

CITY OF CARLSBAD
Fiscal Year 2016-17
Growth Management Plan Monitoring Report
July 1, 2016 through June 30, 2017

Carlsbad City Council

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Report prepared in cooperation with the following departments:

Community and Economic Development
Fire
Parks & Recreation
Library and Cultural Arts
Transportation
Utilities
Carlsbad Municipal Water District

Introduction

The purpose of this report is to provide information regarding the status of the Carlsbad Growth Management Plan for the fiscal year covering July 1, 2016 – June 30, 2017, and to verify that the plan is continuing to accomplish its stated objectives. The primary objectives of the Growth Management Plan are to ensure that adequate public facilities are provided concurrent with growth, and to assure compliance with the ultimate dwelling unit limitations that were established by Proposition E, which was passed by voters in 1986.

Performance Standards

Proposition E established broad guidelines for determining adequacy of public facilities. These guidelines are further defined in the Citywide Facilities and Improvements Plan by means of specific performance standards for each of the eleven public facilities. These public facilities, their performance standards, current status, and anticipated adequacy at buildout are outlined in Table 1 and Table 2, as follows:

TABLE 1 – PERFORMANCE STANDARDS

Public Facility	Performance Standard	More Information on Page
City Administrative Facilities	1,500 sq. ft. per 1,000 population must be scheduled for construction within a five-year period or prior to construction of 6,250 dwelling units, beginning at the time the need is first identified.	12
Library	800 sq. ft. (of library space) per 1,000 population must be scheduled for construction within a five-year period or prior to construction of 6,250 dwelling units, beginning at the time the need is first identified.	13
Wastewater Treatment Capacity	Sewer plant capacity is adequate for at least a five-year period.	14
Parks ¹	3.0 acres of Community Park or Special Use Area per 1,000 population within the Park District must be scheduled for construction within a five year period, or prior to construction of 1,562 dwelling units within the Park District beginning at the time the need is first identified.	15
Drainage	Drainage facilities must be provided as required by the city concurrent with development.	17
Circulation	Implement a comprehensive livable streets network that serves all users of the system –	18

¹The performance standard was amended by City Council Resolution No. 2017-170 on August 22, 2017, and will be reflected in the upcoming report for FY 2017-18.

Public Facility	Performance Standard	More Information on Page
	vehicles, pedestrians, bicycles and public transit. Maintain LOS D or better for all modes that are subject to this multi-modal level of service (MMLOS) standard, as identified in Table 3-1 of the General Plan Mobility Element, excluding LOS exempt intersections and streets approved by the City Council.	
Fire	The number of dwelling units outside a five-minute “travel time” from the nearest fire station shall not exceed 1,500 units.	22
Open Space	Fifteen percent of the total land area in the Local Facility Management Zone (LFMZ) exclusive of environmentally constrained non-developable land must be set aside for permanent open space and must be available concurrent with development.	24
Schools	School capacity to meet projected enrollment within the Local Facility Management Zone (LFMZ) as determined by the appropriate school district must be provided prior to projected occupancy.	25
Sewer Collection System	Trunk-line capacity to meet demand, as determined by the appropriate sewer districts, must be provided concurrent with development.	26
Water Distribution System	Line capacity to meet demand as determined by the appropriate water district must be provided concurrent with development. A minimum of 10-day average storage capacity must be provided prior to any development.	28

TABLE 2 – FACILITY ADEQUACY STATUS

Public Facility	FY 2016-17 Adequacy Status (Meets performance standard?)	Buildout Adequacy Status (Meets performance standard?)
City Administrative Facilities	Yes	Yes
Library	Yes	Additional facilities to be provided*
Wastewater Treatment Capacity	Yes	Yes
Parks	Yes	Additional facilities to be provided*
Drainage	Yes	Additional facilities to be provided*

Public Facility	FY 2016-17 Adequacy Status (Meets performance standard?)	Buildout Adequacy Status (Meets performance standard?)
Circulation	Revised facility performance criteria under development	Additional facilities to be provided*
Fire	Yes	Yes
Open Space	Yes	Additional facilities to be provided*
Schools	Yes	Yes
Sewer Collection System	Yes	Additional facilities to be provided*
Water Distribution System	Yes	Additional facilities to be provided*

*For additional information, please see the expanded discussion and an analysis on the adequacy of each public facility beginning on page 12.

What Happens if Facilities Do Not Meet the Performance Standard?

The Growth Management Plan requires development activity to stop if a performance standard is not being met. Some performance standards apply to the city as a whole, and others apply to more specific areas, as described below:

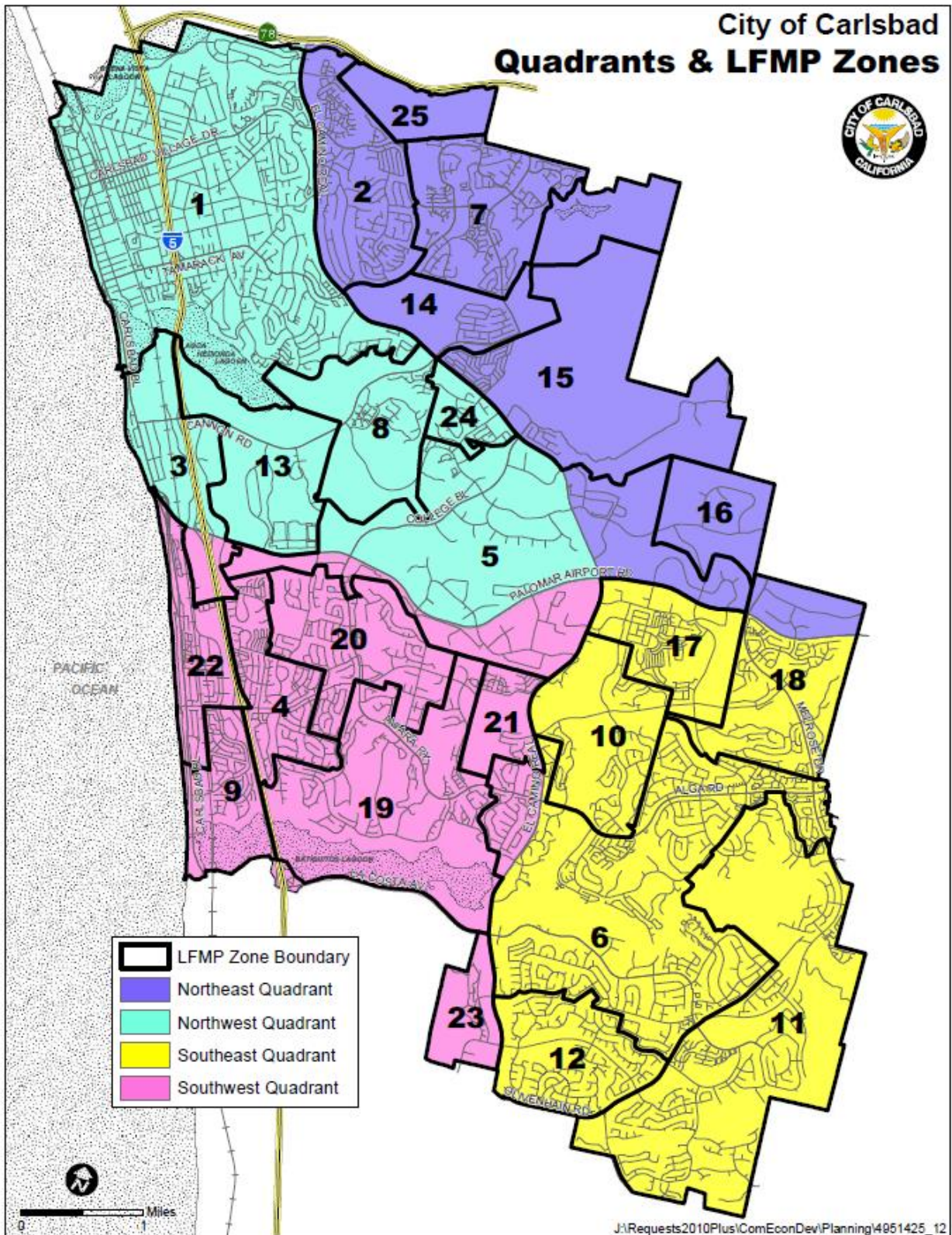
- Administrative facilities, library, and wastewater treatment capacity are facilities that serve the entire city. Their adequacy in meeting the performance standard is analyzed by considering the cumulative impact of citywide development. The failure of any one of these facilities to meet the adopted performance standard would affect the city as a whole. In that event, all development in the city would be halted until the deficiency is corrected.
- Parks are analyzed on a quadrant basis. This means that if the standard is not being met in the quadrant, development is halted for all Local Facility Management Zones (LFMZs, see description below) in the quadrant.
- Fire facilities are analyzed on the basis of fire station districts which can comprise multiple LFMZs, and if the standard is not met for a district, then development would be halted in that district.
- The remaining facilities (drainage, circulation, open space, schools, sewer collection system, and water distribution system) are analyzed on an LFMZ basis. If one of these facilities falls below the performance standard in a given LFMZ, development in that LFMZ would stop and other zones would not be affected if they are continuing to meet all performance standards.

Local Facility Management Zone Plans

The Citywide Facilities and Improvements Plan divided the city into twenty-five Local Facilities Management Zones (LFMZ). Each LFMZ is required to have an adopted Local Facilities Management Plan (LFMP) prior to any development in the LFMZ. Consistent with the Growth Management Plan, the LFMP must do the following: describe how the LFMZ will be developed, how compliance with the Growth Management Plan standards will be achieved, how the necessary public facilities will be provided, and what financing mechanisms will be used for the facilities. All twenty-five LFMZs have an adopted LFMP.

Please see Figure 1 for the general boundaries and locations of the LFMZs.

FIGURE 1



Population as a Measurement for Facility Performance Standards

As indicated in Table 1, above, the performance standards for city administrative facilities, library facilities, and parks are stated in terms of population. The demand for these facilities is based on each new dwelling unit built and the estimated number of new residents it adds to the city, which is determined using the average number of persons per dwelling unit. Utilizing data from the 2010 Federal Census (total population divided by total number of dwelling units), the average for Carlsbad is 2.358 persons per dwelling unit.

As of June 30, 2017, the city's population is estimated to be 109,601, which is calculated by multiplying 2.358 persons per dwelling unit by the number of dwelling units, accessory dwelling units, and commercial living units (which were counted as dwelling units in the 2010 Federal Census); in total there are 46,435 dwellings and commercial living units, as shown in Table 3 below.

TABLE 3 – FY 2016-2017 POPULATION CALCULATION

Quadrant	Dwelling units	Accessory dwelling units	Commercial living units	Total units	Population
NW	12,382	173	226	12,781	30,138
NE	6,242	42	-	6,284	14,818
SW	10,142	26	685	10,853	25,616
SE	16,354	163	-	16,517	39,029
Total	45,120	404	911	46,435	109,601

1. Dwelling units represent the dwellings that are counted for purposes of the city's growth management dwelling unit limits per Proposition E (excludes accessory dwelling units and commercial living units); the number of dwelling units shown in this table are updated to June 30, 2017.
2. Accessory dwelling units are accessory to single family dwellings and are separate dwelling units with living space, kitchen and bathroom facilities. Pursuant to state law, accessory dwelling units cannot be counted as dwellings for purposes of the city's growth management dwelling limits. However, the units are counted here to ensure all city population is considered in regard to the performance standards for administrative facilities, libraries and parks.
3. Commercial living units, as shown in this table, are professional care facility living units that were counted as dwelling units in the 2010 Federal Census. Pursuant to city ordinance (CMC 21.04.093), commercial living units are not counted as dwellings for purposes of the city's growth management dwelling limits. However, the units are counted here to ensure all city population is considered in regard to the performance standards for administrative facilities, libraries and parks.

As part of the Growth Management Plan monitoring process, the persons per dwelling unit number can be adjusted in the future when updated Federal Census data is available. It should be noted that the above population estimates are for growth management facility planning purposes only, and may vary from other official population estimates for Carlsbad.

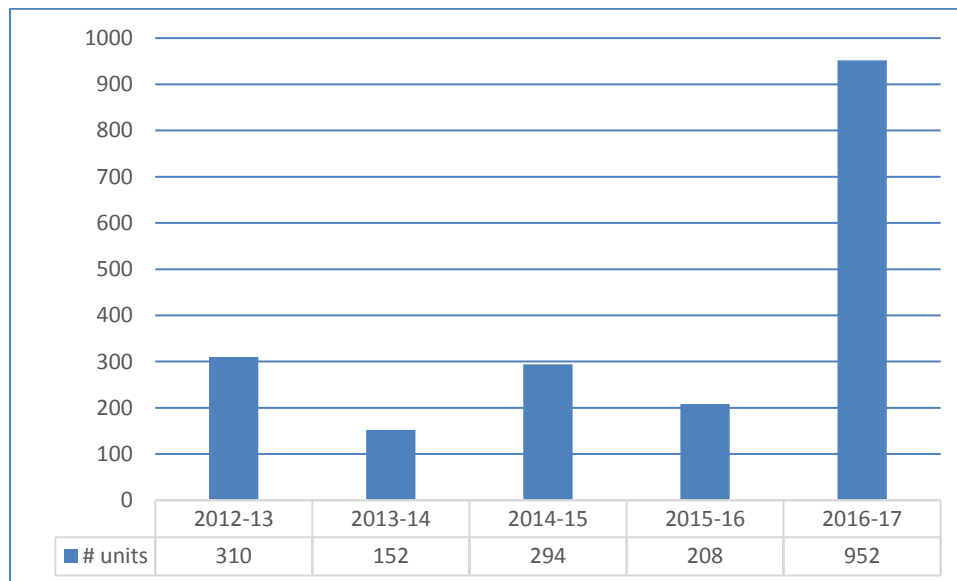
Residential Development Activity

Building permits for 952 new dwelling units were issued during the FY 2016-17 (construction of all 952 dwellings may not have been completed at the time of this report; dwellings under construction are not reflected as existing dwellings in Table 3). Table 4 provides a breakdown by LFMZ, excluding the zones that had no development activity. Figure 2 shows the recent five year trend of building permits issued for dwelling units.

TABLE 4 – FY 2016-17 RESIDENTIAL DEVELOPMENT

By LFMZ		By Quadrant	
LFMZ	Units	Quadrant	Units
1	47	NW	51
3	3	NE	891
6	5	SW	4
14	500	SE	6
20	4		
22	1		
25	392		
Total	952	Total	952

FIGURE 2 – FISCAL YEAR DWELLING UNITS PERMITTED



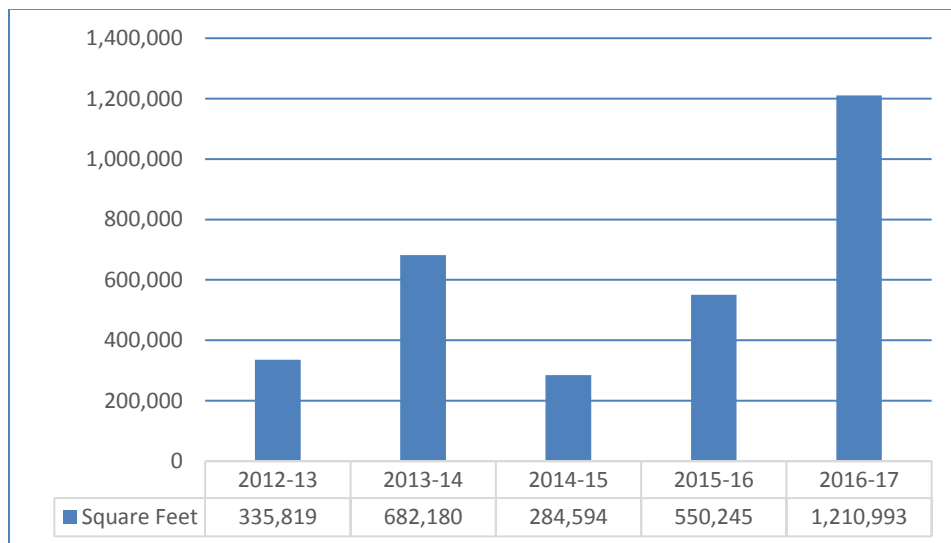
Non-Residential Development Activity

Building permits for 1,210,993 square feet of new non-residential construction were issued during FY 2016-17, comprising both commercial and industrial development. Table 5 provides a breakdown by LFMZ, excluding the zones that had no development activity. Figure 3 shows the recent five-year trend of building permits issued for the square footage of non-residential construction.

TABLE 5 – FY 2016-17 NON-RESIDENTIAL DEVELOPMENT

By LFMZ			By Quadrant		
Zone	Square Feet Permitted		Quadrant	Square Feet Permitted	
	<i>Commercial</i>	<i>Industrial</i>		<i>Commercial</i>	<i>Industrial</i>
1	89,388		NW	443,569	
5(NE)		63,742			
5(NW)	47,799				
6	3,508		NE	141,576	428,044
8	91,887		SW	18,740	
13	203,236				
14	6,573				
16	131,495	308,729	SE	90,054	89,010
17	90,054	89,010			
18(NE)		55,573			
19	18,740				
25	11,259				
Subtotal	693,939	517,054	Subtotal	693,939	517,054
Total	1,210,993		Total	1,210,993	

FIGURE 3 – FISCAL YEAR NON-RESIDENTIAL SQUARE FEET PERMITTED



Proposition E Compliance

The purpose of this part of the report is to demonstrate that the ultimate dwelling unit caps stated in Proposition E will not be exceeded. Proposition E states “the maximum number of residential dwelling units to be constructed or approved in the city after November 4, 1986 is as follows: Northwest Quadrant 5,844; Northeast Quadrant 6,166; Southwest Quadrant 10,667; Southeast Quadrant 10,801.” This resulted in dwelling unit caps as shown in Table 6 (see the totals for each quadrant below). All quadrants are in compliance with the dwelling unit caps established by Proposition E for FY 2016-17. As noted above in Table 3, accessory dwelling units and commercial living units are not counted as dwellings for purposes of Growth Management Plan compliance with the Proposition E caps.

TABLE 6 – FY 2016-2017 RESIDENTIAL DWELLING STATUS PER QUADRANT

AS OF JUNE 30, 2017						
	NORTHWEST QUADRANT			NORTHEAST QUADRANT	SOUTHWEST QUADRANT	SOUTHEAST QUADRANT
	Outside Village	Village	Total NW			
Proposition E Quadrant Dwelling Limit			15,370	9,042	12,859	17,328
Existing Dwellings	11,766	616	12,382	6,242	10,142	16,354
Unbuilt Planned Dwellings ¹	2,052	203	2,255	2,698	1,504	588
Total Existing and Unbuilt Planned Dwellings	13,818	819	14,637	8,940	11,646	16,942
Potential Additional Dwellings²	133	600	733	102	1,213	386

¹ All quadrants except the Village - includes unbuilt approved projects, as well as vacant and underdeveloped property designated for residential use by the General Plan.

² Dwelling unit capacity in addition to what is currently planned by the General Plan or approved as part of an unbuilt project, but below the quadrant dwelling limit. Dwellings must be allocated from Excess Dwelling Unit Bank.

Table 6 represents the number of dwelling units that could be built (based on the applicable growth management density) on all parcels that have a residential land use designation. The “total existing and unbuilt planned dwellings”, as shown in Table 6, assumes all parcels with a residential land use designation will be developed with residential dwellings, including land that is currently developed with non-residential uses (e.g., some existing churches and professional care facilities are on land designated for residential use). Although it is not anticipated that these parcels will convert to residential uses, the dwelling unit potential for these parcels is tracked to ensure compliance with the Proposition E dwelling unit limits.

Table 6 represents the total number of dwellings planned by the General Plan, rather than the number of dwellings estimated to exist in the future. Table 7 estimates the number of dwellings that will exist at buildout; this estimate assumes that the residentially designated land currently developed with non-residential uses will not all be developed with residential uses in the future. The data in Table 6 and Table 7 show that the Proposition E dwelling unit limits will not be exceeded.

TABLE 7 – ESTIMATED DWELLING UNITS AND POPULATION AT BUILDOUT

Quadrant	Dwelling Units	Population
NW	15,076	38,606
NE	8,940	22,488
SW	10,937	28,113
SE	16,820	42,315
Total	51,773	131,522

Density Control Points and Excess Dwelling Unit Bank

To manage compliance with the Proposition E dwelling unit limitations, the City Council established Growth Management Control Point (GMCP) densities for all residential land use designations in the city (for example, for the R-4 land use designation, the GMCP density is 3.2 dwelling units per acre).

All residential development must, on average, not exceed the GMCP densities. To ensure this, Council Policy Statement 43 (Proposition E “Excess Dwelling” Unit Bank) established a dwelling unit bank concept. When development occurs below the GMCP, the “excess” number of units (difference between the potential number of units at the GMCP density and the number of units built) are available for other residential developments that provide affordable housing, to allow them to be constructed at a density that exceeds the GMCP density.

On December 17, 2002, the City Council adopted Resolution No. 2002-350, which amended Council Policy Statement 43 by reducing the accumulated number of excess units to 2,800. Excess units may be allocated to any quadrant based on the criteria in Council Policy Statement 43, so long as the citywide or individual quadrant dwelling unit limits are not exceeded. Please see Table 8 for the Excess Dwelling Unit Bank status at the end of the FY 2016-17. “Pending” excess units are associated with projects that have been approved below the GMCP density but are not yet constructed, or an approved land use change is not yet effective. “Pending” excess units are not available to allocate to other sites; the units will be made available for allocation at the time the associated projects are constructed or the land use change becomes effective.

TABLE 8 – EXCESS DWELLING UNIT BANK

Balance as of June 30, 2017	
Inside the Village	600
Outside the Village	406
Pending deposits	454

Public Facility Financing

In 1991, the City of Carlsbad established Community Facilities District No. 1 (CFD) to provide financing for a number of public facilities of citywide importance that are needed to meet the requirements of the Growth Management Plan, including various road and intersection improvements, and the Dove Library. As LFMZ plans are adopted, they are conditioned to annex into the CFD at the time the first discretionary permit grants an entitlement to develop in the LFMZ. This ensures financing for public facilities that can accommodate future growth consistent with the criteria of the Growth Management Plan.

Status of the Facilities

Beginning on page 12 is a discussion of the adequacy of each of the eleven public facilities addressed in Carlsbad’s Growth Management Plan.

CITY ADMINISTRATIVE FACILITIES

A. Performance Standard

1,500 sq. ft. per 1,000 population must be scheduled for construction within a five-year period or prior to construction of 6,250 dwelling units, beginning at the time the need is first identified.

B. FY 2016-17 Facility Adequacy Analysis

Based on the estimated June 30, 2017 population estimate of 109,601, the current demand for administrative facilities is **164,402** square feet. To date, city administrative facilities exceed the performance standard. The existing inventory of city and Carlsbad Municipal Water District buildings (leased and owned) occupied for administrative services includes the following:

Facility	Address	Square Feet
City Administration	1635 Faraday Avenue	68,000
City Council Chambers	1200 Carlsbad Village Drive	2,500
City Hall Complex	1200 Carlsbad Village Drive	13,500
City Yard	405 Oak Avenue	8,249
City Yard Modular Building	405 Oak Avenue	1,800
Senior Center	799 Pine Street	6,750
Parks Administration	1166 Carlsbad Village Drive	504
Parks Modular/Break Room	1166 Carlsbad Village Drive	2,000
Safety Center	2560 Orion Way	64,000
FR Training Facility	2560 Orion Way	18,112
Fleet Yard	2480 Impala Drive	10,358
Water District	5950 El Camino Real	18,000
Water District Modular	5950 El Camino Real	696
Total		214,469

C. Buildout Facility Adequacy Analysis

Based on the 2035 projected buildout population of 131,523, the demand for city administrative facilities will be **197,285** square feet. The existing **214,469** square feet of administrative facilities exceeds the growth management performance standard at buildout.

LIBRARY FACILITIES

A. Performance Standard

800 sq. ft. (of library space) per 1,000 population must be scheduled for construction within a five-year period or prior to construction of 6,250 dwelling units, beginning at the time the need is first identified.

Library space (leased/owned, public/non-public) is used as a standard library measurement of customer use and satisfaction and includes collection space, seating, meeting rooms, staff areas, technology, and other public facility needs. The performance standard, stated above, was originally developed based on surveys of other libraries of comparable size and based on related standards (such as volumes per capita) set by the American Library Association.

B. FY 2016-17 Inventory and Adequacy of Facilities

The current inventory of library facilities (city-owned) is as follows:

Facility	Square Feet
Dove Library	64,000
Cole Library	24,600
Learning Center	11,393
Total	99,993

Based on the June 30, 2017 population estimate of 109,601, the growth management standard requires **87,681** sq. ft. of public library space. The city's current 99,993 sq. ft. of library facilities adequately meets the growth management standard.

C. Facility Adequacy at Buildout

Based on the General Plan projected buildout population of 131,523, the demand for library facilities will be **105,218** sq. ft. The existing **99,993** square feet of library facilities is expected to fall short of the growth management standard at buildout.

In 2015-16, the city completed major maintenance and renovation for both the Cole and Dove facilities that addresses current ADA requirements and allows delivery of modern library services and technology, while extending the life of the Cole Library by 10 to 15 years.

Built in 1967, the design of the Cole Library could not have contemplated modern library services including the extensive delivery of electronic resources, automated materials handling, and the variety of new media formats. Additionally, the library's role as a community gathering space has increased. With an already maximized building footprint and infrastructure constraints, the Cole Library will not expand further to meet these changing needs. Additional meeting spaces, technology learning labs and maker spaces are examples of elements desired by the community.

Complete replacement of the Cole facility is included in the Capital Improvement Program budget between the years 2020 and buildout. Additionally, civic center and city hall site studies, which are currently underway, could provide new information to inform the timing and opportunities for a new Cole facility.

WASTEWATER TREATMENT CAPACITY

A. Performance Standard

Sewer plant capacity is adequate for at least a five-year period.

B. FY 2016-17 Facility Adequacy Analysis

The Encina Water Pollution Control Facility (EWPCF) Phase V expansion, which was completed in 2009, accommodates the ultimate buildout demand for the Carlsbad Sewer Service Area based on projections made in the 2012 City of Carlsbad Sewer Master Plan; and therefore, currently provides adequate capacity in excess of the performance standard.

Carlsbad’s FY 2016-17 annual daily average dry weather sewer flow was 6.32 million gallons per day (MGD) representing 62% of the city’s 10.26 MGD capacity rights. The city’s annual daily average sewage flow to the EWPCF for the previous five years is measured as follows:

Fiscal Year	Annual daily average flow
FY 2012-13	6.53 MGD
FY 2013-14	5.90 MGD
FY 2014-15	6.17 MGD
FY 2015-16	5.82 MGD
FY 2016-17	6.32 MGD

C. Buildout Facility Adequacy Analysis

The Encina Water Pollution Control Facility Phase V expansion provides adequate sewer treatment capacity to ensure compliance with the growth management wastewater performance standard through buildout of the Carlsbad sewer service area.

The 2012 City of Carlsbad Sewer Master Plan contains an analysis of annual daily average future sewer flow through buildout of the city based on the Carlsbad General Plan land use projections. The analysis indicates that the city’s projected ultimate buildout flow is approximately 10.00 MGD. The city has purchased capacity rights to 10.26 MGD in the EWPCF, which ensures adequate wastewater treatment capacity is available to accommodate any unanticipated increase in future sewer flows.

PARKS

A. Performance Standard¹

3.0 acres of Community Park or Special Use Area per 1,000 population within the Park District² must be scheduled for construction within a five year period, or prior to construction of 1,562 dwelling units within the Park District beginning at the time the need is first identified.³

B. FY 2016-17 Facility Adequacy Analysis

To date, all quadrants are in compliance with the performance standard.

Quadrant	Park acreage inventory existing	Park acreage required by Performance Standards
NW	105.2	90.4
NE	45.3	44.5
SW	70.2	76.8
SE	114.9	117.1
Total	335.6	328.8

Currently, the performance standard requirement for park acreage exceeds the inventory of existing and scheduled park acreage except for the following two quadrants: SW and SE. However, although short of the acreage required, these quadrants are not out of compliance with the performance standard because neither the time frame nor dwelling unit thresholds have been reached.² The deficits in the SW and SE quadrants were identified in the FY 2012-13 GMP report, and units are tracked from this point on by adding building permits for dwelling units finalized since that time frame.

<u>Quadrant</u>	<u>Year deficit identified</u>	<u>Units constructed since deficit identified</u>
SW	FY 2012-13	134
SE	FY 2012-13	371

¹ The performance standard was amended by City Council Resolution No. 2017-170 on August 22, 2017, and will be reflected in the upcoming report for FY 2017-18.

² "Park District" = "quadrant". There are four park districts within the city, corresponding to the four quadrants.

³ The threshold for triggering the construction of a new park is as follows: Once a deficit of park acreage in a quadrant is identified, a new park must be scheduled for construction within the time frame of five years, or before the cumulative construction of 1,562 dwelling units, whichever occurs later. According to City Council Resolution No. 97-435, "scheduled for construction" means that the improvements have been designed, a park site has been selected, and a financing plan for construction of the facility has been approved.

C. Buildout Facility Adequacy Analysis

Based on the current FY 2016-17 CIP list of projects, Veteran’s Memorial Park (91.5 acres, with 22.9 acres applied to each quadrant) is proposed to be constructed prior to buildout. Construction of this community park would result in the projected park inventory for all city quadrants exceeding the projected required acreage at buildout, as shown below:

Quadrant	Buildout population⁴	Buildout required acreage⁴	Current inventory	Proposed park acreage	Projected inventory
NW	38,606	115.8	105.2	22.9	128.1
NE	22,488	67.5	45.3	22.9	68.2
SW	28,113	84.3	70.2	22.9	93.1
SE	42,315	126.9	114.9	22.9	137.8
Total	131,523	394.6	335.6	91.5	427.2

Additional Parks Acreage

The figures above for proposed park acreage do not include park projects listed in the CIP as “unfunded” or “partially unfunded”: Zone 5 Business Park Recreational Facility (NW – 9.3 acres); Cannon Lake Park (NW – 6.8 acres); or Robertson Ranch Park (NE – 11.2 acres). Should alternative funding mechanisms be found, and these parks are built, the additional parks acreage would further aid in meeting/exceeding the growth management parks performance standard.

⁴ Reflects the General Plan

DRAINAGE

A. Performance Standard

Drainage facilities must be provided as required by the city concurrent with development.

B. FY 2016-17 Facility Adequacy Analysis

All areas of the city currently meet the growth management drainage performance standard.

The standard for drainage distinguishes it from the other public facility standards because, by its very nature, drainage facility needs are more accurately assessed as specific development plans for individual projects are finalized. Therefore, the drainage performance standard was written to allow the city to require appropriate drainage facilities as development plans are finalized and approved.

The larger/master plan facilities have been identified in the city's 2008 Drainage Master Plan and the associated Planned Local Drainage Area (PLDA) fee program was established to finance their construction. The construction of smaller development/project related drainage facilities are addressed during the review of individual project proposals. Maintenance, repair and replacement projects are identified on an ongoing basis and are incorporated in the Capital Improvement Program as a part of the Corrugated Metal Pipe Replacement program, the Northwest Quadrant Storm Drain Program or as individual/stand-alone projects.

The Agua Hedionda and Calavera Creek channels located east of El Camino Real within the residential community of Rancho Carlsbad were found to be of inadequate size to fully contain and convey the 100-year flood event. As a result, some of the runoff is conveyed through the community and therefore projects located within LFMP Zones 5, 7, 14, 15, 16, 18 and 24 that drain to the Agua Hedionda or Calavera Creek must comply with the following conditions to maintain compliance with the drainage performance standard:

1. Payment of the PLDA fee.
2. Install onsite drainage improvements to ensure that direct drainage impacts resulting from the proposed development do not exacerbate the potential for downstream flooding of existing development.

C. Buildout Facility Adequacy Analysis

The 2008 Carlsbad Drainage Master Plan proposes the construction of new facilities to accommodate potential storm events. Construction of the proposed Master Drainage Facilities will ensure the drainage performance standard is maintained through buildout of the city. The 2008 Carlsbad Drainage Master Plan also updated the PLDA program to ensure adequate funds are available to fund construction of needed flood control facilities. The estimated costs for these facilities and the programming of PLDA funds are included in the annual Capital Improvement Program.

CIRCULATION

A. Performance Standard

Implement a comprehensive livable streets network that serves all users of the system – vehicles, pedestrians, bicycles and public transit. Maintain LOS D or better for all modes that are subject to this multi-modal level of service (MMLOS) standard, as identified in Table 3-1 of the General Plan Mobility Element, excluding LOS exempt intersections and streets approved by the City Council.

B. Livable Streets

The California Complete Streets Act (2008) requires cities in California to plan for a balanced, multi-modal transportation system that meets the needs of all travel modes. Accomplishing this state mandate requires a fundamental shift in how the city plans and designs the street system – recognizing the street as a public space and ensuring that the public space serves all users of the system (elderly, children, bicyclists, pedestrians, etc.) within the urban context of that system (e.g. accounting for the adjacent land uses).

The previous circulation performance standard, which was utilized prior to adoption of the 2015 General Plan Mobility Element, was established based on the circulation needs of a single mode of travel – the automobile. The General Plan Mobility Element, adopted on September 22, 2015, identifies a new livable streets strategy for mobility within the city; the livable streets strategy focuses on creating a ‘multi-modal’ street network that provides for the mobility needs of pedestrians, bicyclists, transit users, and vehicles. Providing travel mode options that reduce dependence on the vehicle also supports the city’s Climate Action Plan in achieving its goals of reducing greenhouse gas emissions within the city.

C. Multi-Modal Level of Service (MMLOS)

The objective of the city’s livable streets strategy is to balance the mobility needs of pedestrians, cyclists, transit users and vehicles. For each street in the city, the General Plan Mobility Element identifies the travel modes for which service levels should be maintained per the multi-modal level of service (MMLOS) standard.

The service levels for each travel mode are represented as a “grade” ranging from LOS A to LOS F: LOS A reflects a high level of service for a travel mode (e.g. outstanding characteristics and experience for that mode) and LOS F would reflect an inadequate level of service for a travel mode (e.g. excessive congestion for vehicles, inadequate facilities for bicycle, pedestrian, or transit users). The levels of service for the various travel modes are evaluated according to the following factors.

- **Vehicular Level of Service:** Level of service is evaluated using the most recent version of the Highway Capacity Manual. This methodology evaluates the *capacity* of a roadway system based on a driver’s freedom to maneuver and may include an evaluation of overall delay experienced at intersections.

- **Pedestrian Level of Service:** Level of service will be evaluated using the MMLOS method. This method will evaluate the *quality* of the pedestrian system (e.g. number of vehicle lanes that need to be crossed and the speed of adjacent traffic) and the *friendliness* of the infrastructure at intersections (e.g. pedestrian countdown heads, dedicated pedestrian facilities (e.g. a scramble phase, curb extensions, refuge median)).
- **Bicycle Levels of Service:** Level of service will be evaluated using the MMLOS method. This method will evaluate the *quality* of the bicycle system (e.g. bicycle route, bicycle lanes, or bicycle pathway; presence of bicycle buffers from the vehicle travel way), the *amenities* of the system (e.g. presence of bicycle parking), and the *friendliness* of the infrastructure (e.g. bicycle detection at intersections, pavement conditions, bicycle lanes).
- **Transit Levels of Service:** Level of service will be evaluated using the MMLOS method. This method will evaluate the *transit vehicle right-of-way* (e.g. dedicated or shared, signal priority), *hours and frequency of service* (e.g. weekday/weekend hours, peak period headway); *performance* (e.g. on-time or late); *amenities and safety* (e.g. lighting, covered stop, bench, on-board bike/surfboard storage); and *connectivity* (e.g. to other transit routes, employment areas, schools, visitor attractions and other major destinations).

D. FY 2016-17 Facility Adequacy Analysis

This report does not include circulation facility adequacy analysis for FY 2016-17. City staff is currently in the process of developing and refining the criteria to evaluate the performance of a multi-modal circulation system.

Measuring the performance of non-vehicle modes of travel is a new requirement for the city as a result of adoption of the 2015 General Plan Mobility Element. For the General Plan Environmental Impact Report, a method was used to evaluate the MMLOS standard for pedestrian, bicycle and transit facilities. Following the adoption of the General Plan and the new MMLOS standard, city staff began the process of revising the MMLOS and vehicle method used for the General Plan Environmental Impact Report; the purpose of the revisions is to refine the criteria used to evaluate level of service for all modes of travel.

New traffic and mobility monitoring methodologies are being defined in the Evaluation and Monitoring (E&M) Manual that was under development at the time this report was being prepared. The E&M Manual is expected to be completed in the Summer of 2018 and will finalize the new evaluation methodologies required to be consistent with the current General Plan Mobility Element. The MMLOS tool that will be used to evaluate non-auto modes of travel has been developed and is being calibrated using case studies. Staff has started collecting the auto data expected to be used with the new methodologies. Therefore, this report does not include current level of service information, and FY 2017-18 monitoring results are expected to be available shortly after the E&M Manual is finalized.

The following summarizes the progress made during FY 2016-17 to improve the levels of service for pedestrian and bicycle modes of travel:

FY 2016-17 IMPROVEMENTS TO PEDESTRIAN AND BICYCLE FACILITIES

Improvement	Where
Added buffered bike lanes	El Camino Real College Boulevard
Added new bike lanes	Park Drive
Added bikeway striping	Avenida Encinas
Various pedestrian improvements	<p>Revised crosswalk striping standard to specify High-Visibility Crosswalk Standard on all restriping projects at all locations.</p> <p>Revised bike lane striping standard to specify narrower vehicular lanes and bike lane buffers on all new striping projects.</p> <p>Installed ADA ramps at dozens of locations in Barrio.</p> <p>Installed RRFB flashing beacons with High-Visibility Crosswalks at 2 locations in Barrio.</p> <p>Installed Advanced Pedestrian Walk Indicators at various locations in city.</p> <p>Won \$1.7 million award for bike and pedestrian improvements to 4+ miles of Coastal Rail Trail along Avenida Encinas.</p>

E. Buildout Facility Adequacy Analysis

The Environmental Impact Report for the 2015 General Plan evaluated how buildout of the land uses planned by the General Plan will impact the vehicle, pedestrian, bicycle and transit levels of service. The following summarizes the results of that evaluation:

Vehicle Level of Service at Buildout

- Additional future road segments (portions of College Boulevard, Poinsettia Lane and Camino Junipero) needed to accommodate the city’s future growth were identified as part of the General Plan update. The General Plan Mobility Element identifies the needed future road segments as “planned...streets.”

- The following street facilities were identified in the General Plan and are expected to provide a vehicle level of service below LOS D. Per General Plan Mobility Element Policy 3-P.10, the following street facilities, including the intersections along these segments, are exempt from the vehicle level of service standard:
 - La Costa Avenue between Interstate-5 and El Camino Real
 - El Camino Real between Palomar Airport Road and La Costa Avenue
 - Palomar Airport Road between Interstate-5 and College Boulevard
 - Palomar Airport Road between El Camino Real and Melrose Drive

At buildout, the improvements to these street facilities needed to meet the LOS D standard would significantly impact the environment in an unacceptable way and/or would conflict with the core values of the Carlsbad Community Vision. For example, creating streets wider than six lanes conflicts with other city goals, such as protecting open space and habitat, reducing greenhouse gases and ensuring public safety. Widening streets beyond six lanes also creates new challenges for intersection operations, maintenance, and storm water management. Therefore, rather than widening these arterial streets, General Plan Mobility Element policies promote implementation of other measures, such as transportation demand and system management, to better manage the transportation system as a whole.

Pedestrian, Bicycle and Transit Level of Service at Buildout

Improvements to pedestrian, bicycle and transit facilities may be needed to ensure compliance with the MMLOS standard. Needed improvements will be identified after the city has completed revisions to the MMLOS methodology.

FIRE

A. Performance Standard

The number of dwelling units outside a five-minute response from the nearest fire station shall not exceed 1,500 units.

B. FY 2016-17 Facility Adequacy Analysis

The city's fire facilities are in compliance with the growth Management performance standard. There are no more than 1,500 dwelling units outside of a five-minute response distance from any of the city's six fire stations.

The intent of the growth management standard, as applied to fire facilities, is to establish the number of stations and their locations, based upon response distances. At the time the Growth Management Plan was developed, scientific fire behavior information and recognized best practices supported the position that a response time of five minutes would result in effective fire incident intervention. To determine the most desirable geographic sites for future fire stations, it was necessary to convert the five-minute response time to a measurable distance that could be applied to a future road network scheme. Because the Growth Management Plan provides no other trigger mechanism for the installation of additional fire stations, it follows that up to 1,500 dwelling units could exist outside the five-minute reach of the closest fire station for an indeterminate length of time without violating the growth management standard. The five-minute response time measure was selected exclusively as a means of logically positioning emergency response resources throughout the city. Therefore, the standard is applied as a means of measuring compliance with locating fire facilities in accordance with the Growth Management Plan, not the performance of the Fire Department in meeting service responsibilities. The growth management fire performance standard is utilized to determine the number of fire stations and their locations, not Fire Department response times.

C. Buildout Facility Adequacy Analysis

At buildout, no single fire station district will exceed the established threshold of more than 1,500 units that exist outside of a five minute response time.

To determine if fire facilities will be adequate at buildout, the city's Geographic Information System Department (GIS) created a map based upon the following information:

- Existing fire station locations
- Anticipated future development
- 2.5 mile road distance from each of the six fire stations (five minute response equates to road driving distance of 2.5 miles);

- All planned, major roadway arterials; and
- The number of dwelling units projected at buildout that will be located outside of the 2.5 mile road (5 minute) distance from each fire station.

The GIS map, based upon the above-noted assumptions, revealed the following findings:

Fire Station Number	Total number of dwelling units outside of five minutes
1,3 & 4 (aggregated)	1,227
2	902
5	392
6	1,185

As noted above, the GIS map analysis revealed that at build out, the city’s existing and planned fire facilities will meet the growth management performance standard (i.e. the total number of dwelling units that will exist outside of a five-minute response from the nearest fire station will not exceed the threshold of 1,500 units).

OPEN SPACE

A. Performance Standard

Fifteen percent of the total land area in the Local Facility Management Zone (LFMZ) exclusive of environmentally constrained non-developable land must be set aside for permanent open space and must be available concurrent with development.

B. FY 2016-17 Facility Adequacy Analysis

To date, adequate open space has been provided to meet the performance standard.

Open space to meet the performance standard is provided concurrent with approval of development projects. The location of performance standard open space must be indicated during project-specific analysis. It must be in addition to any constrained areas, such as protected wildlife habitat or slopes greater than 40%. At the time the Citywide Facilities and Improvements Plan was adopted (1986), the LFMZ's were divided into: a) those that were already developed and considered in compliance with the growth management open space performance standard, and b) those that still needed to comply with the standard.

In 1986, LFMZs 1 through 10, and 16 were already developed and considered to be in compliance with the open space performance standard. Subsequent to the adoption of the CFIP, LFMZs 11-15, 17-21, and 23-25 have provided adequate open space to meet the performance standard concurrent with development.

LFMZ 22 is still developing and, as future development occurs, open space will be required to meet the performance standard.

C. Buildout Facility Adequacy Analysis

As discussed above, all LFMZs, except for Zone 22, have met the growth management open space performance standard. Future projects in LFMZ 22 must provide open space in compliance with the performance standard.

SCHOOLS

A. Performance Standard

School capacity to meet projected enrollment within the Local Facility Management Zone (LFMZ) as determined by the appropriate school district must be provided prior to projected occupancy.

B. FY 2015-16 Facility Adequacy Analysis

Currently, school capacity is in compliance with the growth management school performance standard (see below). The city is served by four school districts as listed below:

1. Carlsbad Unified School District (CUSD)

According to both the district's Long Range Facility Master Plan (approved Jan. 17, 2018) and CUSD staff, the district can accommodate both the current enrollment levels and expected future growth. The master plan indicates that the district has plans for accommodating projected student enrollment levels through the next 15-20 years, which includes proposals for renovating and replacing a variety of school facilities.

2. San Marcos Unified School District (SMUSD)

SMUSD staff indicated that the schools serving Carlsbad are currently at maximum capacity but that will-serve letters are still being issued by SMUSD for proposed developments in the part of Carlsbad that is served by SMUSD schools, and that the schools serving Carlsbad could accommodate the expected future growth within this area. SMUSD is in the construction stage for the La Costa Meadows Elementary School Reconstruction Project. In addition to reconstructing and modernizing La Costa Meadows Elementary School, the proposed improvements would increase student capacity by 80 seats. Construction began in May 2017 and completion is anticipated in August 2019.

3. Encinitas Union Elementary School District

According to a site capacity report provided by the school district, sufficient student capacity exists through 2018.

4. San Dieguito Union High School District

Based on demographic projections provided by San Dieguito Union High School District, it is estimated that schools serving Carlsbad will have sufficient student capacity through 2018.

C. Buildout Facility Adequacy Analysis

Based on Chapter 3.11 of the 2015 General Plan EIR, for all school districts at all grade levels, capacity is expected to be sufficient for the buildout student population with no need for additional schools.

SEWER COLLECTION SERVICES

A. Performance Standard

Trunk-line capacity to meet demand, as determined by the appropriate sewer districts, must be provided concurrent with development.

B. FY 2016-17 Facility Adequacy Analysis

Sewer improvements are provided on a project by project basis concurrent with development. Currently, the City of Carlsbad’s sewer service area pipelines are in compliance with the growth management performance standard. Representatives from the sewer agencies that provide sewer collection systems within the city include: Carlsbad, Leucadia Wastewater District and Vallecitos Water District. Each agency indicates that they currently have adequate conveyance capacity in place to meet Carlsbad’s sewer collection demands.

The City of Carlsbad is served by the following four major interceptor systems:

Interceptor System	Sewer Districts Served	Carlsbad Capacity Rights
<i>Vista/Carlsbad Interceptor</i>	City of Carlsbad & City of Vista	Ranges from 3.4%/0.93 MGD up to 50%/33.6 MGD
<i>Buena Interceptor</i>	City of Carlsbad & Buena Sanitation District	Ranges from 18%/1.2 MGD up to 35%/3.0 MGD
<i>Vallecitos Interceptor</i>	City of Carlsbad, Buena Sanitation District & Vallecitos Water District	5 MGD
<i>Occidental Sewer</i>	City of Carlsbad, City of Encinitas & Leucadia Waste Water District	8.5 MGD

Note: MGD = million gallons per day

For both the Vista/Carlsbad Interceptor and the Buena Interceptor, the percentage of Carlsbad capacity rights increases in the downstream reaches of each interceptor system (3.4% in the upstream reaches as they enter the Carlsbad service area and up to 35% or 50% in the downstream reaches for Buena Interceptor and Vista/Carlsbad Interceptor, respectively as they enter the Encina Water Pollution Control Facility).

C. **Buildout Facility Adequacy Analysis**

The 2012 City of Carlsbad Sewer Master Plan evaluated the sewer infrastructure needs of the Carlsbad sewer service area and identified those facilities required to accommodate future customers at buildout. The master plan identified the Vista/Carlsbad Interceptor, and Buena Interceptor as requiring improvements to accommodate build-out demand (see below). Sewer trunk main capacities are estimated by comparing wastewater flow projections to the capacity of the sewer system. Using a computer sewer model, the existing and future sewer demands are estimated and compared to the capacity of each trunk sewer pipeline. In addition, annual flow measurement information is also used to determine actual flows in the sewer trunk pipelines.

Vista/Carlsbad Interceptor: A capacity analysis included in the 2012 City of Carlsbad Sewer Master Plan indicates three relatively flat pipeline portions of Reaches VC13, VC14 & VC15. As a result, during peak period flows, the pipeline is flowing full. This is an active construction project, expected to be completed in FY 2018-19. The replacement pipelines are sized based on ultimate flows from both the City of Carlsbad and City of Vista sewer collection systems.

Buena Interceptor: A capacity analysis conducted in 2010 indicates that although the city's wastewater flows are not projected to exceed the capacity rights in the Buena Interceptor, the combined flows of Buena Sanitation District and City of Carlsbad during peak wet weather periods result in capacity restrictions. As a result, Carlsbad is coordinating with Buena Sanitation District to construct a parallel trunk sewer which will allow all flows from Buena Sanitation District to be diverted to the parallel trunk sewer. Once constructed, the City of Carlsbad will be the only agency with flows remaining in the existing Buena Interceptor, and this will provide sufficient capacity for Carlsbad during wet weather conditions. Funding for the design and construction of the parallel trunk sewer was appropriated for FY 2013-14 by the City of Vista which operates the Buena Sanitation District, and is now in the design stage. Construction is expected to begin in early 2018.

An update to the City of Carlsbad Sewer Master Plan has been initiated and is in the data collection phase, and the sewer model is currently being updated. The project will provide an updated evaluation of sewer infrastructure needs at buildout.

WATER DISTRIBUTION SERVICES

A. Performance Standard

Line capacity to meet demand as determined by the appropriate water district must be provided concurrent with development. A minimum of 10-day average storage capacity must be provided prior to any development.

B. FY 2016-17 Facility Adequacy Analysis

Carlsbad's water distribution is provided by three agencies including the Carlsbad Municipal Water District (CMWD) serving 32.32 square miles (82.7 percent of the city), Olivenhain Municipal Water District (OMWD) serving 5.28 square miles (13.5 percent of the city), and Vallecitos Water District (VWD) serving 1.48 square miles (3.8 percent of the city). These districts indicate that they have adequate capacity to meet the growth management performance standard.

Water service demand requirements are estimated using a computer model to simulate two water distribution scenarios: 1) maximum day demand plus a fire event; 2) peak hour demand. This computer model was calibrated using actual flow measurements collected in the field to verify it sufficiently represents the actual water system.

Existing and future daily demand and storage requirements for CMWD, which is a subsidiary district of the City of Carlsbad, from the 2012 CMWD Water Master Plan are shown below:

Water demand	Volume
Existing Maximum Daily Demand	26.7 MGD ⁵
Future Maximum Daily Demand	39.4 MGD
Water storage	Volume
Existing Storage Requirement	39.5 MG ⁶
Existing Storage Capacity	50.5 MG excluding Maerkle Dam storage

Based on the water model analysis prepared for the 2012 CMWD Water Master Plan, future pipelines and water system facilities were identified to ensure a complete water system is constructed to accommodate future customers. In addition, funds for the construction of future facilities were included in the FY 2016-17 Capital Improvement Program. Therefore, the future water infrastructure is programmed to be in place at the time of need in order to ensure compliance with the performance standard.

⁵ MGD – Million gallons per day

⁶ MG – Million gallons

Within the CMWD service area the existing average daily potable water demand is shown below:

Fiscal Year	MGD
2007-08	18.2
2008-09	16.5
2009-10	14.2
2010-11	13.2
2011-12	13.7
2012-13	14.4
2013-14	14.9
2014-15	13.6
2015-16	11.4
2016-17	10.4

The lower water demand, compared to the peak in FY 2007-08, is a result of (1) implementing a new tiered water rate structure to encourage water conservation, (2) in 2009, a campaign was initiated to reduce customer consumption by the wholesale water agencies, (3) the persisting drought has forced voluntary and mandatory conservation measures in 2015, and (4) beginning in 2008 an expansion of CMWD’s recycled water system lowered potable water consumption. Water conservation by CMWD customers has resulted in an overall reduction in per capita consumption.

To meet the 10 day storage requirement, CMWD needs 182 MG of storage capacity based on the historic peak demand. CMWD has a storage capacity of 244 MG which consists of 195 MG of storage capacity at Maerkle Dam and an additional 49 MG of storage capacity in various storage tanks throughout the distribution system. In 2004, the OMWD completed construction of a water treatment facility at the San Diego County Water Authority Emergency Storage Reservoir, which provides the storage necessary to meet the 10 day storage requirement for OMWD. VWD’s average day demand was 14.6 MGD with an existing storage capacity of 121.6 MG. Through interagency sharing arrangements VWD can obtain additional water supplies to meet a 10 day restriction on the imported water supply.

C. Buildout Facility Adequacy Analysis

The 2012 CMWD Water Master Plan identifies facilities necessary for build-out conditions within its service area. The 2012 update identified that no additional storage tanks are required to meet the future 10 average-day storage requirements because of a reduction in demand from expansion of CMWD’s recycled water system.

As proposed land development projects are reviewed by the city, the Water Master Plans from CMWD, OMWD, and VWD are consulted to check pipeline sizes and facility capacities to verify adequacy to support the water needs of the project and city. To comply with water master plan requirements, land development projects may be required to install a master plan water project concurrent with construction of that specific project.

An update to the CMWD Water Master Plan has been initiated and is in the data collection phase, and the water model is currently being updated. The project will provide an updated evaluation of water infrastructure needs at buildout.