



## MEMORANDUM

<b>Date:</b> December 12, 2017 (revised August 22, 2018)	
<b>To:</b> Michael Prinz, Senior Planner	<b>Organization:</b> City of San Diego
<b>From:</b> William Strand, PE	<b>Title:</b> Manager of Engineering
<b>Project Name:</b> Balboa Avenue Station Area Specific Plan	<b>Project Number:</b> 0191-02-UR15
<b>Topic:</b> Balboa Avenue Station Area Specific Plan – Infrastructure/Water Quality Impact Assessment	

To support the development in the Balboa Avenue Station Area Specific Plan (BASASP), the proposed water, sewer, and storm drain infrastructure has been evaluated to assess the impacts of the proposed development. This assessment is based on information provided by the City of San Diego and preparation of planning level calculations. Project specific calculations will be required at the time development projects are submitted for approval.

The BASASP area is approximately 210 acres, and is located in Pacific Beach and Clairemont Mesa, just north of Mission Bay. Rose Creek borders the western part of the BASASP area. Interstate-5 (I-5) runs north-south through the middle of the BASASP area and is the boundary between the Pacific Beach community on the west side and the Clairemont Mesa community on the east side.

The plan area is within the Mission Bay Watershed and generally drains in a westerly direction to Rose Creek which outlets to Mission Bay. Storm Drainage in the plan area is conveyed through a combination of surface flow and city storm drainage pipes. Sewer service is provided in the plan area by the City of San Diego which operates and maintains sewer collectors and trunk sewers in the plan area. Water service is provided by the City which operates and maintains a network of water mains within the plan area.

The Balboa Station Specific Plan is planning level document which is proposing changes to zoning and provides mobility strategies and design guidelines. Grading, utilities, and drainage design will be provided by individual projects as proposed over time. The proposed conditions assessment is based on proposed zoning in the Specific Plan. Equivalent population estimates have been developed based on the City of San Diego Sewer Design Guide for use in calculating future sewer flows. Proposed zoning classifications (Scenario #1) and population are listed in the table below:



**ZONING TABLE (Existing and Scenario #1)**

Zone		Existing Acres	Proposed Acres	Existing Population	Proposed Population
CC-3-8	Community Commercial I DU/600 SF	-	74.20	0	6455
CC-3-9	Community Commercial I DU/400 SF	-	7.04	0	612
CC-4-2	Community Commercial I DU/1,500 SF	85.14	-	7407	0
CC-4-5	Community Commercial I DU/1,500 SF	2.18	2.19	190	191
CO-1-2	Commercial Office I DU/1,500 SF	6.63	6.63	577	577
CV-1-2	Commercial Visitor I DU/1,500 SF	7.44	-	647	0
IL-3-1	Industrial-Light	1.40	-	263	0
IP-2-1	Industrial - Park	55.00	55.19	3438	3449
IS-1-1	Industrial - Small Lot	8.00	7.58	500	474
OF-1-1	Open Space Floodplain	2.50	3.60	96	138
RM-2-5	Residential - Multiple Unit I DU/1,500 SF	28.23	-	2456	0
RM-3-8	Residential - Multiple Unit I DU/800 SF	-	28.23	0	3659
RM-4-10	Residential - Multiple Unit I DU/400 SF	7.55	19.80	1481	3885
RS-1-1	Residential - Single Unit Min. 40,000 SF Lot	0.35	-	1	0
RS-1-7	Residential - Single Unit Min. 5,000 SF Lot	6.57	6.57	207	207
<b>Total</b>		<b>211</b>	<b>211</b>	<b>17,262</b>	<b>19,646</b>

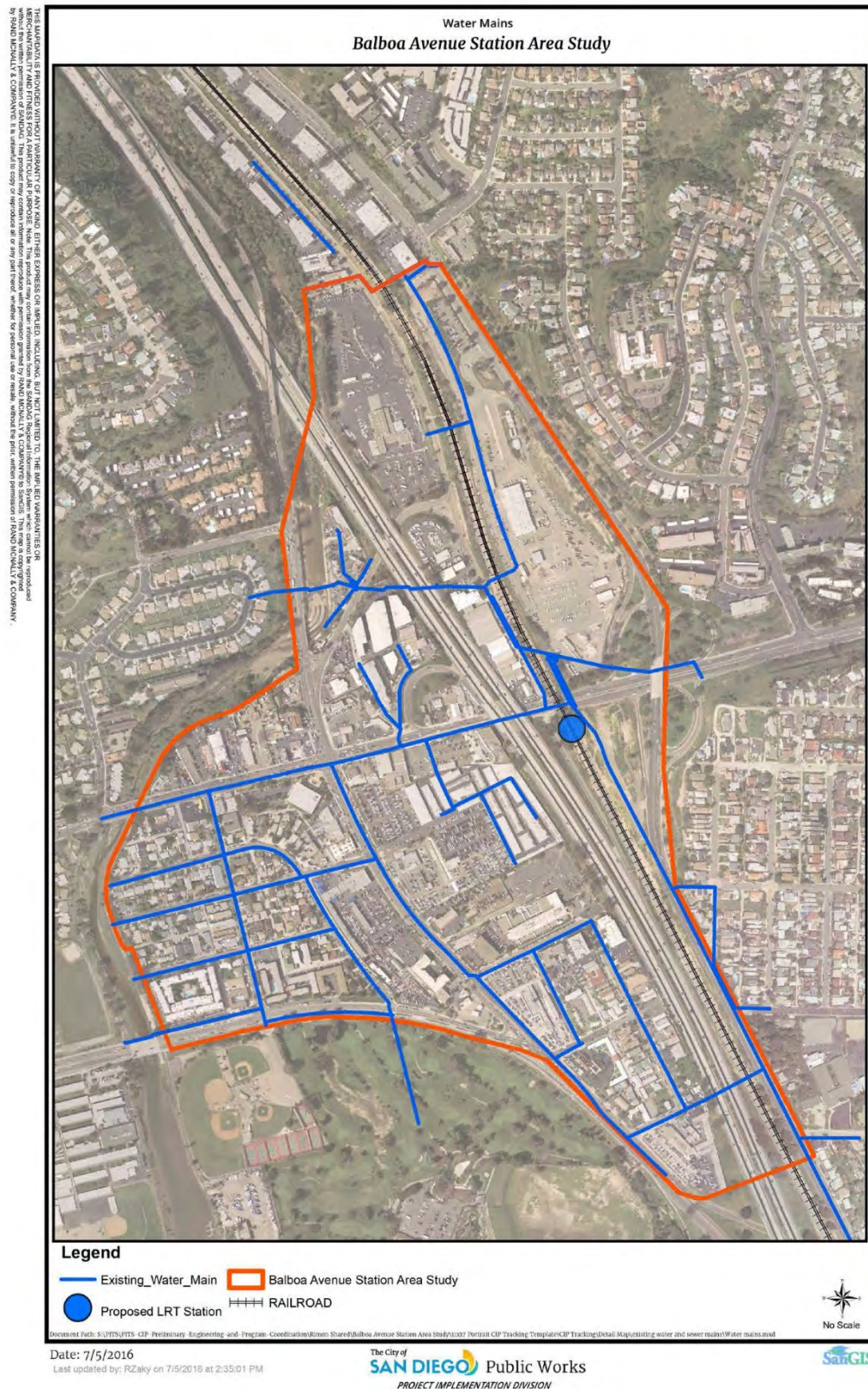


## **WATER**

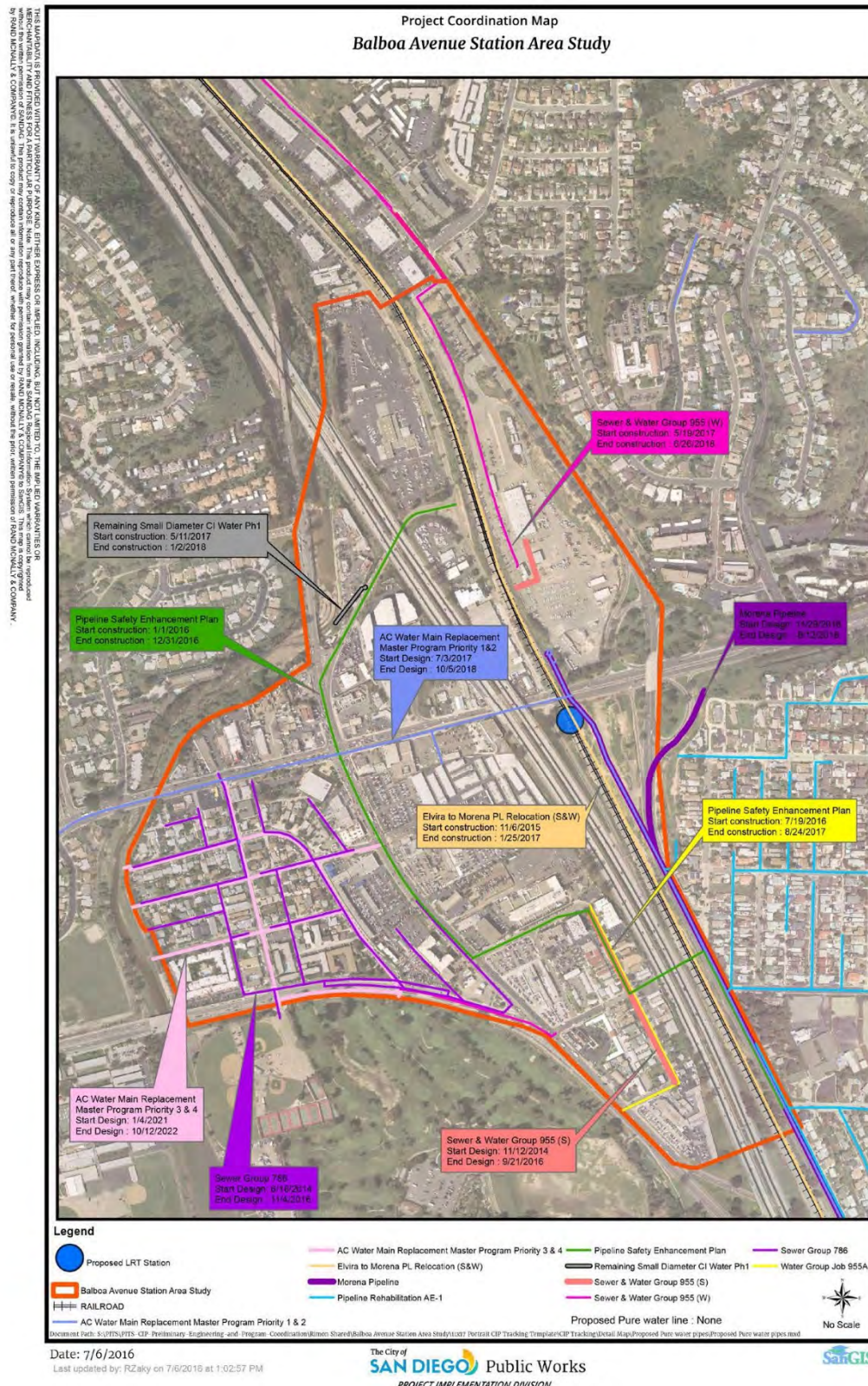
Water is provided to the plan area by the City of San Diego Utilities Department. The City owns and maintains a water distribution system comprised of mains ranging from 6 inches to 30 inches in diameter (see Water Mains map below).

The City has planned water line replacement projects identified in the Specific Plan area occurring between 2017 and 2022 (see Project Coordination Map below) to replace old or undersized water mains. Many of the older water mains are made of Asbestos Cement and will be replaced with PVC. The City of San Diego currently requires water mains to be 8 inches in minimum diameter and 12-inches in commercial zones for fire flow requirements.

The Specific Plan proposes zoning changes that will increase development intensity including mixed-use commercial/residential and high density residential. Commercial and mixed-use projects will be required to upsize water mains to 12 inches in diameter where existing water mains are undersized. Projects may be required to perform a water study to ensure sufficient water pressure and fire flow and identify any upgrades to the water system.









## **SEWER**

Sewer is provided to the plan area by the City of San Diego Utilities Department. The City owns and maintains a system of sewers and sewer trunks within the plan area which range in size from 8 inches to 72 inches in diameter (see Sewer Mains map below). Sewer lines greater than or equal to 18 inches are classified as trunk sewers designed to convey sewer out of the plan area (see Trunk Sewers map below). The plan area contains six trunk sewers ranging in size from 21 inches to 72 inches. The 42-inch diameter East Mission Bay Trunk sewer flows south in Mission Bay Drive and is the primary means for conveying flows from the plan area.

The City of San Diego has planned sewer line replacement projects identified in the Specific Plan occurring between 2017 and 2018 to replace old sewer lines (See Exhibit under Water sections). The sewer lines in the Specific Plan are divided into two classifications, small sewer mains, and larger sewer trunks. The mains convey flow to the larger diameter trunk lines.

The City of San Diego Modeling Section conducts flow analyses on the City's trunk lines for both current and projected growth. The City has modeled both existing 2012 and proposed 2025 sewer flow for Dry Weather Flow (DWF) and Wet Weather Flow (WWF). Per the City's Sewer Design Manual, the depth/diameter (d/D) ratio for designing sewers shall not exceed 0.5 for sewers 18 inches and smaller and 0.75 for sewers larger than 18 inches. Under the City's 2025 modeling of WWF in the plan area the existing trunk sewers all are larger than 18 inches and have d/D ration less than 0.75

To determine if the proposed development will impact the existing collection system proposed flow rates have been calculated. The calculations have been prepared in accordance with the City of San Diego Sewer Design Guide 2015. Existing and proposed condition sewer flow rates were determined based on zoning and calculated equivalent population (EP) in accordance with Chapter I of the City's Sewer Design Guide.

The plan area generates a 0.43 cubic feet per second (0.29 MGD) increase in flow. This increase in flow into the East Mission Bay Trunk Sewer would represent an increase in the flow over capacity during the 2025 WWF from 55.9% to 57.7% or an increase in the percent.



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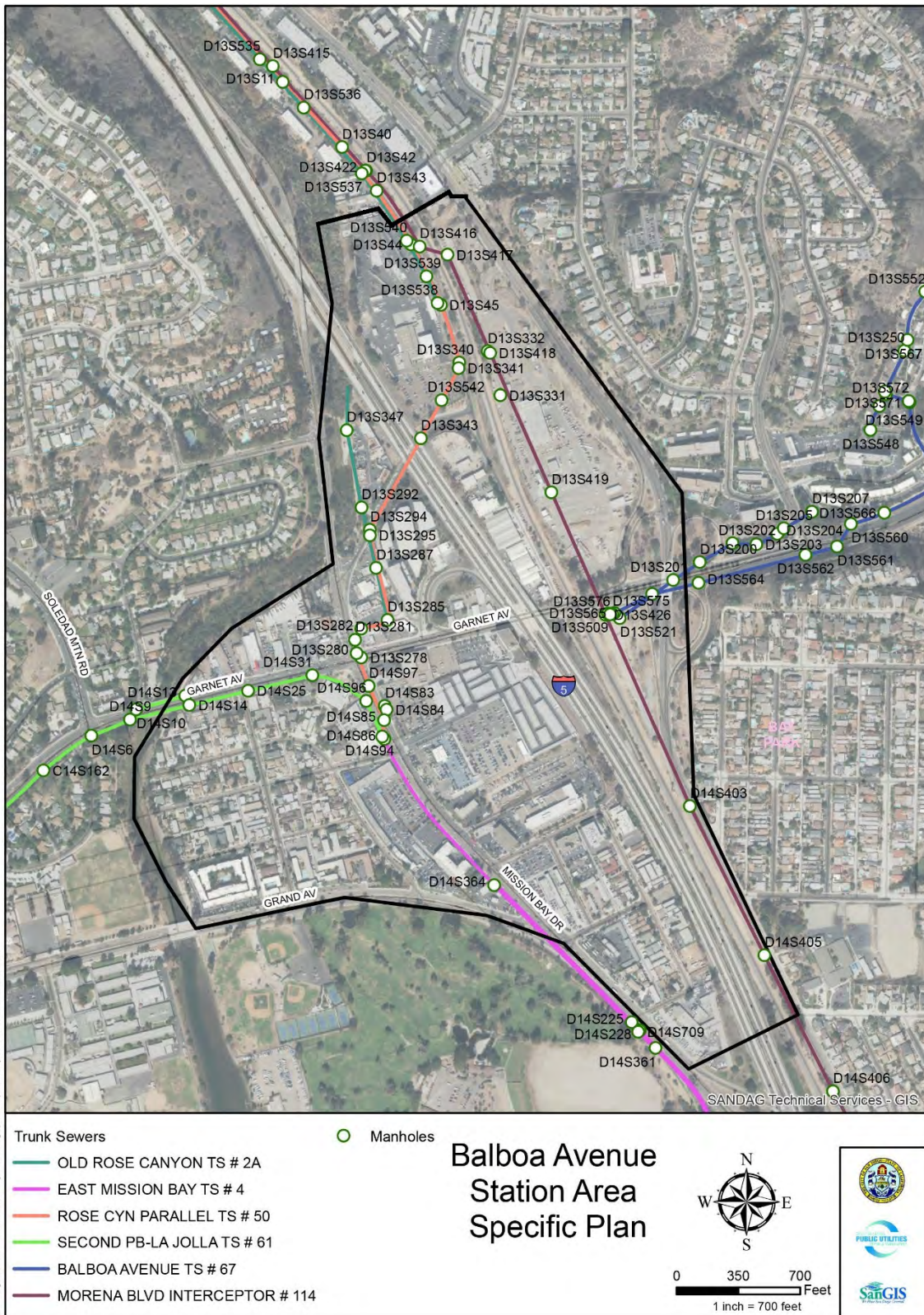
Balboa Study Area - Sewer Calculations

Zone	Existing Acres	Proposed Acres	Equivalent Population	Existing Population	Proposed Population	Existing PDWF (GPD)	Proposed PDWF (GPD)	Existing PDWF (CFS)	Proposed PDWF (CFS)	Delta Flow (CFS)
CC-3-8	-	74.20	87.0	0	6455	0	774648	0.000	1.162	1.16
CC-3-9	-	7.04	87.0	0	612	0	73498	0.000	0.110	0.11
CC-4-2	85.14	-	87.0	7407	0	888862	0	1.333	0.000	-1.33
CC-4-5	2.18	2.19	87.0	190	191	22759	22864	0.034	0.034	0.00
CO-1-2	6.63	6.63	87.0	577	577	69217	69217	0.104	0.104	0.00
CV-1-2	7.44	-	87.0	647	0	77674	0	0.117	0.000	-0.12
IL-3-1	1.40	-	187.5	263	0	31500	0	0.047	0.000	-0.05
IP-2-1	55.00	55.19	62.5	3438	3449	412500	413925	0.619	0.621	0.00
IS-1-1	8.00	7.58	62.5	500	474	60000	56850	0.090	0.085	0.00
OF-1-1	2.50	3.60	38.2	96	138	11460	16502	0.017	0.025	0.01
RM-2-5	28.23	-	87.0	2456	0	294721	0	0.442	0.000	-0.44
RM-3-8	-	28.23	129.6	0	3659	0	439033	0.000	0.659	0.66
RM-4-10	7.55	19.80	196.2	1481	3885	177757	466171	0.267	0.699	0.43
RS-1-1	0.35	-	3.5	1	0	147	0	0.000	0.000	0.00
RS-1-7	6.57	6.57	31.5	207	207	24835	24835	0.037	0.037	0.00
<b>Total</b>	<b>211</b>	<b>211</b>				<b>2,071,432</b>	<b>2,357,543</b>			<b>0.43</b>











## **STORM DRAINAGE**

The Specific Plan lies within the Mission Bay Watershed Management Area. The plan area is part of the Miramar Hydrologic Area (906.4). The Miramar Hydrologic Area is part of the larger Penasquitos Hydrologic Unit. The City of San Diego owns and maintains the storm drain system in the Specific Plan. The plan area is within the Mission Bay Watershed and generally drains in a westerly direction to Rose Creek which outlets to Mission Bay. The plan area is completely developed and highly impervious. Storm drainage is conveyed via a combination of surface flow (curb and gutter, cross gutters, and open channels) and piped flow (see Stormwater Infrastructure map below).

Individual development projects will be required to mitigate stormwater runoff in accordance with City of San Diego Storm Water Standards for water quality and hydromodification as required. Runoff from individual development projects will be equal to or less than existing conditions.

## **Storm Water Quality**

The City of San Diego Storm Water Standards require Priority Development Projects (PDP) to mitigate project impacts to water quality. Redevelopment projects which create or replace 5,000 square feet or more of impervious area are considered PDPs. The majority of redevelopment in the plan area will be considered a PDPs and be required to develop a Storm Water Quality Management Plan (SWQMP) identifying post construction site design and storm water pollutant control Best Management Practices (BMPs).

## **Beneficial Uses of Receiving Waters**

Beneficial uses are uses of water necessary for the survival or wellbeing of humans, plants and wildlife. These uses of water serve to promote the tangible and intangible economic, social, and environmental goals of humankind. Water quality objectives and beneficial uses can be found in the Basin plan.

Beneficial uses of the Mission Bay/La Jolla watershed are:

- Aquaculture
- Biological Habitats of Special Significance
- Commercial and Sport Fishing
- Contact Water Recreation
- Estuarian Habitat
- Industrial Service Supply
- Marine Habitat
- Migration of Aquatic Organisms
- Navigation
- Non-Contact Water Recreation
- Rare, Threatened, or Endangered Species
- Shellfish Harvesting
- Spawning, Reproduction and/or Early Development
- Wildlife Habitat

## **303(d) Status**

Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop a list of water quality limited segments. The San Diego Regional Water Quality





Control Board is responsible for developing the 303(d) list in the San Diego Region. Total Maximum Daily Loads (TMDLs) identify the total pollutant loading that receiving waters can receive and still meet water quality standards. The Regional Board is required to develop TMDLs or follow an alternative regulatory process to address 303(d) listed impairments. Rose Creek has been listed as being impacted by selenium and aquatic toxicity. Mission Bay is impacted by eutrophic, lead, enterococcus, fecal coliform and total coliform.

### **Low Impact Development**

Low Impact Development is development which utilizes practices that retain a portion of storm water on-site for infiltration, re-use, or evaporation. Redevelopment will be required to adhere to the requirements of the City of San Diego's Drainage Design Manual and Storm Water Standards Manual which require installation of LID Best Management Practices (BMPs) such as bioretention (biofiltration) areas, cisterns, and/or rain barrels can be expected to improve surface drainage conditions, or at a minimum, to not exacerbate flooding or cause erosion.

### **Hydromodification**

Hydromodification is the change in the natural hydrologic processes and runoff characteristics caused by urbanization that results in increased stream flows. Redevelopment projects will be required to adhere to the hydromodification requirements of the City of San Diego Storm Water Standards Manual. PDP's are required to capture the 85<sup>th</sup> percentile, 24-hour storm event and retain, infiltrate, biofiltrate, or utilize flow-thru treatment.

### **Mitigation Measures**

Stormwater Mitigation Measures including site design, Water Quality BMP's, and Hydromodification BMPs shall be designed in accordance with the City's Storm Water Standards and be documented in a project SWQMP.



