
IV. ENVIRONMENTAL IMPACT ANALYSIS

E. HYDROLOGY AND WATER QUALITY

This section provides a discussion of the applicable programs and regulations related to water quality, drainage, and flooding that pertain to development of the project site, as well as an analysis of potential impacts related to stormwater hydrology and surface water quality resulting from implementation of the proposed project. This section is based on the *Lowe's Home Improvement Warehouse Drainage Study*, Huntington Beach, CA for the proposed project prepared by Canyon Consulting, January 2003. The report was prepared to confirm the adequacy of the existing and proposed storm drain system to accommodate flows resulting from the proposed project and its associated improvements with respect to surface detention areas. Copies of the Drainage Study are provided as Appendix E to the Draft EIR.

1. APPLICABLE PLANS AND POLICIES

a. Hydrology

The National Flood Insurance Act of 1968 established the National Flood Insurance Program (NFIP) which is based on the minimal requirements for flood plain management in the Code of Federal Regulations 44, Sections 59-77. The Federal Regulations are designed to minimize flood damage within Special Flood Hazard Areas. The Federal Emergency Management Agency (FEMA) designates flood hazard zones on its Flood Insurance Rate Maps (FIRMs).

Drainage and flood control structures and improvements maintained by the County of Orange are subject to review and approval by the Orange County Public Facilities and Resources Department. Similarly, grading plans, drainage plans, and drainage and flood control structures and improvements in the City of Huntington Beach are subject to review and approval by the City Public Works Department. New or modified storm drain systems must be in conformance with the requirements of the Orange County Hydrology Manual and the City of Huntington Beach.

The Environmental Hazards Element of the City's General Plan includes goals and policies related to flooding. The following goal is applicable to the proposed project:

EH 4: Eliminate, to the greatest degree possible, the risk from flood hazards to life, property, public investment, and social order in the City of Huntington Beach.

The specific policies of the Environmental Hazards Element that are relevant to the project site and/or the proposed project include:

EH 4.1.1: During major redevelopment or initial construction, require specific measures to be taken by developers, builders, or property owners in flood-prone areas to prevent or reduce damage from flood hazards and the risks upon human safety.

EH 4.1.2: Establish and enforce standards which minimize financial loss and maximize protection of residents and business owners' property.

b. Water Quality

Surface water quality is regulated through the Federal Clean Water Act which requires all communities to develop methods to comply with standards for protecting the quality of water discharged into streams, including stormwater runoff and non-stormwater runoff. The nationwide implementation of the Clean Water Act is the responsibility of the United States Environmental Protection Agency (USEPA), which has established the National Pollutant Discharge Elimination System (NPDES) as the primary implementation program. In response to the 1987 amendments to the Clean Water, the USEPA NPDES Program required NPDES permits for: 1) Municipal Separate Storm Sewer System (also referred to as MS4s or Municipal Permits) generally serving, or located in incorporated places with 100,000 or more people; 2) eleven specific categories of industrial activity (including landfills); and 3) construction activity that disturbs more than one acre or greater of land. Section 402 (p) of the Clean Water Act mandates that the MS4 permits must: 1) effectively prohibit the discharges of non-storm water to the MS4; and 2) require controls to reduce pollutants in discharges from MS4 to the maximum extent practicable (MEP), including Best Management Practices (BMPs), control techniques, and system, design and engineering methods.

In California, the regulation, protection, and administration of water quality are carried out by the State Water Resources Control Board (SWRCB), as authorized by the Porter-Cologne Water Quality Control Act of 1969. The State is divided into nine regions due to regional issues related to water quality and quantity. Each Regional Water Quality Control Board (RWQCB) is required to adopt a Water Quality Control Plan or Basin Plan which recognizes and reflects the regional differences in existing water quality, the beneficial uses of the region's ground and surface water, and local water quality conditions and problems. The project site is located within the Santa Ana Region, which is addressed in the Santa Ana River Basin Water Quality Control Plan for the Santa Ana Region 8. This document designates the beneficial uses of water bodies,

sets water quality objectives to protect those uses, addresses localized water quality problems, and lays out a plan for water quality protection.

On January 18, 2002, the Santa Ana Regional Water Quality Control Board (Regional Board) issued a municipal storm water NPDES permit (Order No. R8-2002-0010 NPDES Permit No. CAS618030) to the County of Orange and the 25 incorporated cities within the Santa Ana region, including the City of Huntington Beach. This municipal permit identifies the County of Orange as the principal permittee and the 25 incorporated cities as co-permittees. In accordance with the municipal permit, permittees are required to obtain legal authority to comply with the municipal permit; control discharges from all land uses and construction (i.e., require BMPs, conduct inspections, and resolve complaints); enforce local permits and ordinances; implement land use and planning policies that protect water quality; and conduct monitoring and reporting. As part of these requirements, each of the permittees will implement several programs and activities, including requirements for new development projects, by specified dates. Included in the requirements for new development and significant re-development projects is the preparation of a Water Quality Management Plan for post construction maintenance and monitoring that includes BMPs for source control, pollution prevention, and/or structural treatment BMPs.

A previous municipal NPDES permit for the County of Orange required the development of a Drainage Area Management Plan (DAMP). The DAMP, which has been updated as part of the most recent municipal permit application, is the principal policy and guidance document for the countywide NPDES storm water program. The DAMP is intended to improve existing storm water quality management practices, identify and remedy storm water quality problems, and verify the design and effectiveness of BMPs. The DAMP includes a list of BMPs to be utilized by each of the permittees, including the City of Huntington Beach as well as various monitoring programs and implementation plans to be implemented by permittees in order to meet MEP standards. The DAMP also includes construction regulatory requirements for projects disturbing land area of one to five acres as well as standard conditions of approval requiring post-construction storm water quality management plans, both of which are to be implemented by each of the permittees.

In order to obtain authorization for construction storm water discharges, projects that result in the disturbance of one acre or greater of land must comply with the State General NPDES Permit for Discharge Associated with Construction Activities. In accordance with RWQCB requirements, a Notice of Intent (NOI) to comply with the State General NPDES Permit for Discharge Associated with Construction Activities will be required for such projects. In addition, in accordance with these NPDES permit requirements, a Storm Water Pollution Prevention Plan (SWPPP) incorporating BMPs will be required. The BMPs will be designed to maintain construction areas in such a condition that an anticipated storm does not carry wastes or pollutants off-site. Disposal and storage areas for potential pollutants including, but not limited to, solid or liquid chemicals, paints, stains, sealants, glues, limes, pesticides, herbicides, fuels,

oils, and lubricants should occur in specified and controlled temporary locations on a project site. These materials should be physically separated from potential stormwater runoff, with ultimate disposal in accordance with Federal, State, and local regulations. The general Construction NPDES Stormwater Permit requires that these BMPs be in place prior to commencement of construction at a project site.

2. EXISTING CONDITIONS

a. Site Drainage and Drainage Facilities

The project site is located in an urbanized setting with relatively flat topography. The existing site drainage of Area A generally flows in a clockwise direction and is conveyed to the northeast corner of B Street and Robidoux Drive. The runoff is collected in an existing catch basin and conveyed via an 18-inch City storm drain to the County's Ocean View Flood Control Channel, north of the project site. Run-off from Area B1 flows either: 1) directly into the surface streets and catch basin at the northeast corner of B Street and Robidoux Drive; 2) to an existing catch basin located in Beach Boulevard and conveyed north via a 24-inch storm drain to the Ocean View Flood Control Channel; or 3) into an existing catch basin located at the southeast corner of Robidoux Drive and Beach Boulevard that conveys the flows to the Ocean View Flood Control Channel. The undeveloped portion of Area B2 drains south towards Warner Avenue where it is collected in an existing catch basin and conveyed to a 96-inch City storm drain which runs along the east end of the project site. The developed portion of Area B2 has an on-site storm drain which conveys flows directly to the 96-inch drain. The 96-inch storm drain also intercepts flows discharged to Warner Avenue. The ultimate flow for this facility has been determined by the City of Huntington Beach Master Plan of Drainage (unadopted) to be 845.2 cubic feet per second (CFS). Accordingly, this facility is deemed deficient and is in need of replacement by a 14' x 9' concrete box.

The existing hydrology conditions in terms of storm water flows at the project site were studied as part of the Drainage Study using the Modified Rational Method, as defined by the Orange County Hydrology Manual. For the purpose of the existing drainage analysis, the entire 25.6-acre project site comprised of Area A, Area B1 and Area B2 was considered. Existing conditions have been based on pre-1986 design criteria to establish a baseline for retention requirements. The hydrology calculations were performed using the AES Rational Method Hydrology Computer Program. Refer to Appendix E of the EIR for existing peak runoff flows generated by a 10-, 25-, and 100-year storm event.

b. Water Quality

As stated above, the existing site is currently developed. Area A currently consists of approximately 50 percent impervious surface material and approximately 50 percent permeable grass and/or natural material. It is anticipated that the existing runoff from Area A contains concentrations of fertilizers and pesticides associated with the ball fields and other compounds typical of urban runoff. Area B1 currently consists of approximately 80 percent impervious surface material and approximately 20 percent permeable grass and/or natural material. This area of retail/commercial and residential is anticipated to create runoff that may contain concentrations of exhaust products, oil and grease, fertilizer, pesticides, asbestos, paint and metal fragments, bacterial organisms, and coarse litter. Area B2, the Ocean View School District Bus Maintenance Facility, currently consists of approximately 85 percent impervious surface material and approximately 15 percent permeable grass and/or natural material. Currently, the site maintains a clarifier and waste holding tank for intercepting grease and oils from the site and is subject to monitoring under the State's General Industrial Permit. Future storm water discharges are to be regulated by a new State General Permit which require BMPs to be in place for operational impacts associated with projects. It is anticipated that this area would produce runoff containing exhaust products, brake and tire materials, oil and grease, leaks and spills of fuels, oil, antifreeze, litter, paint and metal fragments, bacterial organisms, and coarse litter.

c. Flooding

FEMA has identified locations in the City that may be susceptible to flooding. The project site is located in Flood Zone X. Flood Zone X is a designation to identify areas estimated to result in flooding of an average depth of less than or equal to one foot in the event of a 100- or 500- year flood. Such areas are protected from a 100-year flood (the 100-year flood is a flood that has a one percent chance of occurrence in any given year). Storm drainage and flood control for the existing project site are accommodated by a combination of City and County facilities which are discussed above.

3. ENVIRONMENTAL IMPACTS

a. Significance Thresholds

A significant impact would be identified if the proposed project is determined to:

- Be inconsistent with adopted plans and policies;

- Exceed the capacity of the existing storm drain facilities such that new or replacement facilities would need to be constructed;
- Result in the significant degradation of existing surface water quality; or
- Result in the exposure of people or property to substantial flooding.

b. Project Level Impacts

(1) Hydrology

The Drainage Study prepared for the proposed project provides an analysis with respect to existing improvements and proposed new facilities. Development within Area A associated with the proposed project would consist of the demolition and removal of the existing school buildings and ball field areas, and development of a new home improvement center with associated parking and landscape areas, and a pad site for a restaurant. The proposed development would increase the amount of impervious surface area resulting in an increase in the rate and amount of surface runoff generated from the site. Table IV.E-1 on page 127 provides a summary of projected storm water flows attributable to the proposed project. The proposed project includes a storm water drainage system (referred to in the Drainage Study as System B) designed to convey storm water runoff from the project site with attenuation by retention and through an approved water quality treatment plan into the existing Ocean View Flood Control Channel adjacent to the project site to the north.¹⁶

Due to the limitations of downstream facilities, City requirements specify that peak runoff from a 10-year storm would be allowed to leave the project site; however, additional runoff from larger storms would require retention on the site. The City's requirement to restrict runoff to the 10-year storm is intended to delay the overall storm flows above that amount to after the peak of the storm has passed. To accommodate larger storms, no more than 30 percent of the parking lot (western portion) remote from the proposed Lowe's building would serve as a retention area in the event of a 100-year storm. The Drainage Study calculated post-project hydrology conditions at the project site using the Modified Rational Method and taking into consideration on-site drainage improvements. Maximum volumes generated by a 25- and 100-year storm event were calculated as described previously. In addition, area values were calculated for various ponding scenarios. Stormwater flows from a 100-year storm event could be accommodated provided 166,000 square feet is allocated within the proposed parking lot. The

¹⁶ As discussed in the Storm Drainage and Hydrology Study, the City of Huntington Beach has required that runoff from the site be conveyed directly to the Ocean View Flood Control Channel such that runoff is not conveyed to the adjacent streets.

Table IV.E-1

**STORM WATER RETENTION VOLUMES ASSOCIATED WITH THE PROPOSED PROJECT
(SYSTEM B)**

	Ponding Depth			Storm Event Projected Flows	
	3-inches	6-inches	8-inches	25-year	100-year
Area required for ponding	31,900 sf	123,900 sf	166,000sf	-	-
Volume Capacity	5,158 cf	20,650 cf	37,073 cf	-	-
Pipe Capacity	2,236 cf	2,236 cf	2,236 cf	-	-
Total Volume (cf)	7,394 cf	22,886 cf	39,309 cf	17,629 cf	25,584 cf

Source: Canyon Consulting, January 2003.

maximum depth of ponding would not exceed 8- inches. This would be sufficient to maintain the discharge into the Ocean View Channel at or below current peak flows.

The Drainage Study concludes that the project's proposed on-site storm drain system would improve current storm drain conditions, to the extent that flows discharged into adjacent streets resulting from the project would be reduced. This reduction is attributable to the proposed on-site retention areas and new connection in the parking lot of Area A (Drainage System B). As such, the existing 96-inch storm drain would not be adversely impacted and its upgrade would not be required as a condition of approval of the project. The proposed storm drain system would sufficiently divert runoff from Area B2, thereby avoiding excessive loading on the 96-inch storm drain. Additionally, the existing catch basins located on the north side of Warner Avenue and at the end of B Street were determined to be adequate upon implementation of the project. Similarly, the existing storm drain in B Street is also adequate to handle flows upon build-out and operation of the proposed project. With the proposed retention plan and adherence to City requirements, any project-related increase in surface water runoff would not negatively affect the ability of the existing storm drain system to convey stormwater flows. Additionally, in accordance with City requirements, the updated on-site storm drain system would have in-line storm water clarifiers which filter the storm water prior to leaving the site and minimize any potential pollutants from the parking lot (e.g., oil residue build-up). As such, hydrology impacts would be less than significant.

(2) Water Quality

(a) Short-Term Impacts

Grading and construction activities on the project site have the potential to result in short-term water quality impacts. These activities may increase erosion and contribute sediment to surface waters. Additionally, improper handling of construction materials and/or equipment could potentially result in accidental spills that could adversely affect water quality.

Since the proposed project would involve the disturbance of more than one acre of land, the project would be subject to the provisions of the State General NPDES Permit for Discharge Associated with Construction Activities. As discussed above, under this permit, the project applicant would be required to eliminate or reduce non-storm water discharges and develop and implement a SWPPP. The SWPPP must include BMPs that identify and reduce sediment and other pollutants in stormwater discharges.

A temporary alteration of the existing on-site drainage pattern may occur during construction, however, these changes would not result in substantial erosion or siltation due to stringent controls imposed via grading and building permit regulations. Furthermore, compliance with NPDES permit requirements and all relevant stormwater quality management programs of Federal, State, County, and City agencies would reduce impacts to the maximum extent feasible. Therefore, construction activities associated with the proposed project would not result in significant impacts related to water quality.

(b) Long-Term Impacts

Operation of urban projects may produce street-generated pollutants such as tire wear residue, oil and grease, and metals, as well as fertilizers, pesticides, litter and dirt from landscaped areas. The proposed project has the potential to result in long-term impacts to water quality due to the addition of pollutants typical of urban runoff and the increase in site activities. An increase in the rate and amount of runoff would occur due to an increase in impervious surface area and changes in grades and on-site routing, which would reduce the time of concentration. As described in the Drainage Study (Appendix E of the EIR), a 7200-gallon and a 4800-gallon Stormceptor structure will be needed to adequately meet the filtering requirements of the Orange County DAMP and the Model WQMP. Additionally, the preliminary sizing calculations for the Stormceptor BMP structure for the garden center would be a 4-cartridge unit. These features are examples of BMPs recommended as alternatives with the preliminary WQMP required by the City. As part of the City's requirements, the applicant will be required to submit a formal final WQMP that would include the BMPs to address the potential for pollutant discharges associated with long-term operations. With implementation of the WQMP, the project would not result in a significant degradation of surface water quality, and impacts would be less than significant.

(3) Flooding

As discussed above, the project site is located in an area of the City that is classified by FEMA as Zone X. Project improvements would not substantially alter the flooding potential of the area, which is already classified as minimal by FEMA. Additionally, runoff in excess of existing flows would be retained on-site in no more than 30 percent of the parking lot remote

(western portion) from the proposed store. The maximum depth of ponding would not exceed 8 inches within the identified retention area during a 100-year storm event nor would ponding exceed 30 minutes provided 166,000 square feet of space is allotted for inundation. Furthermore, as described above, the proposed storm drainage system and associated improvements would reduce flooding in the vicinity of Area B1 (drainage System C) and potential flooding in Warner Avenue near Area B2 (drainage System A). The proposed project would not, therefore, result in the exposure of people or property to flooding. Impacts associated with flooding would be less than significant.

In addition, the design of the proposed storm drain improvements and associated flooding protection would conform with applicable policies and standards described above. Specifically, the project would support the goals and policies in the Environmental Hazards Element of the City's General Plan by reducing flood hazards and risks to human safety and property to the extent possible. Impacts relative to consistency with adopted plans and policies would be less than significant.

c. Program Level Impacts

Future development in Area B1 has not yet been specifically defined; therefore, while changes in hydrologic flows, drainage patterns and water quality conditions are expected to occur as a result of anticipated development, the extent of change is unknown at this time. Future development in this area would require additional storm drainage and hydrological investigations as part of the environmental analysis and decision-making process related to that element. It is reasonable to assume that any future project would include specific features designed to reduce impacts on surface water hydrology, the existing storm drain system, and water quality in accordance with applicable City, County, and State standards and regulations. It should be noted, however, that the storm drainage system and associated improvements proposed for Area A would reduce flooding in the vicinity of Area B1 and potential flooding in Warner Avenue near Area B2.

Additionally, the proposed project, including Area B1, is subject to coverage under the municipal NPDES permit program. Compliance with NPDES permit requirements and all relevant stormwater quality management programs of Federal, State, County, and City agencies would reduce impacts to the maximum extent feasible. Therefore, construction activities associated with development of Area B1 would not result in significant impacts related to water quality. Although development is not proposed for Area B2, future development within this area would be subject to a new State General Permit pursuant to 40CFR122.32(a)(1) to address post-construction impacts on storm water quality resulting from potential projects. The Ocean View School District has been designated by the State to comply with a NPDES permit. Compliance with this requirement would be met by the preparation of a Water Quality Management Plan (WQMP) at the time development is proposed for Area B2. Compliance with NPDES permit

requirements and all relevant stormwater quality management programs of Federal, State, County and City agencies would reduce impacts to the maximum extent feasible and hence, hydrology and water quality impacts associated with construction and operation of Areas B1 and B2 would not be considered significant.

4. CUMULATIVE IMPACTS

Implementation of the proposed project would not alter existing drainage courses or divert water into other drainage basins. Since increased runoff would be retained on-site, the project would not adversely affect the capacity of any downgradient, off-site drainage facilities. Therefore, the project would not combine with other development projects to result in flood hazards.

Potential water quality impacts associated with grading and construction activities resulting from implementation of the project and other related projects would be minimized with the implementation of a SWPPP that identifies specific BMPs as well as compliance with other City storm water and grading requirements. In addition, any impacts associated with project-related construction activities would be short-term and are not expected to combine with impacts of other projects to result in significant water quality impacts.

The proposed project and related projects have the potential to contribute to a long-term cumulative impact to water quality during on-going operations. Potential pollutants associated with urban buildout include: pesticides, fertilizers, vehicle hydrocarbons, greases, oil, rubber, plastics, asbestos, paint and metal fragments, bacterial organisms, and coarse litter. As with the proposed project, future projects would be subject to NPDES permit requirements including the requirements set forth in the DAMP. As part of these requirements, other related projects would also be required to prepare a WQMP addressing water pollution runoff. Such projects would also be evaluated individually to determine appropriate measures that address water quality. With the incorporation of proposed drainage improvement, and adherence to all standard City polices and applicable regulations related to surface water quality, the proposed project would not make a considerable contribution to a cumulative water quality impact.

5. STANDARD CITY POLICIES AND REQUIREMENTS

The project will be required to comply with standard conditions of approval which reduce impacts to hydrology and water quality as follows:

Prior to Issuance of Grading Permits

1. A grading plan, drainage plan, and full support calculations with hydrologic/hydraulic analysis shall be submitted to the City of Huntington Beach Public Works Department for review and approval. Final design of the project storm drain system as illustrated in the drainage plan shall be consistent with the recommendations of the Storm Drainage and Hydrology Study and in conformance with the requirements of the City of Huntington Beach and the Orange County Hydrology Manual.
2. In accordance with NPDES requirements, a Water Quality Management Plan (WQMP) for the entire site shall be prepared by a Civil or Environmental Engineer. Best Management Practices (BMPs) shall be identified and incorporated into the design. The purpose of this plan is to eliminate water pollution runoff from the site. The WQMP shall be submitted to the City of Huntington Beach Public Works Department for review and approval along with the grading plan. The plan and BMPs shall be installed to the satisfaction of the City. The WQMP shall address the following, but may not be all encompassing:
 - Certification to be signed by Operator/Manager.
 - Debris removal and maintenance routines within any detention, infiltration and desiltation basins.
 - Requirements for manual removal and maintenance routines for any portions of the treatment train.
 - Maintenance schedule and responsible parties for all BMPs.
 - All necessary BMPs shall be included in the WQMP.
 - Any on-site fueling systems chemical storage areas shall be noted and document the BMPs.
 - A monitoring plan to evaluate all BMPs' effectiveness.
 - Reference the County's Management Guidelines for storage and cleanup of fertilizers and pesticides.
 - Acceptance of flows from the adjacent bus maintenance yard shall be addressed.
3. In accordance with NPDES requirements, a Storm Water Pollution Prevention Plan (SWPPP) for the entire site affected by construction activities shall be prepared by a Civil or Environmental Engineer. Best Management Practices (BMPs) shall be

identified and incorporated into the design, and shall be updated as appropriate during the construction phases. The purpose of this plan is to eliminate water pollution runoff from the site. This shall be submitted for review to the City's Public Works Department concurrently with the grading plan. The planned erosion control devices and measures and interim BMPs shall be completely installed to the satisfaction of the City during the entire construction phase.

4. The maximum allowable ponding in a parking lot is 8 inches over an area covering 30 percent and located at the farthest point from the building where possible.
5. The updated on-site storm drain system shall have in-line storm water clarifiers which filter the storm water prior to leaving the site and minimize any potential pollutants from the parking lot (e.g., oil residue build-up).
6. Flows leaving the site in the developed condition shall be restricted to Q10 runoff quantities. All other flows shall be retained on-site until the peak storm has passed.

6. LEVEL OF SIGNIFICANCE BEFORE MITIGATION

With implementation of the standard city polices and requirements, other requirements set forth by other regulatory agencies described above and proposed drainage improvements, the proposed project would not result in significant impacts associated with hydrology, water quality or flooding.

7. MITIGATION MEASURES

With implementation of standard City policies and requirements and other regulations set forth by other agencies described above, the proposed project would not result in significant impacts associated with hydrology, water quality or flooding. Therefore, no mitigation measures are required.

8. LEVEL OF SIGNIFICANCE AFTER MITIGATION

As indicated above, with implementation of standard City policies and requirements and other regulations set forth by other agencies described above, the proposed project would not result in significant impacts associated with hydrology, water quality or flooding.