Map in the northeast quadrant. During the city's public hearing process to adopt the proposed General Plan, residential land use designation changes proposed in the northeast quadrant will need to be modified (reduced by a minimum of 327 units) to ensure the Growth Management dwelling unit cap for said quadrant is not exceeded.

NOISE

The main noise sources within Carlsbad are transportation and airport noise. Depending on location, the main source of noise can be from the airport, traffic along major thoroughfares or the rail line.

The McClellan-Palomar ALUCP includes noise contours for the purpose of evaluating noise compatibility of land uses near the airport. According to the ALUCP, residential uses are not compatible in areas greater than 65 dB CNEL. In all three alternatives, no residential uses are proposed in the 65+ dB CNEL range. Alternative 1 (Centers) and Alternative 3 (Core) propose residential uses near the airport (Palomar Corridor/Focus Area 7) and although they are in noise compatible locations, they may still be impacted by airport noise. Potential mitigations could include sound attenuation design measures such as the installation of sound rated windows and policies establishing a maximum interior noise level for sensitive uses to mitigate noise impacts.

Alternative 3, which focuses on creating housing opportunities near jobs in the Palomar Corridor (Focus Area 7), will place the highest number of residential units near the airport. Alternative 1 also places some residential uses in the Palomar Corridor (Focus Area 7), though resulting in fewer number of residential units compared to Alternative 3. Alternative 2 maintains industrial/office uses in the Palomar Corridor (Focus Area 7), which are generally compatible with airport noise levels.

High traffic volumes along main roads also result in potential noise impacts. Alternative 1, which focuses on creating neighborhood centers along major thoroughfares to enable access to transit and bicycle amenities would place residential uses along El Camino Real and Palomar Airport Road. Alternative 3 also includes some residential uses along El Camino Real and Palomar Airport Road but less compared to Alternative 1. Alternative 3 would not locate any residential uses along Palomar Airport Road but does include some residential uses along El Camino Real.

Other sources of noise include faster moving traffic along Interstate 5 and Highway 78, and the rail line that runs parallel to Interstate 5. Alternative 2, which places the most amounts of residential uses on the west side of the city, will experience the most noise impact from these sources. Alternative 2, which aims to create an active waterfront by placing people close to the waterfront and increasing access to rail service, places higher density residential uses along the rail line so that people can easily walk to the stations. Alternative 2 includes residential uses on the power plant site (Northwest Coastal/Focus Area 1) as well as high density residential in the Southern Freeway Corridor (Focus Area 8) close to the rail station. In addition, Alternative 2 includes high density residential in Plaza Camino Real Commercial Corridor (Focus Area 2) and Quarry Creek (Focus Area 3).

Alternative 1 and Alternative 2 do not include residential uses on the power plant site (Northwest Coastal/Focus Area 1) and includes less dense residential uses in Southern Freeway Corridor (Focus Area 8), Plaza Camino Real Commercial Corridor (Focus Area 2) and Quarry Creek (Focus Area 3). The No Project alternative would create the least amount of development, and thereby exposes the fewest number of people to potential noise impacts; however, the proposed General Plan includes a substantial number of policies to promote alternative transportation modes and reduce automobile travel, resulting in a less than significant impact.

PUBLIC FACILITIES AND SERVICES

Development under each of the alternatives and the No Project alternative would require schools, public services and facilities, and parks. As described in Chapter 7 of the General Plan, Carlsbad's student population under the General Plan is expected to remain relatively stable or decline in three of the four school districts serving the city. For all school districts and all grade levels, capacity is expected to be sufficient for the buildout student population with no need for additional schools. Under each alternative, the locations of schools would remain the same, and the existing capacity of each school would be sufficient to accommodate the number of students anticipated. For police, fire and emergency services, each alternative would require the additional growth of these services to accommodate additional population growth; while the greatest growth in services would be from Alternative 1, followed by Alternatives 2 and 3, the physical impact of service expansion (resulting from need for new fire station, for example), would be the same.

PUBLIC UTILITIES AND INFRASTRUCTURE

Each of the alternatives and the No Project alternative would require utilities and infrastructure, including water, sewer, electricity, and landfill capacity. The demand for utilities was assumed to scale with population growth under each alternative. Therefore, the greatest growth in utility and infrastructure demand would be from Alternative 1, followed by Alternatives 2 and 3. The increased demand for utilities would be less under the proposed General Plan than any of the three alternatives. The No Project alternative would have the least growth in demand for utilities and infrastructure.

TRANSPORTATION

Each alternative shares the core vision statement for walking, biking, public transportation and connectivity to "increase travel options through enhanced walking, bicycling and public transportation systems" and to "enhance mobility through increased connectivity and transportation management." This section provides analysis for each alternative on the street system and the overall accessibility of residents and employees to transit, bicycle, and pedestrian facilities.

Vehicle Miles Traveled

The three alternatives and the No Project were converted into the format necessary for incorporation into the San Diego Association of Governments' (SANDAG) recently updated travel demand model. A model run was conducted for each concept by SANDAG. Additional metrics, estimates developed by Fehr & Peers, and GIS mapping were used to assess transportation performance for the concepts. The purpose of this analysis was to conduct a comparative assessment and describe the overall transportation effects of the concepts, and to provide this information to decision-makers and the public as they consider the benefits and disadvantages of each alternative.

Several factors impact how often people get into their cars to drive somewhere and how far they drive. Smart growth can reduce automobile dependence, the number of trips taken using a car, and the distances people drive. By placing a mix of land uses close together, travel characteristics can shift. For example, by having residential and retail uses close together, people can walk to the corner store from their homes, thereby reducing vehicle trips. However, the larger the width of

the street and the size of the parking lot between the sidewalk and the corner store, the less desirable it is to choose walking as a travel option. Therefore, the built environment can impact travel option choices. Or by placing residential uses close to employment uses, people may not have to drive as far to get to work, and some people may walk or bike. Lower automobile vehicle trips and vehicle miles traveled can translate into less congestion and lower air quality impacts and greenhouse gas emissions.

For each alternative, vehicle miles traveled were analyzed to evaluate how often people drive and how far they drive on average in each alternative scenario. Vehicle miles traveled (VMT) was calculated using the "boundary" method. This method multiplies the traffic volume on streets within the Carlsbad city limits by the length of the street to obtain VMT. VMT was calculated for the entire city as the total VMT for Alternative 2 utilizing the SANDAG travel demand forecasting model. VMT for Alternative 1 and Alternative 3 was estimated by multiplying the net new trip generation estimates for each concept by the average trip length (disaggregated by trip purpose).

Table 4.2-13 summarizes the VMT generated by each land use concept within Carlsbad. As the table shows, the total VMT resulting from the three alternatives are fairly similar. Alternative 1 and Alternative 3 are generally consistent with Alternative 2 VMT estimates, as they generate 1.8 percent and 2.8 percent more VMT (compared to Alternative 2), respectively. The No Project alternative would result in the least overall VMT, while the proposed General Plan would have slightly greater VMT. However, the No Project would result in greater annual VMT per service population than the proposed General Plan, due to lower population growth.

Table 4.2-13: Citywide Annual Vehicle Miles Traveled (VMT) Per Service Population

Quadrant	*Proposed General Plan*	*Alternative 1 (Centers)*	*Alternative 2 (Active Waterfront)*	*Alternative 3 (Core Focus)*	*No Project (Existing General Plan GMCP)*
Service Population (Population + Jobs)	216,368	221,660	219,282	216,295	207,069
Total Population	131,152	134,481	134,213	133,526	126,587
Total Jobs	85,216	87,179	85,069	82,769	80,482
Annual VMT	651,973,969	771,248,372	757,546,847	778,611,994	650,910,395
Annual VMT per Service Population	3,013	3,479	3,455	3,600	3,143

Source: Dyett & Bhatia, 2014; SANDAG, 2013; Fehr & Peers, 2014

In general, the alternatives perform similarly related to VMT per service population. Alternative 3 has the greatest annual VMT per service population, followed by Alternative 1 and Alternative 2. This shows that although the land use strategies differ among the land use concepts, the resulting vehicle trips and VMT at the citywide scale are similar. So although Alternative 2 may not have mixed use in the Palomar Corridor (Focus Area 7), concentrating development along the coast will have similar impacts as providing for mixed use in the Palomar Corridor as Alternative 3

does. And while Alternative 1 designates neighborhood centers throughout the city, this land use strategy also results in similar impacts. The air quality and greenhouse gas emissions resulting from the associated VMT for each alternative are described in the above impact sections.

AGRICULTURAL RESOURCES

Impacts to agricultural resources would be similar across each of the alternatives and the proposed General Plan. As with the proposed General Plan, agricultural lands under any of the alternatives, including the No Project alternative, would be surrounded by more urbanized uses. Alternatives 1, 2, and 3, as well as the No Project alternative and the proposed General Plan, could result in the conversion of existing agricultural land to non-agricultural uses. In these instances, individual projects would be required to undergo environmental review pursuant to CEQA as well as discretionary approval to address impacts to agricultural resources. As with the proposed General Plan, none of the alternatives, including the No Project alternative, propose land use changes that would affect the status of the Flower Fields, the sole property subject to Williamson Act contracts.

Assuming that policies across Alternatives 1, 2, and 3 would be similar to the proposed General Plan, these would provide a framework to permit the continuation of agricultural uses within the city, including those supporting the ongoing preservation of the Cannon Road Open Space, Farming, and Public Use Corridor for agricultural use.

As the No Project alternative is the continuation of existing land use designations, this alternative would result in the least amount of agricultural land being re-designated to non-agricultural uses at this time, and therefore represents the least relative impact. However, without a re-evaluation of policies to ensure ongoing compatibility with between agricultural and urban land uses in the face of increasing population and new development on nearby lands, resulting conflicts could lead to increased pressure—direct or indirect—to convert agricultural lands to non-agricultural use.

Table 4.2-14 shows a comparison of the relative impacts (as described above) by resource topic among Alternative 1, Alternative 2, Alternative 3 and the No Project alternative.

Table 4.2-14: Comparison of Relative Impacts by Resource Topic Among Alternatives

Resource Topic	*Alternative 1: Centers*	*Alternative 2: Active Waterfront*	*Alternative 3: Core Focus*	*No Project*
Aesthetics	Similar	Similar	Similar	Least
Air Quality	Similar	Similar	Greatest	Least
Biological Resources	Greatest	Similar	Similar	Least
Energy, Greenhouse Gases, and Climate	Similar	Similar	Similar	Greatest
Geology, Soils, and Seismicity	Similar	Similar	Similar	Least

Hazardous Materials	Similar	Greatest	Similar	Least
Airport Safety and Wildfires	Least	Similar	Similar	Greatest
Historical, Archaeological, and Paleontological Resources	Similar	Similar	Similar	Least
Hydrology, Flooding, and Water Quality	Similar	Similar	Similar	Least
Land Use, Housing, and Population	Greatest	Similar	Similar	Least
Noise	Similar	Similar	Similar	Least
Public Facilities and Services	Greatest	Similar	Similar	Least
Public Utilities and Infrastructure	Greatest	Similar	Similar	Least
Transportation	Similar	Similar	Greatest	Least
Agricultural Resources	Similar	Similar	Similar	Least
Conclusion	**Similar**	**Environmentally Superior of Alternatives**	**Similar**	**Environmentally Superior**

4.3 Environmentally Superior Alternative

CEQA Guidelines require the identification of an environmentally superior alternative among the alternatives analyzed in an EIR. The guidelines also require that if the No Project Alternative is identified as the environmentally superior alternative, then another environmentally superior alternative must be identified.

Based on a comparison of the alternatives' overall environmental impacts and their compatibility with General Plan goals and objectives, the No Project Alternative appears to be the environmentally superior alternative for this Program EIR, since overall development would be less than any of the other alternatives. However, the No Project Alternative does not meet the proposed General Plan's core values, vision, purpose and objectives as described in Section 2.2, including enhancing Carlsbad's small town feel, beach community character, and building on the city's sustainability initiatives. Other key community desires expressed in the General Plan include developing an active waterfront, providing accessible walkable centers, revitalizing older neighborhoods, providing appropriately-scaled development on key opportunity sites, increasing street connectivity, and promoting walking and bicycling through livable streets.

Of the remaining alternatives, the environmentally superior alternative is Alternative 2 (Active Waterfront). Alternative 1 would produce the greatest amount of new residential development,

and associated impacts, while Alternative 3 would result in the highest amount of VMT, and associated air quality, GHG, and transportation impact. As Alternative 2 would result in less new residential development than Alternative 1, and less VMT and associated impacts than Alternative 3, it would be the overall environmentally superior alternative. Its impacts are expected to be similar to those in the proposed General Plan for most of the environmental impact categories analyzed in this EIR—land use, housing, and population; transportation; air quality; aesthetics; biological resources; energy, greenhouse gases and climate change; geology, soil, and seismicity; hazards and hazardous materials; historical, archeological, and paleontological resources; hydrology and flooding; noise; public services, facilities, and utilities; and agricultural resources. However, the higher population produced by Alternative 2 in comparison to the proposed General Plan means it would produce higher impacts in relation to population-related externalities such as police and fire services, schools, and demand for water supply and wastewater services. Because it would also produce more jobs than the proposed General Plan, it would have higher job-related impacts such as generating more solid waste, transportation (vehicle miles travelled), higher energy needs, GHG emissions, noise and hazardous materials. Overall, the proposed General Plan would have less of an impact than any of the three alternatives analyzed.