3.10 Hydrology/Water Quality

This section examines whether implementation of the General Plan will alter the existing drainage patterns in the project area, increase the rate or amount of polluted urban runoff, exceed the capacity of existing or planned stormwater drainage systems, or expose people or structures to flooding risks. Through the Initial Study, issues regarding depletion of groundwater supplies and inundation of seiches and tsunamis were found to have a less-than-significant impact. The issue of mudflows in the project area is addressed in Section 3.9, Geology.

ENVIRONMENTAL SETTING

Water Quality

Water quality has become an important issue to consider for both potable water for the community and the impact of urban development on surface water sources. Testing for contaminants in potable water has become an integral part of the work carried out by water districts and other agencies responsible for supply and delivery of water to communities. The two districts that serve the City prepare annual water quality reports that compare district water sources with the drinking water quality standards established by the Environmental Protection Agency and the California Department of Health Services.

Surface Water Quality - Regulatory Setting

The issue of urban development and water quality impairment is relevant throughout the United States. The federal Clean Water Act (CWA) was amended in 1987 to address urban runoff, which impacts water sources with pollutants and contaminants from development. One requirement of the CWA amendment was the obligation of many municipalities throughout the United States to obtain National Pollutant Discharge Elimination System (NPDES) permits for discharges of urban runoff from their municipal separate storm sewer systems (MS4s). Municipal storm water NPDES permits seek to ensure that the beneficial uses of a receiving water (such as a stream or lake) are protected despite discharges from MS4s into that receiving water. These beneficial uses include, but are not limited to, municipal and agriculture water supply, recreation, aesthetic enjoyment and preservation of fish and wildlife habitat. Rancho Santa Margarita is located within the San Diego Regional Water Quality Control Board (SDRWQCB) region, which is part of the California Environmental Protection Agency and implements the federal NPDES regulations.

The SDRWQCB first issued an “early” municipal storm water permit in 1990 to the County of Orange, the incorporated cities within the County of Orange in the San Diego Region and the Orange County Flood Control District. This was followed with a First Term Permit in 1993 and renewed under the Second Term Permit in 1996. In February
of 2002, SDRWQCB released a new Order No. R9-2002-0001 for the Orange County jurisdictions (also called Copermittes) in the San Diego Region. This Order provides more specific detail than what was included in the 1993 and 1996 permits. Particular attention is given to the role of the copermittes in contributing to urban runoff. Order No. R9-2002-0001 states that “Storm water permits are issued to municipalities because of their land use authority. The ultimate responsibility for the pollutant discharges, increased runoff, and inevitable long-term quality degradation that results from urbanization lies with local governments.”¹ Stormwater management programs must include measures to:

- Identify major outfalls and pollutant loadings;
- Detect and eliminate all non-stormwater discharges to the system, except as specifically exempted;
- Prevent and reduce pollutants in runoff from industrial, commercial, and residential areas through the implementation of BMPs (Best Management Practices);
- Control stormwater discharges from new development and redevelopment;
- Inspect industrial, commercial, and construction activities;
- Provide pertinent education and promote public reporting of pollution;
- Monitor discharges and impacts on receiving waters.

Urban development has three major phases: (1) land use planning for new development; (2) construction; and (3) the “use” or existing development.² Two important changes occur during urban development that impact surface water quality. First, the amount of impervious surfaces, such as paved roads and parking lots increases with development. Natural pervious surfaces can remove pollutants, providing an effective purification process. Second, development creates new pollution sources including pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead) petroleum products, pesticides, animal waste and trash. Copermittes are required to protect water quality during all three phases of development.

With the emphasis of jurisdictional responsibility for water quality protection, Order No. R9-2002-0001 requirements include the development of a Jurisdictional Urban Runoff Management Program (URMP). This URMP focuses on all three phases of development (planning, construction, and existing uses). Requirements include, but are not limited to:

*Planning Phase*

Copermittes are required to:

- incorporate water quality protection principles and policies in their General Plans.
- conduct education efforts for both planning and development staff and the public at large.

develop Standard Urban Storm Water Mitigation Plans with post-construction Best Management Practice requirements.

**Construction Phase**

Copermittees are required to:

- include Best Management Practices (BMPs) for construction sites.
- conduct inspections of sites.
- report non-compliance to the SDRWQCB.

**Existing Development**

Copermittees are required to:

- include implementation of pollution prevention measures for each land use.
- maintain an inventory of sites for the various land uses.
- enforce ordinances at all sites for all land uses.

**Surface Water in the Project Area**

Two water courses traverse the project area, Trabuco Creek and Tijeras Canyon Creek. Figure 17 shows the locations of these creeks. Trabuco Creek, the larger water course, drains from Cleveland National Forest, runs parallel to the border of the Northeast Future Planned Community, through unincorporated county land and through O’Neill Regional Park. The location of Trabuco Creek in O’Neill Park creates a unique recreational opportunity for the residents of Rancho Santa Margarita. The ultimate receiving water body of Trabuco Creek is San Juan Creek in the City of San Juan Capistrano.

Tijeras Canyon Creek drains from the open space area east of the Antonio Parkway/Foothill Transportation Corridor intersection to Trabuco Creek south of Rancho Santa Margarita.

Other surface water bodies in the project area are the Upper Oso Reservoir and Lake Rancho Santa Margarita, both shown on Figure 18. Lake Rancho Santa Margarita is located in the Lago Santa Margarita park site near Santa Margarita Parkway and Antonio Parkway and offers many recreational activities for the community.

**Flooding**

**Drainage System**

The City is located in the San Juan Creek watershed. Three north-to-south draining systems are in the project area: Trabuco Creek and Tijeras Canyon Creek drain the northern and western areas of the city, while Bell Canyon drains the southeastern side.
The Orange County Flood Control District (OCFCD) is the agency responsible for regional flood control, while the City is responsible for storm drain systems within the city boundaries. The local storm drain facilities were developed in coordination with the planned communities. The City has a Drainage Master Plan that addresses the storm drain system that serves the incorporated City. This system is fully developed and no future expansions are planned.\(^3\)

**Flood Hazards**

The unpredictable seasonal range in rainfall that is typical of coastal southern California, coupled with geographic and geologic conditions, makes Orange County extremely vulnerable to flooding during the winter storm season.

The City participates in the National Flood Insurance Program. Flood Insurance Rate Maps (FIRMs) prepared by FEMA showing potential flood zones are available for areas within the municipal limits. Due to the recent incorporation date of the City, these maps are labeled as areas of unincorporated Orange County. The FEMA 100-year and 500-year map for the City is shown on Figure 18. This outlines the area of flooding within Rancho Santa Margarita.

As can be seen from Figure 18, the only major flooding problems for the City are located along the Trabuco Creek and Tijeras Canyon Creek areas. Along the Trabuco Creek, a dense growth of trees and brush are located in the main channel, which may raise flood levels considerably. Flooding in the project area is difficult to predict and plan for because rainfall in the area is extremely variable. Floods that would impact the City would typically be of short duration, with high peak volumes and high velocity. This is due to the arid-to-semi-arid nature of the area. When a major storm moves in, water collects rapidly and runs off quickly due to the rapid descent of the mountains into Trabuco Creek, Tijeras and Dove Canyon. Consequently, resultant flows are of the flash-flood type, generally having sharp peaks and short durations. Although some severe floods have impacted the area in the past, flooding damage in this area has generally been lower than in other areas of Orange County because of its relatively undeveloped state in the upper watershed areas. No homes or structures are located within the 100-year or 500-year flood zones within the City.

No major dam is located upstream from the Rancho Santa Margarita area. However, several large detention basins and reservoirs are located near the City. The Upper Oso reservoir is located to the northwest of the City and Lake Mission Viejo is located to the southwest. Other, smaller flood control improvements, such as canals, culverts, levees, and retention basins may crack and suffer some structural damage during an earthquake, especially in areas prone to ground failure. These facilities could pose an inundation hazard if they contain water at the time of the seismic event, or if they are not repaired soon after an earthquake and prior to the next winter storm season.

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\(^3\) Personal Communication, Tom Wheeler, Assistant City Engineer, City of Rancho Santa Margarita, December 27, 2001.
Figure 19
Flood Hazards

Legend
- 100-Year Flood
- 500-Year Flood
- City Boundary
- Sphere of Influence Boundary
- Future Planned Community Boundary

Sources: Orange County Land Base, 2001; FEMA Q3 Flood Hazard Data, 1998.

Legend:
- 100-Year Flood
- 500-Year Flood
- City Boundary
- Sphere of Influence Boundary
- Future Planned Community Boundary

Sources: Orange County Land Base, 2001; FEMA Q3 Flood Hazard Data, 1998.

Legend:
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Sources: Orange County Land Base, 2001; FEMA Q3 Flood Hazard Data, 1998.

Legend:
- 100-Year Flood
- 500-Year Flood
- City Boundary
- Sphere of Influence Boundary
- Future Planned Community Boundary

Sources: Orange County Land Base, 2001; FEMA Q3 Flood Hazard Data, 1998.
Seismically induced inundation can also occur if strong ground shaking causes structural damage to aboveground water tanks. Several water tanks or reservoir sites are within the Rancho Santa Margarita area. Most of these are owned and operated by either the Trabuco or Santa Margarita Water Districts.

**THRESHOLDS USED TO DETERMINE LEVEL OF IMPACT**

Implementation of the General Plan will result in a significant impact if it (1) substantially alters the existing drainage pattern in the area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site or increase the rate or amount of surface runoff that would result in flooding on- or off-site, (2) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, (3) place housing or other structures within a 100-year flood hazard area, or (4) expose people or structures to a significant risk of loss, injury or death involving flooding.

**ENVIRONMENTAL IMPACT**

**Water Quality**

As explained in the Environmental Setting above, urban development can impact the water quality of both potable water sources and surface receiving waters in the project area. Urban development (planning, construction and existing uses) can negatively impact water quality of surface water sources. The General Plan Land Use and Conservation/Open Space Elements include goals and policies to minimize the impact of development on water quality:

**Land Use Element**

**Goal 4:** *To the maximum extent practicable, reduce the discharge of pollutants and runoff flow from urban development.*

**Policy 4.1:** To the maximum extent practicable, cause property owners or developers to minimize pollutant loading and flow velocity from new development projects and redevelopment projects during and after construction.

**Policy 4.2:** To the maximum extent practicable, limit development that disturbs natural water bodies and natural drainage systems.

**Policy 4.3:** To the maximum extent practicable, educate all who live, work and shop in the City to minimize activities that pollute urban runoff.
3.10 Hydrology/Water Quality

Goal 5: **Collaborate with local and regional water suppliers to ensure that an adequate water supply is available and that delivery and treatment capacity is adequate to meet the community’s needs.**

Policy 5.1: Actively coordinate with Santa Margarita Water District and Trabuco Canyon Water District, as well as regional water suppliers and distributors, to ensure that high quality water is available and deliverable for the community.

Conservation/Open Space Element

Goal 1: **Protect and enhance the significant ecological and biological resources within and surrounding the community.**

Policy 1.4: Through land use planning, environmental review, and conditions placed on development projects, reduce the impact of urban development on important ecological and biological resources, including the beneficial uses of receiving waters.

Goal 4: **Promote a safe supply of potable water for community uses.**

Policy 4.1: Coordinate water quality programs with responsible local, regional, state and federal agencies.

Policy 4.2: Participate in applicable and enforceable local, regional, state, and federal efforts to protect and enhance potable water quality.

Policy 4.3: Encourage the development of new water sources, and encourage efforts for development of new water sources by the Santa Margarita and Trabuco Canyon Water Districts.

Goal 5: **Protect the beneficial uses of ground and surface waters.**

Policy 5.1: To the maximum extent practicable, adopt and enforce regulations and engage in educational efforts to eliminate pollution from urban runoff.

Existing land uses will continue to create demands for a safe water supply while also resulting in urban runoff that has the potential to pollute receiving waters. Existing requirements for potable water quality and minimizing polluted urban runoff address these potential impacts. With implementation of these requirements, impact on water quality, that would otherwise be potentially significant, can be reduced or avoided.
Flooding

Drainage System

The local and regional drainage facilities that serve the City were designed for adequate capacity and service during the development and construction of the planned communities. Drainage facilities for the vacant parcels within the city were addressed in these planned community documents.

Development pursuant to the General Plan in the Northeast Future Planned Community will need to include adequate storm drainage for the area while not impacting the existing system. The Land Use Element includes goals and policies regarding infrastructure in the Northeast Future Planned Community:

Goal 2: Control and direct future land use so that the community is protected and enhanced.

Policy 2.4: Ensure that new development funds its share of community services and facilities (e.g., parks, schools, trails, utilities) and provides fiscal benefit to the community.

Policy 2.7: Ensure that new development is compatible with the physical characteristics of the site, surrounding land uses, and available infrastructure.

With implementation of these policies and regulations, an otherwise potentially significant impact on the drainage system can be reduced or avoided.

Flood Hazards

The following goals and policies are included in the Land Use and Safety Elements to minimize the risk of flooding in the community:

Land Use Element

Goal 8: Collaborate with the Orange County Flood Control District (OCFCD) to provide a level of flood control protection that meets the needs of the community.

Policy 8.1: Cooperate with the OCFCD, Homeowners Associations, and community foundations to ensure an adequate level of drainage and flood control facilities and programs are provided and maintained within the community.

Safety Element

Goal 1: Reduce the risk to the community from hazards related to geologic conditions, seismic activity, wildfires, structural fires, and flooding.
3.10 Hydrology/Water Quality

Policy 1.1: Reduce the risk of impacts from geologic and seismic hazards by applying and enforcing development standards and building construction codes.

Policy 1.2: Protect the community from flooding hazards by providing and maintaining flood control facilities and limiting development within the floodplain.

Policy 1.5: Participate in local, regional, state, and federal programs that educate residents and businesses about how to protect themselves and their property from hazards.

As shown in Figure 19, Flood Hazards, no homes or structures are located within the 100-year and 500-year flood plains. These areas are shown as open space on the Land Use Policy Map (Please refer to Figure 3 in the Project Description). However, several aboveground water tanks and reservoir sites are located in and around the City that could pose a significant impact in the case of a seismic event if they are not properly reinforced.

Development pursuant to the General Plan in the Northeast Future Planned Community has the potential to be impacted by flooding, as the 100-year flood plain is adjacent to Trabuco Creek. Development in the Future Planned Community must also be evaluated to ensure that the drainage pattern of Trabuco Creek is not altered by proposed development. With implementation of these policies and requirements, impact caused by flooding, that would otherwise be potentially significant, can be reduced or avoided.

MITIGATION MEASURES

Water Quality

The City will implement Implementation Programs COS-10 and COS-11 to maintain water quality standards. Implementation Program COS-10 requires coordination with the Santa Margarita and Trabuco Canyon Water Districts regarding potable water quality programs. This coordination also includes regional, state and federal agencies responsible for water quality programs. Meeting the requirements of the San Diego Regional Water Quality Control Board Order No. R9-2002-0001, which implements the National Pollutant System Discharge Elimination System Permit, is included in Implementation Program COS-11. In addition, this program requires coordination with Homeowners Associations, and owners and operators of parks, recreational and open space areas to ensure proper water quality measures are in place.

Flooding

Drainage System

The City will implement Implementation Programs LU-7 and LU-10 to address adequate stormdrain facilities in the project area. Implementation Program LU-7 requires the
review of development proposals and amendments for consistency with Planned Community development plans and agreements. Future development in the Northeast Future Planned Community requires the preparation of an Urban Services Plan as outlined in Implementation Program LU-10. This Urban Services Plan will demonstrate how adequate public facilities and services are to be provided to the area without substantially degrading the level of service currently provided to City residents.

**Flood Hazards**

The City will implement Programs COS-1, COS-22, S-7 and S-8 to minimize flooding risks to the community. Implementation Program COS-1 requires the assessment of development proposals for potential impacts to significant natural resources pursuant to the California Environmental Quality Act (CEQA) and associated state and federal regulations. This includes any potential alterations to Trabuco Creek and flood risks in the Northeast Future Planned Community. Implementation Program COS-22 requires the adoption of an open space zoning ordinance to include special overlay requirements for hazard areas. This open space zoning could be applied to the 100-year flood plain near Trabuco Creek if deemed necessary. Implementation Program S-7 calls for the City to continue participation in the National Flood Insurance Program (NFIP) administered through the Federal Emergency Management Agency (FEMA). Coordination with the Orange County Flood Control District (OCFCD) to ensure regularly scheduled maintenance of flood control channels and completion of necessary repairs is one of the requirements in Program S-8. The program also calls for coordination with the OCFCD and the Santa Margarita and Trabuco Canyon Water Districts regarding any needed improvements to existing aboveground water tanks.

**LEVEL OF IMPACT AFTER MITIGATION**

**Water Quality**

Through the use of Implementation Programs COS-10 and COS-11, existing regulations for water quality standards will be implemented and potential significant impact will be reduced to a less-than-significant level.

**Flooding**

**Drainage System**

Implementation Programs LU-7 and LU-10 will ensure that adequate stormdrain facilities service the project area. Potential significant impact will be reduced to less-than-significant.
3.10 Hydrology/Water Quality

Flood Hazards

Through the use of Implementation Programs COS-1, COS-22, S-7 and S-8, potentially significant flooding risks to existing and future development will be reduced to a less-than-significant impact.