
APPENDIX J

CONCEPTUAL

WATER QUALITY MANAGEMENT PLAN

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Conceptual Water Quality Management Plan (WQMP)

for:

Laguna Beach Village Entrance
501 Forest Avenue, Laguna Beach

Assessor's Parcel Numbers (APN) 641-241-06, 641-241-07, 641-241-08,
641-241-09, 641-241-10, 641-241-13, and 641-241-14

Prepared for:

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March 12, 2010

Owner's Certification Water Quality Management Plan (WQMP)

Project Name: Laguna Beach Village Entrance

Tract/Parcel Map Number: Assessor's Parcel Numbers (APN) 641-241-06, 641-241-07, 641-241-08, 641-241-09, 641-241-10, 641-241-13, and 641-241-14

This Water Quality Management Plan (WQMP) has been prepared for the City of Laguna Beach. The WQMP is intended to comply with the requirements of the City of Laguna Beach Urban Runoff Management Program and Storm Water Ordinance, as well as the Municipal Storm Water Permit which require the preparation of WQMPs for priority development projects.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this WQMP. The undersigned will ensure that this plan is carried out and amended as appropriate to reflect up-to-date conditions on the site consistent with the current City of Laguna Beach Urban Runoff Management Program and the intent of the NPDES/MS4 Permit for Waste Discharge Requirements as authorized by the State and EPA. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

Signed: _____

Name: _____

Title: _____

Company: City of Laguna Beach

Address: 505 Forest Avenue, Laguna Beach, CA 92651

Telephone #: _____

Date: _____

Email Address: _____

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- A Educational Materials**
- B Geotechnical Study**
- C Treatment BMP Design Calculations**

Section 1 Project Description

1. Detailed development description:

The specific land uses for the proposed Village Entrance Project are described as follows:

Storage Facilities and Parking Structure

The proposed 218,625-square foot, five-level, 667-space public parking structure would house some city offices, a meeting room, public restrooms, city employee restrooms and locker facilities, and some covered interior city storage rooms (to be used largely for sign and file storage) and city vehicle parking. The entire structure would be built around the existing sewage lift station. Sewage lift station service areas would be made available on Level 1 and Level 2, and an equipment work platform on Level 3. The sewage lift station would have a continuous air vent shaft that extends up through Level 5. Overall building height would not exceed 36 feet.

Level 1 of the parking structure would be the primary level for city use and consequently would be floodproofed with impermeable walls. A 12" thick concrete retaining wall with geotextile bentonite waterproofing over corrugated drain board would separate the parking structure from the adjacent hillside. This level of the parking structure would include a 1,215-square foot two-story meeting room with an additional 1,278-square foot space for an office, a restroom and a chair storage closet. There would be an additional 1,600-square feet of storage space above this office, restroom and chair storage closet. Level 1 would provide storage for the following: marine, city manager/administration files, community development, community arts, police evidence, and signs. Level 1 would also include space for city police, meter and sign offices, public parking, and parking for the main city safety vehicles (e.g., lifeguard and fire). Interior screening walls and rolldown garage doors would separate the city storage and maintenance facilities from public view.

Village Entrance Project: Building Summary (square feet)

	Parking	Office	Community Room	Corp. Yard Storage	Arcade
Level 1	42,850	1,278	1,215	26,450	2,700
Level 2	46,800				
Level 3	72,000				
Level 4	35,500				
Level 5	21,475				
Total Square Feet	218,625	1,278	1,215	26,450	2,700

The parking structure would include a total of 667 public parking stalls. The parking structure would also have about 17 city vehicle parking spaces. In addition, it is planned to have 8 public parking spaces around the Historic Tower.

Visitor Center

The existing historic former sewage digester tower, built in 1935, has been non-operational for approximately 40 years. The tower would remain as part of the Village Entrance Project and would be converted to a visitor center equipped with public restrooms, and small offices on the second floor. The garage doors and attachments would be removed and all non-functioning pipes, valves, and fixtures would be capped off and/or removed. The renovated building with added pergola would sit in a park-like island where transportation assistance such as valet parking and tram service is proposed. City bus service is anticipated to the visitor center/parking structure.

Creekwalk Park

The proposed Creekwalk Park would be created adjacent to the Laguna Creek Channel where the Lumberyard parking lot currently exists. The park would be aesthetically upgraded with landscaping, park benches, sidewalks, handrails, lighting, public art and water features, a turf area, features specific to the weekly Farmer's Market (see description below) and other amenities. Park landscaping would predominantly consist of native California Sycamore, supplemented by native Coastal Live Oak, and other flowering trees would be included in accent locations (see Landscaping section below for more details). A small pedestrian bridge would cross this channel, allowing access from the park to the proposed pedestrian arcade/terrace that would run along the parking structure.

Farmer's Market

Laguna Beach holds a Certified Farmer's Market on Saturday mornings. The Creekwalk Park would provide a more pleasant location for this event that is currently held in the existing City parking lot. Vendor's vehicles would be allowed in the park area adjacent to display booths. The park paving would consist of interlocking concrete pavers to accommodate vendor vehicular loads.

Landscaping

The Creekwalk Park and canyon portion of the Civic Arts District area would be planted predominantly with native trees and supplemented Coastal Live Oak and other flowering trees in accent locations to relate to the Festival of the Arts grounds. The parking structure would be screened with a variety of eucalyptus trees to relate to existing plantings of City Hall and Forest Avenue. The Laguna Canyon Road streetscape and other perimeter areas would be planted with low-growing, native or drought tolerant shrub species such as dwarf Baccharis pilularis (Coyote Brush), Ceanothus (California Lilac), Aloes, Agaves and Statice similar to portions of Heisler Park located on Cliff Drive. Native riparian species such as Mahonia, Douglas Iris, Coral Bells, and dwarf Cattails would be planted along the Laguna Creek Channel to reinforce the historic watercourse alignment.

Pedestrian Bridge

An optional pedestrian bridge over Laguna Canyon Road would have a 17-foot high clearance, and span 100 feet in length, from the Festival of the Arts area to the proposed Creekwalk Park area adjacent to the new entrance to the parking structure. This bridge would wrap-around stairs on either side of Laguna Canyon Road and would be constructed to coordinate with surrounding structures with features such as exposed rafters and weathered steel. At the present time, it is not anticipated that a pedestrian bridge will be constructed as part of the initial Village Entrance project. **Art-A-Fair Extension**

The area along Laguna Canyon Road that extends from Art-A-Fair south to the location of the proposed Creekwalk Park is designated to be upgraded by the planting of native trees on both sides of the road as well as in the median between north-bound and south-bound Laguna Canyon Road. Streetscape improvements include an earth colored concrete sidewalk along the east side of Laguna Canyon Road.

Infrastructure

Access & Circulation

Broadway serves as the beginning segment to Laguna Canyon Road, aka State Highway 133, and is described in the Downtown Specific Plan as one of the widest and most heavily used roadways in the downtown area. This increases the difficulty in pedestrian usage, which would be facilitated by the addition of a traffic signal installed by Caltrans at the intersection to the entrance of the new facility (not a part of the proposed project).

Vehicular entrance to the project site would occur at two points: the principal access at Laguna Canyon Road and secondary access at the gated location provided at Forest Avenue. Vehicular ingress/egress associated with the parking structure would be provided from Laguna Canyon Road and from Forest Avenue. Pedestrians would access the parking structure from crosswalks at the Laguna Canyon Road/Broadway intersection and from the Laguna Canyon Road/Forest Intersection.

Drainage

The portion of Laguna Creek Channel that runs through the project site would remain and acts as the primary drainage feature on the project site. All stormwater would be treated prior to discharging into the channel.

2. Project location and site address:

The Village Entrance project site is located on the east side of Forest Avenue where it intersects with Laguna Canyon Road at 501 Forest Avenue. The project site is composed of Assessor's Parcel Numbers (APN) 641-241-06, 641-241-07, 641-241-08, 641-241-09, 641-241-10, 641-241-13, and 641-241-14. The project site is within the Laguna Beach Downtown Specific Plan and is zoned Civic Art District. This area is described as "the cultural center for the city," and includes notable properties such as City Hall, the Laguna Playhouse, the Irvine Bowl and the Festival of the Arts, the Art-A-Faire, and the Sawdust Festival grounds. The General Plan land use designation for the project site is Central Business District (CBD), which is characterized by visitor-service establishments, office and professional uses, with some financial buildings. The project site is also located within the Coastal Zone.

The Laguna Creek Channel flows through the central portion of the project site and splits the site into two primary areas: 1) the City employees' parking lot and maintenance area, which comprises the eastern portion of the site, and the Lumberyard parking lot, which comprises the southeastern portion of the site; and 2) the Forest/Laguna Canyon parking lot that comprises the eastern portion of the site between the Laguna Creek channel and Laguna Canyon Road. According to the Downtown Specific Plan, this channel drains a 5,760-acre watershed that encompasses an area approximately six miles in length and averages 1.4 miles in width. The project site is located within FEMA Zone AE, which is designated as a 100-year flood plain, with a 1% chance of flooding annually.

3. Property size:

The project site covers approximately 4.5 acres. The entirety of the site would be developed with the proposed project, with only the existing sewage lift station (to be incorporated into the proposed parking structure) and historic sewage digester tower (to be converted into the visitor center) to remain on the site. The parking/City storage structure would total 218,625 square feet, as detailed above.

4. Existing use:

The project site is currently developed with a variety of uses such as surface parking, storage and maintenance. Existing on-site vegetation consists of native trees, various scattered shrubbery and a variety of eucalyptus trees. The City employees' parking lot and maintenance area makes up the majority of the site. It is fenced off from the other uses on the site and is accessed by City personnel only. This area is used for storing a variety of City materials which include, but are not limited to signs, parking meters, police and lifeguard equipment. City vehicles such as Fire, Police, Lifeguard and Public Works vehicles are also parked here. A metal building is located within the east-central portion of the Project site and houses Police and Lifeguard equipment. There are also several buildings or trailers on the site that are used by the City's Public Works and Water Quality

Departments. In addition to these uses, the City's historic former sewage digester tower and the working sewage lift station (also referred to as the pump station) are located in this fenced off portion of the site and would both remain as part of the proposed Project.

The Project site also includes two surface parking lots that are outside the fenced-in City employees' parking lot and maintenance area portion of the site as previously described. The Lumberyard parking lot is located adjacent to City Hall situated immediately south of the site. The other lot is the Forest/Laguna Canyon parking lot, which is bound by the Laguna Creek Channel and Laguna Canyon Road, and is just north of the Lumberyard parking lot. The Lumberyard parking lot is also used for a weekly Farmers' Market held every Saturday morning. The City employees' parking lot is used by City employees and the public during the summer and for special events.

5. Type of development:

This development will consist of a Municipal facility that will contain a civic parking structure, visitor center, City storage facility, and public walkway/park area.

6. Impervious/pervious surface areas:

Under existing conditions, approximately 75 percent of the project site is developed with impervious surfaces, including the existing historic sewage digester tower, surface parking lots, and the City storage/maintenance facility. Existing impervious surface area on the project site totals approximately 180,890 square feet (4.15 acres).

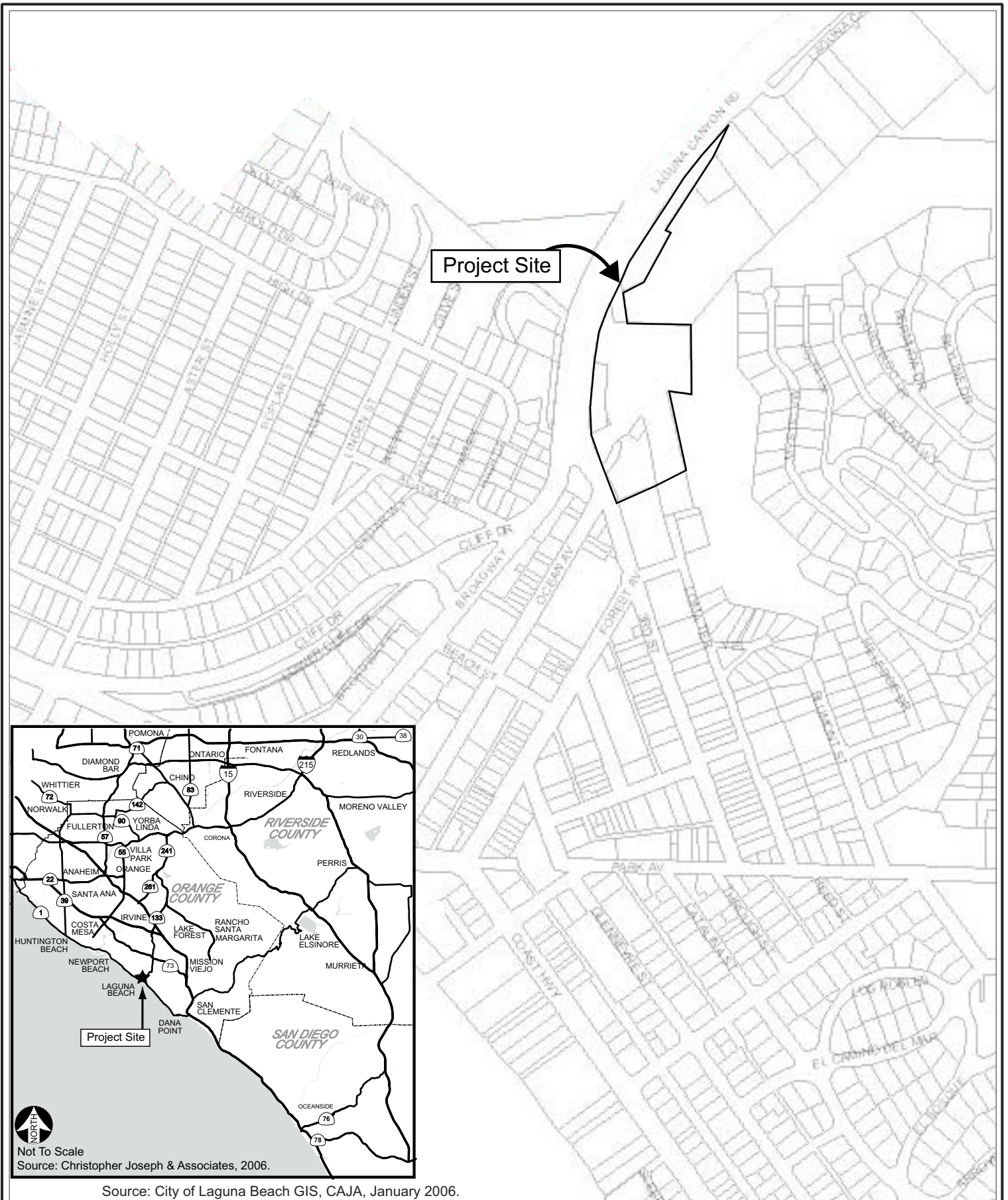
Following development of the proposed project, the total amount of impervious surface area on the site would be increased to approximately 183,320 square feet (4.21 acres), an increase of one percent.

7. Property ownership:

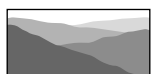
The project site is currently owned by the City of Laguna Beach, which would continue to own and operate the site and proposed project.

8. Other:

The project site lies at the base of Mystic Hills to the east, which have a steep slope and are vacant to the upper portion of the hill where single-family residential homes are situated. This area has a zoning designation of Residential Hillside Protection. To the west of the project site are primarily commercial uses such as the Laguna Playhouse, Anastasia's Café, Laguna Beach Animal Hospital, Video Laguna, and the Festival of the Arts, among other uses. The project site is bounded by the Art-A-Fair site to the north and City Hall to the south.



Source: City of Laguna Beach GIS, CAJA, January 2006.



CHRISTOPHER A. JOSEPH & ASSOCIATES
Environmental Planning and Research



Figure 2.1
Location Map



Project Site

Laguna Canyon Road

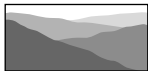
Broadway Avenue

Ocean Avenue

Forest Avenue



Note: Project boundaries are approximate.
Source: Google Earth Pro, CAJA, September 2006.



CHRISTOPHER A. JOSEPH & ASSOCIATES
Environmental Planning and Research

Figure 2.2
Aerial Photo

Section 3 Project Site Assessment

This project site assessment section provides important information that is used when considering the potential water quality and hydrologic impacts that could be caused by the proposed project. This information is important when considering the appropriate BMPs to reduce identified potential impacts as well as when developing measures to reduce those impacts.

<p>1. Zoning and land use designation: The project site is within the Laguna Beach Downtown Specific Plan and is zoned Civic Art District. This area is described as “the cultural center for the city,” and includes notable properties such as City Hall, the Laguna Playhouse, and the Festival of the Arts and Art-A-Fair grounds. The General Plan land use designation for the project site is Central Business District (CBD), which is characterized by visitor-service establishments, office and professional uses, with some financial buildings. The project site is also located within the Coastal Zone. The proposed project will consist of a Municipal facility.</p>
<p>2. Existing and proposed drainage: Runoff from the site is currently directed to the Laguna Creek Channel, which crosses the western portion of the site. This section of the Creek has been encased in a concrete channel for flood control purposes. The proposed project would not alter this general drainage pattern. Energy dissipaters are proposed for use on the steep slope above the site to slow runoff velocity prior to its delivery into the on-site drainage system.</p>
<p>3. Will the drainage system be modified by the development? Yes. The construction of the proposed Municipal facility on the site will require the installation of a new site drainage system. This system will also capture the same portion of the runoff from the steep slope adjacent to the project site (e.g., storm run-on) that currently reaches the site. The treatment BMPs proposed for use in the project will be sized appropriately for the entire contributing on-site and off-site drainage area. Discharge will continue to be to the Laguna Creek Channel.</p>
<p>4. Will drainage coincide with City’s system or flow to a creek or ocean? Drainage from the developed site would be discharged directly to the Laguna Creek Channel via on-site storm drainage infrastructure that would become part of the City’s storm drain system.</p>
<p>5. Watershed and receiving waters: Orange County Coastal Streams – Laguna. The Laguna Creek Channel is the immediate receiving water and the Pacific Ocean the ultimate receiving water.</p>
<p>6. 303(d) listed receiving waters: Although Laguna Creek itself is not listed on the most recent 303(d) list of impaired waters, the segment of the Pacific Ocean Shoreline to which it discharges (Laguna Beach HSA) is included on this list and identified as being impaired due to bacteria indicators.</p>
<p>7. Total Maximum Daily Loads (TMDLs): No TMDLs have been adopted by the RWQCB for the Laguna Beach HSA. Preliminary studies are currently underway to characterize the sources of the bacteria resulting in the impairment of the Pacific Ocean shoreline. The RWQCB has designated TMDL development priority for the HSA as “medium”.</p>
<p>8. Environmentally Sensitive Areas (ESAs) and/or Areas of Special Biological Significance (ASBA): The project site is not located either in or proximate to any of these areas.</p>
<p>9. Soil type(s) and condition: The primary soil type at the project site is the Capistrano sandy loam. Under bare soil conditions, runoff is slow to medium and erosion hazard is moderate.</p>

Section 4 Pollutants of Concern

This section of the water quality management plan identifies primary and secondary pollutants of concern. Pollutants of concern are those that are anticipated to be generated by the proposed project. Pollutants of concern are differentiated between primary and secondary depending on the condition of downstream receiving waters. If the project will drain to a receiving water that is impaired for a pollutant anticipated from that project, that pollutant is a primary pollutant of concern. Pollutants frequently identified on the 303(d) list of California impaired water bodies include metals, nitrogen, nutrients, indicator bacteria, pesticides and trash (for the 303(d) list see www.swrcb.ca.gov/tmdl/303d_lists.html). In some cases, there may be specific conditions (i.e. other known water quality problems) that warrant identifying an anticipated pollutant as a primary pollutant of concern. If there is no corresponding impairment or other water quality problem in the receiving waters for an anticipated pollutant, the pollutant is a secondary pollutant of concern.

<p>1. Project categories and features: Parking lots.</p>
<p>2. Primary pollutants of concern: None</p>
<p>3. Secondary pollutants of concern: Heavy metals, nutrients, pesticides, sediments, trash & debris, oxygen demanding substances, oil & grease.</p>
<p>4. Project water quality analyses: The pollutants most likely to be present on the developed project site are oil & grease, heavy metals, and trash & debris. The first two categories are commonly associated with automobiles while the latter is common in public and civic gathering areas.</p>
<p>5. Project watershed information: The Downtown Specific Plan discusses the need to improve flood protection in the vicinity of the project site and establishes policies to “promote the installation of floodgates at all buildings in the floodplain” and to “balance the federally mandated flood plain regulations with the need to retain the aesthetic qualities of the downtown”.</p> <p>The Open Space and Conservation Element of the General Plan also sets forth a series of general Citywide policies designed to address the incorporation of appropriate BMPs to reduce pollution and runoff from development, to minimize impervious surfaces, minimize the volume and velocity of runoff, minimize the introduction of pollutants, preserve the function of natural drainage systems, conserve water and establish native plants, minimize construction impacts, maintain BMPs, protect and restore watersheds, infiltrate runoff, and educate the public concerning water quality.</p> <p>This same element also establishes policies to require new development projects to control the increase in the volume, velocity, and sediment load of runoff from the greatest development areas at or near the source of increase to the greatest extent feasible, require new developments to maintain runoff characteristics as near as possible to natural discharge characteristics, and to plant and maintain all graded areas for erosion control with an emphasis on the use of native plant species.</p>

Table 4.1 Potential Pollutants for Project Categories

Categories and/or Project Features	Anticipated Pollutants								
	Bacteria/Virus	Heavy Metals	Nutrients	Pesticides	Organic Compounds	Sediments	Trash & Debris	Oxygen Demanding Substances (cleaning agents)	Oil & Grease
Detached Residential Development	X		X	X		X	X	X	X
Attached Residential Development	X		X	X		X	X	X	X
Commercial/Industrial Development greater than 100,000 ft ²	X		X	X	X	X	X	X	X
Automotive Repair Shops		X			X		X		X
Restaurants	X						X	X	X
Hillside Development greater than 5,000 ft ²	X		X	X		X	X	X	X
Parking Lots		X	X	X		X	X	X	X
Streets, Highways & Freeways		X	X	X	X	X	X	X	X

Section 5 Hydrologic and Geotechnical Conditions of Concern/Drainage Report

This section of the water quality management plan identifies hydrologic and geotechnical conditions of concern related to the proposed project. Hydrologic or geotechnical conditions of concern are identified through a review of on-site and downstream drainage paths. If the proposed project would cause or contribute flows to problems along on-site or downstream drainage paths, these problems or future problems are considered conditions of concern. Conditions of concern can include problems such as flooding, erosion, scour, and other impacts that can adversely affect channel and habitat integrity.

In order to identify conditions of concern, a comprehensive understanding of flow volume, rate, duration, energy, and peak flow is necessary. Often, a formal drainage study is necessary which considers the project area's location in the larger watershed, topography, soil and vegetation conditions, percent impervious area, natural and infrastructure drainage features, and any other relevant hydrologic and environmental factors. As part of the study, the drainage report includes:

- Field reconnaissance to observe downstream conditions
- Computed rainfall and runoff characteristics including a minimum of peak flow rate, flow velocity, runoff volume, time of concentration and retention volume
- Establishment of site design, source control and treatment control measures to be incorporated and maintained to address downstream conditions of concern

A drainage report was not prepared for the proposed project; however, a State of California registered civil engineer, MACTEC Engineering and Consulting, Inc., reviewed the project for potential conditions of concern. The following is a summary of that review.

A geotechnical report was also prepared for the proposed project by MACTEC Engineering and Consulting, Inc., as required by the City, and is included as Attachment B.

1. **Project location:**

The project site is located along the lower portion of the Laguna Creek watershed. Laguna Creek itself crosses the western portion of the site and is fully channelized for the duration of its presence on the site. Downstream of the project site, the Laguna Creek Channel goes underground for the remaining distance to its outlet to the Pacific Ocean at the main beach area. The Laguna Creek watershed is approximately 5,760 acres in size with a total vertical relief of 445 feet and a length of 33.750 feet. The average gradient of the channel is 1.3% with a 10-year storm flow of 3,198 cfs.

2. **Topography, soil and vegetation:**

The project site is approximately 75 percent paved with asphalt concrete. The natural slopes of the Mystic Hills rise steeply from the easterly site boundary, with slope angles of 45 degrees and steeper. The base of the slope exposes near-vertical excavations. The portion of the site proposed for development features a much more moderate slope at the base of the hillside. The proposed parking structure would be partially cut into the base of the steep hillside area.

Artificial fill is scattered across the site. This fill consists of native and imported silty and clayey sand and ranges in thickness from 12 to 18 feet. Alluvium is also present in the canyon area and ranges in depth from 0 to 120 feet, depending on location. This alluvium typically consists of unconsolidated sand and silty sand with some interlayered sandy and

clayey silt, clayey sand, and silty clay that is soft to stiff. A thin residual soil also covers the hillside ascending from the project area.

Vegetation present on the site largely consists of ornamental trees and shrubs introduced with the existing development.

3. Impervious area:

Under existing conditions, the majority of the project site is developed with impervious surfaces, including the existing historic sewage digester tower, surface parking lots, and the City storage/maintenance facility. Existing impervious surface area on the project site covers approximately 75 percent of the site.

Following development of the proposed project, the total amount of impervious surface area on the site would be increased to approximately 76 percent of the site, an increase of one percent.

4. Drainage features:

No natural drainage features exist on the project site. As stated previously, the portion of Laguna Creek crossing the site has been channelized for flood control purposes. Runoff from the site is delivered via storm drains and sheet flow to the channel.

5. Relevant hydrologic and environmental factors:

The project site is located within the 100-year flood plain, as is the majority of the downtown section of Laguna Beach. No sensitive biological areas or areas with erosion problems are located on the site. However, the Pacific Ocean shoreline segment located downstream of the site (the ultimate receiving water) is an Environmentally Sensitive Area (ESA).

6. Proposed hydrologic conditions:

Development of the proposed project would slightly increase the amount of existing impervious area on the site and would thus result in a small increase in the amount of runoff generated at the site. However, the addition of riparian landscaping along the creek channel designed to mimic the pre-channelization natural appearance of the area would increase infiltration opportunities and thus reduce the overall runoff volume generated at the site.

7. Significant impact on downstream channels and habitat integrity:

The project would not affect downstream channels and/or habitat integrity. Off-site flows would be reduced compared to existing conditions. As stated above, the entire project site area is susceptible to flooding during large (e.g., greater than 25-year) storm events. Development of the project at this site would not exacerbate this situation.

8. Project hydrology analyses:

As stated previously, the project would increase the amount of impervious area on the site by a small amount, thus increasing the overall volume of runoff generated at the site. As noted above, however, the addition of riparian landscaping along the creek channel designed to mimic the pre-channelization natural appearance of the area would increase infiltration opportunities and thus offset this small increase in runoff volume. Stormwater run-on from the adjacent hillside areas would be captured and directed into the on-site storm drainage system and ultimately delivered to the creek channel.

9. Project watershed information:

The Downtown Specific Plan discusses the need to improve flood protection in the vicinity of the project site and establishes policies to “promote the installation of floodgates at all buildings in the floodplain” and to “balance the federally mandated flood plain regulations with the need to retain the aesthetic qualities of the downtown”.

The Open Space and Conservation Element of the General Plan also sets forth a series of general Citywide policies designed to address the incorporation of appropriate BMPs to

reduce pollution and runoff from development, to minimize impervious surfaces, minimize the volume and velocity of runoff, minimize the introduction of pollutants, preserve the function of natural drainage systems, conserve water and establish native plants, minimize construction impacts, maintain BMPs, protect and restore watersheds, infiltrate runoff, and educate the public concerning water quality.

This same element also establishes policies to require new development projects to control the increase in the volume, velocity, and sediment load of runoff from the greatest development areas at or near the source of increase to the greatest extent feasible, require new developments to maintain runoff characteristics as near as possible to natural discharge characteristics, and to plant and maintain all graded areas for erosion control with an emphasis on the use of native plant species.

Development of the proposed project would be consistent with these and other adopted City policies in that it would increase the amount of pervious area at the site, reintroduce native landscaping elements, and relocate the City's storage and maintenance facilities within a floodproofed, enclosed structure.

Storm run-on to the site from the adjacent steep slope will be captured and concentrated through drainage structures to be constructed on the site as part of the proposed project. On-site stormwater treatment BMPs will be sized appropriately for addressing this run-on as well as site-generated runoff.

Section 6 Best Management Practices (BMPs)

Minimizing a development's effects on water quality and the environment can be most effectively achieved by using a combination of BMPs which include Site Design, Source Control and Treatment Control measures. These design and control measures employ a multi-level strategy. The strategy consists of: 1) reducing or eliminating post-project runoff; 2) controlling sources of pollutants; and 3) treating storm water runoff before discharging it to the storm drain system or to receiving waters.

This WQMP and the proposed BMPs for the proposed project have been developed to minimize drainage impacts identified in Section 5 and the introduction of pollutants identified in Section 4 into the municipal storm drain system and/or ultimate drainage receiving water body.

For more detailed information on the use and design of BMPs please see the California Stormwater Quality Association New development and Redevelopment handbook. The handbook is available at www.cabmphandbooks.com. Additional information is also available in the City's WQMP.

6.1 Site Design BMPs

The most effective means of avoiding or reducing water quality and hydrologic impacts is through incorporation of measures into the project design. These measures should be taken into consideration early in the planning of a project as they can affect the overall design of a project.

The design of the proposed project has considered and incorporated site design concepts as described below.

SITE DESIGN CONCEPT 1: MINIMIZE STORMWATER RUNOFF, MINIMIZE PROJECT'S IMPERVIOUS FOOTPRINT AND CONSERVE NATURAL AREAS

<p>1. Minimizing impervious footprint:</p>	<p>The project will consolidate the parking and City storage/maintenance functions existing on the site into a single structure. The remainder of the site would be redeveloped to contain a greater amount of landscaping than currently exists on the site. The Creekwalk Park area, in particular, will include a substantially greater amount of landscaping than the existing surface parking lot uses of the area do at present. This additional landscaping, designed to facilitate infiltration, would offset increased runoff resulting from the one percent increase in overall impervious surface coverage of the project site. This is because the existing impervious area on the site is largely comprised of open dirt areas that have very low permeability due to compaction.</p>
<p>2. Conservation of natural areas:</p>	<p>No natural areas currently exist on the developed portion of the site. The overall footprint of development would be approximately the same with the proposed project; however, the amount of landscaping on-site would be increased. The natural hillside area to the north and east of the developed area would remain unmodified with development of the project.</p>
<p>3. Use of permeable paving or other surfaces:</p>	<p>Due to the high amount of pedestrian traffic expected in the proposed Creekwalk Park portion of the project, permeable paving has not been chosen for surfacing of pedestrian walkways. Instead, stabilized decomposed granite paving is proposed. Within the Farmers' Market area, however, the proposed interlocking pavers will be open-jointed</p>

	and, thus, will allow for infiltration.
4.	Designing to minimum widths necessary: Internal site roadways, walkways, and parking lot aisles have been designed to the minimum necessary widths as specified by the City.
5.	Incorporation of landscaped buffers: Landscaped buffer areas are planned between the Creekwalk Park pedestrian walkway and Broadway. No pedestrian walkways on the site would be located adjacent to streets; all would be separated by landscaping.
6.	Reduced street widths: Does not apply.
7.	Maximize canopy interception: In general, tree and plant species with maximum canopy interception potential are not native to the area. However, the project is proposing to retain existing trees (eucalyptus, live oak) and introduce other native tree and plant species to the site that will increase the amount of canopy interception through landscaping. This will improve the overall amount of canopy interception at the site compared to existing conditions.
8.	Use of native or drought tolerant trees/shrubs: The project will maximize water conservation by retaining existing native or historic trees present on the site and utilizing drought-tolerant native trees and plants to complete the overall landscaping palette.
9.	Minimizing impervious surfaces in landscaping: The proposed use of the site dictates that most of the site will continue to be covered with impervious surfaces. The proposed landscaping of the project would increase the amount of landscaped area on the site compared to existing conditions, although the overall amount of impervious surface area on the site would increase by one percent. The landscaping on the site would be designed to complement the Creekwalk Park area along the Laguna Creek Channel but also must accommodate the Saturday Farmers' Market. Thus, much of this park area would be paved with brick accent and stabilized decomposed granite paving. However, a portion of the Farmers' Market area would be paved using interlocking pavers, which are partially permeable.
10.	Use of natural drainage systems: No natural drainage systems are present on the project site. The segment of Laguna Creek crossing the site is fully channelized. The project would not change this situation but would instead capture run-on from the hillside area off-site to the north/east and project site runoff and direct it to the creek channel.
11.	Low flow infiltration: Opportunities for incorporating low-flow filtration into the site plan are limited due to the intensive use proposed for the site and its location at the base of a hillside area and along a concrete creek channel. At this time, no such filtration devices are being proposed.
12.	On-site ponding areas or retention facilities: Opportunities for incorporating ponding areas or retention facilities into the site plan are limited due to the intensive use proposed for the site and its location at the base of a hillside area and along a concrete creek channel. At this time, no such facilities are being proposed.
13.	Other site design features: Sloped drainage features would be constructed along the upslope perimeter of the site to direct surface run-on around the proposed parking structure and into the on-site storm drainage system.

SITE DESIGN CONCEPT 2: MINIMIZE DIRECTLY CONNECTED IMPERVIOUS AREAS (DCIAs)

1.	<p>Draining rooftops into adjacent landscaping: The only large rooftop on the project site would be the top floor of the parking structure, which would be open-air and utilized for parking. Runoff from this area would be treated and then discharged via copper rain gutters and downspouts to pervious landscaped areas on-site. As noted above, infiltration opportunities at the site are limited due to its location between a steep hillside and a concrete creek channel.</p>
2.	<p>Draining to adjacent landscaping: All exterior impervious surfaces (patios, walkways, sidewalks, driveways, etc.) would be drained to adjacent landscaping and/or the creek channel itself.</p>
3.	<p>Vegetated drainage swales: The opportunity for incorporating vegetated drainage swales into the site design of the project is very limited due to the proposed intensive land use and the slope and configuration of the site. The only potential location where this might be considered is along the drainage features to be constructed around the upslope perimeter of the site. However, due to the expected velocity of storm run-on from the steep (45 degree) hillsides above the site, concrete drainageways are being proposed in these locations instead of vegetated swales in order to minimize the impact of the erosive power of the stormflow.</p>
4.	<p>Site drainage system: As stated above, the location of the site – including its natural and human-made features – renders the use of such drainage systems as rural swale, urban curb/swale, etc. impractical. The majority of the site, including the area where most of the impervious surfaces would be located, is sandwiched between a steep hillside slope and the concrete channel of Laguna Creek. In particular, the site is within an area of the downtown that is highly susceptible to flooding. The most practical method of handling drainage at the site is to effectively capture it and direct it to the creek channel via a network of storm drains, pipes, and outlets. The project would increase the total amount of impervious area on the site by a small margin, which would normally increase the overall volume of runoff delivered from the site to Laguna Creek. However, as noted above, the increase landscaping to be installed in the site's pervious areas would be designed to promote infiltration of storm runoff, thus offsetting the overall increase in runoff volume that would otherwise occur.</p>
5.	<p>Residential driveways: No residential driveways are proposed.</p>
6.	<p>Residential parking areas: No residential parking areas are proposed.</p>
7.	<p>Non-residential parking areas: The majority of the parking to be constructed on the site would be contained in the 5-story parking structure. Runoff from this structure, as described above, would be collected, treated, and delivered via copper pipes and downspouts to adjacent landscaping. No permeable paving is feasible within this structure. Additional visitor parking is proposed to be placed in the area between the proposed visitor center (existing former sewage digester tower) and the creek channel. However, due to the location of this parking area immediately upslope of the concrete Laguna Creek Channel, permeable pavement is not a good option for this area. Instead, runoff from this area would be collected, treated, and discharged directly into the channel.</p>

6.2 Source Control BMPs

Source Control BMPs are measures focusing on reducing or eliminating post-project runoff and controlling sources of pollutants. Source Control BMPs must be included in all projects and can be represented in structural measures such as landscape, irrigation, signage considerations, materials, and design of areas; and non-structure measures such as requirements, cleaning, education, and maintenance.

Table 6.1 Source Control Non-Structural BMPs

Number	BMP and Objective	Included
<i>Routine Non-Structural BMPs (numbers correspond to those in City's WQMP)</i>		
N1	<p>Education for Property Owners, Tenants and Occupants: Practical informational materials are provided to residents, occupants, or tenants to increase the public's understanding of stormwater quality, sources of pollutants, and what they can do to reduce pollutants in stormwater.</p> <p><i>Explanation:</i> The project is a City facility with no tenants or private property owners/occupants. However, education and training for City personnel is required per the Municipal Stormwater Permit.</p>	Y
N2	<p>Activity Restrictions: Rules or guidelines for developments are established within appropriate documents (i.e. CC&Rs, lease terms, etc.) which prohibit activities that can result in discharges of pollutants.</p> <p><i>Explanation:</i> No vehicle/equipment washing, repair, or maintenance should be conducted on-site.</p>	Y
N3	<p>Common Area Landscape Management: Specific practices are followed and ongoing maintenance is conducted to minimize erosion and over-irrigation, conserve water, and reduce pesticide and fertilizer applications.</p> <p><i>Description:</i> The City will implement landscape maintenance practices to minimize erosion, over-irrigation, and reduce pesticide and fertilizer applications.</p>	Y
N4	<p>BMP Maintenance: In order to ensure adequate and comprehensive BMP implementation, all responsible parties are identified for implementing all non-structural BMPs and for structural BMPs, cleaning, inspection, and other maintenance activities are specified including responsible parties for conducting such activities.</p> <p><i>Description:</i> The City will establish specific maintenance and inspection protocols for all BMPs located on the project site and schedules/responsibilities for implementing all non-structural BMPs to be posted in all work areas at the site and monitored by City inspection personnel.</p>	Y
N5	<p>Title 22 CCR Compliance: Hazardous waste is managed properly through compliance with applicable Title 22 regulations.</p> <p><i>Description:</i> All hazardous materials used and/or stored on the project site will be managed in compliance with all applicable Title 22 regulations. Such materials will be kept in a locked area separate from other publicly accessible sectors of the project site. This area will be fitted with containment features to prevent possible spills from escaping.</p>	Y

Number	BMP and Objective	Included
N6	<p>Local Water Quality Permit Compliance: The project complies with water quality permits issued by the City to ensure clean stormwater discharges.</p> <p><i>Description:</i> The project will be in compliance with all local, state, and federal water quality regulations and applicable permits.</p>	Y
N7	<p>Spill Contingency Plan: A Spill Contingency Plan is implemented to ensure that spills are managed properly by requiring stockpiling of cleanup materials, notification of responsible agencies, disposal of cleanup materials, documentation, etc.</p> <p><i>Description:</i> A Spill Contingency Plan will be developed for the project and included in the Stormwater Pollution Prevention Plan to be completed prior to the start of construction activities at the site. Post-construction, a similar plan must be developed and posted at the site with all relevant employees given training on its implementation.</p>	Y
N8	<p>Underground Storage Tank Compliance: Because of the known or potential presence of underground storage tanks (USTs) on the project site, applicable UST regulations apply and are adhered to in order to avoid harm to humans or the environment.</p> <p><i>Description:</i> The former sewage digester located on the project site will be evacuated and cleansed of potential harmful and hazardous substances prior to its incorporation into the project. This work will proceed in compliance with all applicable UST regulations. No new USTs are proposed as part of the project.</p>	Y
N9	<p>Hazardous Materials Disclosure Compliance: Because hazardous materials or wastes will be generated, handled, transported, or disposed of in association with the project, measures are taken to comply with applicable local, state, and federal regulation to avoid harm to humans and the environment.</p> <p><i>Description:</i> Hazardous materials storage, handling, and use protocols will be established and posted at the project site. In addition, training on the same will be provided to all employees of the City to be engaged in this work at the site.</p>	Y
N10	<p>Uniform Fire Code Implementation: The project includes a hazardous material storage facility or other area regulated by Article 80 and therefore implements measures to comply with this section of the Uniform Fire Code.</p> <p><i>Description:</i> The project will include City storage facilities which may include locations for storing hazardous materials. These areas are regulated by Article 80 and will therefore include Fire Code compliance measures.</p>	Y
N11	<p>Common Area Litter Control: Trash management and litter control procedures are specified, including responsible parties, and implemented to reduce pollution of drainage water.</p> <p><i>Description:</i> The City has specific trash management and litter control procedures that will apply to the project. Employees responsible for implementing these procedures will be trained and evaluated on proper implementation of litter control at the site.</p>	Y

Number	BMP and Objective	Included
N12	<p>Employee Training: Practical informational materials and/or training are provided to employees to increase their understanding of stormwater quality, sources of pollutants, and their responsibility for reducing pollutants in stormwater.</p> <p><i>Description:</i> City employees with responsibilities at the project site will be provided with water quality training as part of their overall and continuing on-the-job training.</p>	Y
N13	<p>Housekeeping of Loading Docks: Cleaning and clean up procedures are specified and implemented for loading dock areas to keep the area free for pollutants and reduce associated pollutant discharges.</p> <p><i>Explanation:</i> No loading docks are included in the project.</p>	N
N14	<p>Drainage Facility Inspection: Inspection procedures, schedules, and responsibilities are established for drainage facilities to ensure regular cleaning, inspection, and maintenance.</p> <p><i>Description:</i> City personnel responsible for inspecting and maintaining the drainage facilities on the project site will be required to follow defined City inspection procedures and schedules, which stipulate that inspections must be conducted annually prior to October 1. More detail shall be provided in the Operations and Maintenance Plan for the project.</p>	Y
N15	<p>Street Sweeping Private Streets and Parking Lots: Street sweeping frequency and responsible parties are identified and regular sweeping is conducted to reduce pollution of drainage water.</p> <p><i>Description:</i> City street sweeping to the access drives and the parking structure will be implemented on a regular basis to remove pollutants from the facility. This will be coordinated with the City's overall street sweeping program.</p>	Y
N17	<p>Retail Gasoline Outlets: Specific operational and maintenance BMPs are implemented to the extent feasible to reduce potential for pollutant discharge from wash off by runoff, leaks, and spills.</p> <p><i>Explanation:</i> No gasoline facilities are part of the project.</p>	N
Source Control Structural BMPs (numbers correspond to the California BMP Handbook)		
SD-10	<p>Site Design and Landscape Planning: Landscape planning methodologies are incorporated into project design to maximize water storage and infiltration opportunities and minimize surface and groundwater contamination from stormwater.</p> <p><i>Description:</i> To the extent feasible, landscape planning has been included in the project to increase infiltration opportunities at the site.</p>	Y
SD-11	<p>Roof Runoff Controls: Direct roof runoff away from paved areas and to pervious areas, cisterns, infiltration trenches, and/or storage areas for reuse to reduce total volume and rate of site runoff and retain pollutant on site.</p> <p><i>Description:</i> Runoff from the open roof level of the parking structure will be treated and directed via gutters and downspouts to landscaped areas of the site. No discharges to paved areas of the site are planned.</p>	Y
SD-12	<p>Efficient Irrigation: Project plans include application methods to minimize irrigation water discharged into stormwater drainage systems.</p> <p><i>Description:</i> The project will implement landscaping irrigation systems designed to minimize the total amount of water being applied and direct the water to pervious portions of the site, not to the drainage system. These systems will include rain shutoff devices to prevent irrigation after precipitation, designing irrigation systems</p>	Y

Number	BMP and Objective	Included
	to each landscape area's specific water requirements, using flow reducers or shutoff valves triggered by a pressure drop to control water loss caused by broken sprinkler heads or lines, use of water sensors, water efficient sprinklers, and programmable irrigation times, and the use of native, drought-tolerant plant species in project landscaping to reduce irrigation requirements.	
SD-13	<p>Storm Drain System Signs: Stencils or affixed signs a placed adjacent to storm drain inlets to prevent waste dumping at storm drain inlets.</p> <p><i>Description:</i> All storm drain inlets on the project site will be signed/stenciled as described. In addition, the fences along the Laguna Creek Channel on the site will also be signed as described.</p>	Y
SD-20	<p>Pervious Pavements: Porous concrete or asphalt, blocks with pervious spaces or joints, or grass or gravel surfaces are employed to reduce runoff volume and provides treatment.</p> <p><i>Explanation:</i> Due to the proposed intensity of pedestrian usage and the location of the site, pervious pavement is not being proposed for use in the project. The increase in infiltration-promoting landscaping will offset the expected slight increase in the total volume of existing storm runoff from the site, with the remainder directed to the creek channel. The site's location at the base of a steep hillside and adjacent to a concrete creek channel makes it less than ideally suitable for pervious paving. However, portions of the Farmers' Market area will be paved using interlocking pavers, which are partially permeable.</p>	N
SD-21	<p>Alternative Building Materials: Specialized building materials are employed that have lower potential to leach pollutants, and reduce need for future painting or other pollutant generating maintenance activities. For example, some treated wood contains pollutants that can leach our to the environment and some metal roofs and roofing materials result in high metal content in runoff.</p> <p><i>Explanation:</i> No such materials are currently being proposed for use in the project due to the design and proposed use of the structures to be located on the site.</p>	N
SD-30	<p>Fueling Areas: Project plans are developed for cleaning, spill cleanup, containment, leak prevention, and incorporation of design to reduce rain and runoff that could come in contact with fueling areas.</p> <p><i>Explanation:</i> No fueling areas are included in the project.</p>	N
SD-31	<p>Maintenance Bays and Docks: Project design incorporates measures to cover or otherwise eliminate run-on and off from bays and docks, and direct connections to storm drain are eliminated.</p> <p><i>Explanation:</i> No maintenance bays and docks are included in the project.</p>	N
SD-32	<p>Trash Enclosures: Trash storage areas are covered and enclosed to prevent introduction of trash and debris to site runoff.</p> <p><i>Description:</i> All trash storage areas on the site will be enclosed and covered and accessible only to City employees. Public trash receptacles will also be covered and located in the most heavily trafficked areas. All trash container areas will be paved with an impervious surface, designed not to allow run-on from adjoining areas, designed to divert drainage from adjoining roofs and pavements around the area, screened or walled to prevent off-site transport of trash, and contain attached lids on all containers to exclude rain or include a roof or awning to minimize direct contact with precipitation. The connection of trash area drains to the municipal storm drain system will be prohibited on the site.</p>	Y

Number	BMP and Objective	Included
SD-33	Vehicle and Equipment Washing Areas: Designated wash areas or facilities are contained and wash water is reused, treated, or otherwise properly disposed of. <i>Explanation:</i> No vehicle or equipment washing areas are included in the project.	N
SD-34	Outdoor Material Storage Areas: Outdoor storage areas for materials containing pollutants, especially hazardous materials, are covered and enclosed, on impervious surfaces, and include secondary containment when applicable. <i>Explanation:</i> All material storage areas in the project are to be located indoor on the first level of the parking structure behind floodproofing.	N
SD-35	Outdoor Work Areas: Outdoor work areas are covered, contained, and treated as necessary to reduce opportunity of pollutants from work activities to enter stormwater. <i>Explanation:</i> All work areas in the project are to be located indoor on the first level of the parking structure and within the visitor center.	N
SD-36	Outdoor Processing Areas: Outdoor processing areas are covered, contained, and treated as necessary to reduce opportunity of pollutants from work activities to enter stormwater. <i>Explanation:</i> All processing areas in the project are to be located indoor on the first level of the parking structure and within the visitor center.	N

6.3 Treatment Control BMPs

Treatment control BMPs utilize treatment mechanisms to remove pollutants that have entered stormwater runoff and consist of public domain BMPs (identified in the following table with as TC-##) and manufactured or proprietary BMPs (identified in the following table with as MP-##). BMP numbers correspond to the California BMP Handbook.

The following table identifies the treatment control BMPs included in the proposed project.

Table 6.2 Treatment Control BMPs

Number	BMP and Objective	Included
<i>Infiltration</i>		
TC-10	Infiltration Trench: A long narrow rock filled trench with no outlet receives water and stores it until it infiltrates into the underlying soil. Its effective are removing most pollutants but can get clogged with sediment. <i>Explanation:</i> Due to the size, topography, and location of the project site, infiltration trenches are not an ideal BMP and, thus, are not proposed.	N
TC-11	Infiltration Basin: A shallow impoundment designed to capture and hold stormwater until it infiltrates into underlying soil. Effective at removing most pollutants but requires large areas and may be constrained by soil types. <i>Explanation:</i> Due to the size, topography, and location of the project site, infiltration basins are not an ideal BMP and, thus, are not proposed.	N
TC-12	Retention/Irrigation: Stormwater is captured in cistern, basin, trench, or other	N

Number	BMP and Objective	Included
	<p>storage area and is subsequently used for irrigation of site landscaping.</p> <p><i>Explanation:</i> Due to concerns about potential pollutants generated by automobile traffic and parking at the project site, the use of captured stormwater runoff from the project for irrigation is not considered an optimal solution and is thus not being proposed.</p>	
<i>Detention and Settling</i>		
TC-20	<p>Wet Pond: A constructed basin with a permanent pool of water throughout the year. Differ from wetlands because it is of greater depth. Treats stormwater runoff by settling and biological uptake.</p> <p><i>Explanation:</i> Due to the size, topography, and location of the project site, wet ponds are not an ideal BMP and, thus, are not proposed.</p>	N
TC-21	<p>Constructed Wetland: A constructed basin with permanent pool of shallow water throughout most of year with substantial vegetative coverage.</p> <p><i>Explanation:</i> Due to the size, topography, and location of the project site, constructed wetlands are not an ideal BMP and, thus, are not proposed.</p>	N
TC-22	<p>Extended Detention Basin: A constructed basin with an outlet designed to detain storm water for at least 48 hours to allow particles and pollutants to settle.</p> <p><i>Explanation:</i> Due to the size, topography, and location of the project site, extended detention basins are not an ideal BMP and, thus, are not proposed.</p>	N
MP-20	<p>Wetland: Similar to a constructed wetland but a self contained, manufactured module with vegetation that mimics natural wetland processes.</p> <p><i>Explanation:</i> Due to the size, topography, and location of the project site, wetlands are not an ideal BMP and, thus, are not proposed.</p>	N
<i>Biofiltration</i>		
TC-30	<p>Vegetated Swale: Open, shallow, vegetated channels that collect and slowly convey runoff through the property. Filters runoff through vegetation, subsoil matrix, and/or underlying soils; traps pollutants, promotes infiltration and reduce flow velocity.</p> <p><i>Explanation:</i> Due to the size, topography, and location of the project site, vegetated swales are not an ideal BMP and, thus, are not proposed.</p>	N
TC-31	<p>Vegetated Buffer Strip: Vegetated surfaces that are designed to treat sheet flow from adjacent surfaces. Removes pollutants by deceleration, settling, and infiltration.</p> <p><i>Description:</i> Vegetated buffer strips are suitable for treating runoff from walkways and the main driveway access and visitor parking and are proposed for limited use at the project in these areas and will be designed to meet CASQA standards.</p>	Y
TC-32	<p>Bioretention: A soil and plant based filtration strategy that involved capturing stormwater in depressed landscaped areas. Bioretention practices are flexible strategies for using landscaping as treatment.</p> <p><i>Description:</i> Bioretention features are suitable for treating runoff from walkways and the main driveway access and visitor parking as well as from the paved portions of the Creekwalk Park area and are proposed for limited use at the project in these areas, designed to meet CASQA standards.</p>	Y

Number	BMP and Objective	Included
<i>Filtration</i>		
TC-40	<p>Media Filter: Usually two-chambered with a pretreatment settling basin and a filter bed filled with sand or other absorptive filter media.</p> <p><i>Explanation:</i> The proposed use of the site does not lend itself to the use of a media filter BMP. The heaviest pollutant loads would be generated inside the parking structure where limited space is available for treatment BMPs.</p>	N
MP-40	<p>Media Filter: Similar to constructed media filter but manufactured as self-contained filtering vaults, units, or cartridges.</p> <p><i>Explanation:</i> The proposed use of the site does not lend itself to the use of a media filter BMP. The heaviest pollutant loads would be generated inside the parking structure where limited space is available for treatment BMPs.</p>	N
<i>Flow Through Separation</i>		
TC-50	<p>Water Quality Inlet: Vaults with chambers including screens, settling areas, and/or filter media to promote settling and/or separation of pollutants from stormwater.</p> <p><i>Explanation:</i> Water quality inlets generally provide poor levels of removal effectiveness for the primary pollutants of concern at the project site (trash and debris, oil and grease, metals, sediment) and thus are not being proposed.</p>	N
MP-50	<p>Wet Vault: A vault with a permanent water pool and internal features to promote settling and/or separation of pollutants from stormwater.</p> <p><i>Description:</i> A wet vault can be placed adjacent to the parking structure on the ground floor level in order to treat combined runoff from all levels of the facility. This wet vault would provide secondary treatment after runoff passes through drain inserts on each level.</p>	Y
MP-51	<p>Vortex Separator: Similar to wet vaults but round and use centrifugal action as primary separation mechanism.</p> <p><i>Explanation:</i> Research indicates that wet vaults may perform at least as well as vortex separators for the primary pollutants of concern at the project site and for less cost.</p>	N
MP-52	<p>Drain Inserts: Boxes, trays, or socks with screens or filter fabric and may also include filter media. They are installed in inlets or catch basins and removal effectiveness for pollutants is generally low except for large sediment.</p> <p><i>Description:</i> Drain inserts would be placed inside storm drain inlets on the rooftop level of the parking structure as well as along the access driveway and surface visitor parking area. Drain inserts located at the parking structure would be the primary treatment with the wet vault providing secondary treatment.</p>	Y
<i>Other</i>		
TC-60	<p>Multiple Systems: A system that uses two or more BMPs in series to increase treatment. Useful when one BMP does not provide sufficient treatment alone.</p> <p><i>Description:</i> Different pollutant sources and pollutants of concern are associated with each area of the proposed project (i.e., trash and debris in the Creekwalk Park area, oil and grease and metals in the parking structure, sediment in the perimeter drains). Individual BMP treatments are proposed for the Creekwalk Park and perimeter areas.</p> <p>However, for stormwater runoff generated at the parking structure, a multiple BMP</p>	Y

Number	BMP and Objective	Included
	system consisting of drain inserts on the roof level of the structure combined with a wet vault located at ground level constitutes an efficient approach for treating project runoff prior to its discharge into the on-site storm drain system and delivery to Laguna Creek.	

6.3.1 SELECTION

The selection of treatment control BMPs for the project was based on the consideration that the project is likely to present a series of different pollutant sources and pathways based on the differing uses proposed in each sector of the site. For each sector, all of the BMPs listed in the above Table 6.2 were considered and either recommended or rejected based on the factors cited in the table. Pollutant removal efficiency ratings in Table 7-II-6 of the City's WQMP were utilized in the following selection of treatment BMPs for the project.

Creekwalk Park

In the Creekwalk Park portion of the project, located to the west/south of the Laguna Creek Channel, principal sources of stormwater pollutants are expected to be associated with public pedestrian use. The types of pollutants generated in this area would be trash and debris and sediment and nutrients from landscaping. In this area, the use of vegetated buffer strips and bioretention (high/medium efficiency for sediment) offers an opportunity to integrate stormwater treatment into the overall landscaping of the area. Storm drain inserts (high/medium efficiency for all pollutants) will also be used to capture trash and debris, nutrients, and sediment prior to discharge to the creek channel.

Driveway Access/Visitor Center and Parking

This portion of the site includes the access route to the proposed parking structure, a bridge over the Laguna Creek Channel, the proposed visitor center structure (retrofit of the existing former sewage digester tower), and the proposed visitor surface parking area along the north/east side of the creek channel. In these areas, principal sources of pollutants are expected to be associated with automobile traffic and parking. The types of pollutants generated in this area would consist of sediment washed from the upslope hillside areas adjacent to the north, metals, and oil and grease. As with the Creekwalk Park area, some use of bioretention (high/medium efficiency for sediment and oil/grease) will be integrated into the landscaping in this area. Drain inserts (high/medium efficiency) will also be used to capture sediment from roadway surfaces, particularly at the creek crossing. As this WQMP is finalized and BMPs are sized for the site, the feasibility of using a single wet vault to capture and provide additional treatment of runoff from the roadway/parking surfaces in this portion of the site as well as the parking structure will be investigated. If this is not feasible, the aforementioned bioretention and drain insert BMPs would provide a satisfactory level of treatment for this area of the site.

Parking Structure/City Storage Facility

This portion of the project site is expected to generate the greatest amount of stormwater volume and the greatest amount of stormwater-borne pollution. A multiple "treatment train" system is proposed for this section of the project site. First, stormwater run-on from upslope hillside areas to the north/east would be captured in a concrete open drain facility to be located

around the perimeter of the parking structure. This drain would deliver this water to storm drain inlets fitted with drain inserts to provide primary treatment (high/medium efficiency). The filtered stormwater would then be conveyed to a wet vault located adjacent to the parking structure on the ground level for secondary treatment prior to discharge to Laguna Creek. Runoff from the roof level of the parking structure would enter a series of storm drains on that level fitted with drain inserts to provide primary treatment (high/medium efficiency). The filtered runoff would then be conveyed via copper gutters and downspouts to the ground-level wet vault for secondary treatment (high/medium efficiency for sediment; low/medium for oil/grease). Lastly, the wet vault would discharge to on-site landscaped areas that would provide tertiary biofiltration treatment (high/medium efficiency for both pollutants). The major sources of pollution would be the hillside areas off-site to the north/east and vehicles utilizing the parking structure. The types of pollutants associated with this facility would likely be oil and grease, metals, and sediment.

6.3.2 SIZING

The sizing of treatment control BMPs for the project will depend on the size, slope and imperviousness characteristics of the tributary drainage delivering runoff to each BMP. As described above, the 4.5 acre site will be divided into three major catchment areas for purposes of capturing and treating anticipated stormwater runoff volumes and flows: Creekwalk Park, Driveway Access/Visitor Center and Parking, and the Parking Structure/City Storage Facility.

The sizing and precise location of each BMP within these three catchment zones cannot be completed until detailed engineering drawings of the proposed project are available. As noted in the cover memo, this document is a conceptual WQMP designed to propose an overall approach to stormwater management at the project site. When detailed plans for the project are available, the sizing and location of individual BMPs can be completed in order to ensure that each practice is capable of working as intended and is appropriate for treatment of the volumes or flows of water that will be generated in each location. At that time, necessary adjustments in terms of BMP selection and location can be made and this WQMP can be revised and finalized.

6.3.3 LOCATION

On-site structural Treatment Control BMPs proposed for the project are designed to be implemented as close to pollutant sources as possible to minimize costs and maximize pollutant removal prior to runoff entering the on-site storm drain system and, ultimately, Laguna Creek. With this in mind, the proposed BMPs will be located on the roof level of the parking structure at each drainage inlet. In addition, BMPs will be located at the visitor parking area adjacent to the visitor center. Each BMP will treat a defined quantity of water prior to discharging to either the on-site storm drainage system or on-site landscaping/pervious surface areas. The proposed wet vault could be located adjacent to the lowest area of the site in order to take advantage of gravity flow and could be configured to receive runoff both from the parking structure and the access driveway/visitor center parking area. Approximate locations of these BMPs will be shown on Figure 7.1 prior to the finalization of this WQMP (to occur after more detailed engineering drawings of the project are available).

6.3.4 RESTRICTIONS ON USE OF INFILTRATION BMPS

The proposed project does not include infiltration BMPs.

Section 7 Project Plan and BMP Location Map

Figure 7.1 illustrates the proposed project and the Source Control structural and Treatment BMPs that will be implemented pursuant to this WQMP. The following checklist identifies the required information that is included in the BMP map. This map will be submitted after more detailed engineering drawings of the project are available and can be utilized to more precisely determine BMP location.

Included	Requirement
X	Legend, north arrow, scale
X	Show drainage arrows, and drainage areas
X	Entire property on one map (provided sufficient detail is shown)
X	Show structures to be constructed and removed
X	Show proposed and existing storm drain systems
X	Show all external hardscape surfaces such as walkways, driveways, pools, spas, patio areas etc.
X	Indicate the landscape areas and planters
X	Show nearby waterbodies by name, if available
X	Identify site outlet and/or connection to municipal storm drain system
X	Identify locations of all source control structural and treatment BMPs on the Map. Indicate the BMP location using the BMP number.
X	Differentiate/identify pervious and impervious surfaces, buildings, activity areas, etc.
X	Identify areas of potential soil erosion

Section 8 Stormwater BMP Maintenance

The City does not accept stormwater structural BMPs as meeting the WQMP requirements standard, unless an Operations and Maintenance (O&M) Plan is prepared and a mechanism is in place that will ensure ongoing long-term maintenance of all structural and non-structural BMPs.

The WQMP certification Statement requires that the property owner implement the provisions of this WQMP, which includes on-going BMP maintenance as specified in this WQMP. The property owner is responsible to ensure that this plan is carried out and amended as appropriate to reflect up-to-date conditions on the site consistent with the current City of Laguna Beach Urban Runoff Management Program and the intent of the NPDES/MS4 Permit for Waste Discharge Requirements as authorized by the State and EPA. Once the property owner transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

The Laguna Beach Village Entrance project will implement the following maintenance mechanism to ensure ongoing long-term maintenance of all structural and non-structural BMPs.

1. **Public entity maintenance:** The City may approve a public or acceptable quasi-public entity (e.g., the County Flood Control District, or annex to an existing assessment district, an existing utility district, a state or federal resource agency, or a conservation conservancy) to assume responsibility for operation, maintenance, repair and replacement of the BMP. Unless otherwise acceptable to the City, public entity maintenance agreements shall ensure estimated costs are front-funded or reliably guaranteed, (e.g., through a trust fund, assessment district fees, bond, letter of credit or similar means). In addition, the City may seek protection from liability by appropriate releases and indemnities.

The City shall have the authority to approve stormwater BMPs proposed for transfer to any other public entity within its jurisdiction before installation. The City shall be involved in the negotiation of maintenance requirements with any other public entities accepting maintenance responsibilities within their respective jurisdictions; and in negotiations with the resource agencies responsible for issuing permits for the construction and/or maintenance of the facilities. The City must be identified as a third party beneficiary empowered to enforce any such maintenance agreement within their respective jurisdictions.

8.1 Operation and Maintenance (O&M) Plan

An O&M Plan will be prepared for the proposed project and must be approved by the City prior to construction approvals, permit close out and issuance of certificates of use and occupancy. The O&M Plan describes the designated responsible party to manage the stormwater BMP(s), employee's training program and duties, operating schedule, maintenance frequency, routine service schedule, specific maintenance activities, copies of resource agency permits, and any other necessary activities. At a minimum, maintenance agreements shall require the inspection and servicing of all structural BMPs per manufacturer or engineering specifications. Parties responsible for the O&M plan shall retain records for at least 5 years. These documents shall be made available to the City for inspection upon request at any time.