

14 HYDROLOGY AND WATER QUALITY

This chapter provides an evaluation of the potential effects on hydrology and water quality of implementing the proposed City of Folsom 2035 General Plan (2035 General Plan). As established in the Notice of Preparation for the proposed 2035 General Plan (see Appendix A, *Notice of Preparation*), urban development and other activities subject to the plan may result in adverse effects to the environment related to hydrology and water quality.

The following environmental assessment includes a review of rivers, streams, lakes, ponds, and groundwater resources within the City of Folsom that could be affected by the implementation of the 2035 General Plan. This analysis also includes a review of regulations, requirements, plans, and policies applicable to hydrology and water quality.

The existing condition of the water resources in the City of Folsom was determined by a review of technical reports, plans, databases, maps, and other sources of information, resource evaluations conducted within the City of Folsom, and other City of Folsom environmental documents. Potential impacts related to surface water and groundwater hydrology and water quality were determined by comparing the effects of potential 2035 General Plan activities with the existing environment, based on CEQA assessment criteria, and by considering the effects of policies, regulations, and standards adopted by the City of Folsom and by federal and State resource agencies.

14.1 SETTING

The environmental and regulatory settings for water resources within the City of Folsom are described below. The environmental setting describes the surface and groundwater resources within the city, and the regulatory setting describes the local, state, and federal policies and regulations associated with these resources.

14.1.1 ENVIRONMENTAL SETTING

This section describes existing environmental conditions related to hydrology and water quality within the 2035 General Plan study area. Information is provided for important rivers and streams in the study area, then lakes and ponds, surface water quality, and groundwater hydrology and water quality. This section finishes with a discussion of floodwater accommodation in the study area.





RIVERS AND STREAMS

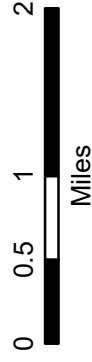
The primary waterway within the City of Folsom is the Lower American River (see Figure 14-1). The American River watershed covers approximately 2,100 square miles northeast of Sacramento, spanning a portion of three different counties: Sacramento, El Dorado, and Placer. The average annual runoff is approximately 2.7 million acre-feet. In the past, annual runoff has varied from 900,000 acre-feet to more than 5,000,000 acre-feet. The American River watershed, including all its tributaries, is divided into three major subbasins, the North Fork American River, the South Fork American River and the Lower Fork American River. The Lower Fork American River subbasin begins at Folsom Dam and extends 30 miles downstream to the mouth of the American River at its confluence with the Sacramento River. The Lower American Basin contains 380 miles of naturally occurring waterways. Precipitation in the Lower American River basin averages 20.83 inches per year (Army Corps of Engineers [ACOE] 2002). The Lower American River forms a portion of the western boundary of the City of Folsom.

Figure 14-1

City of Folsom

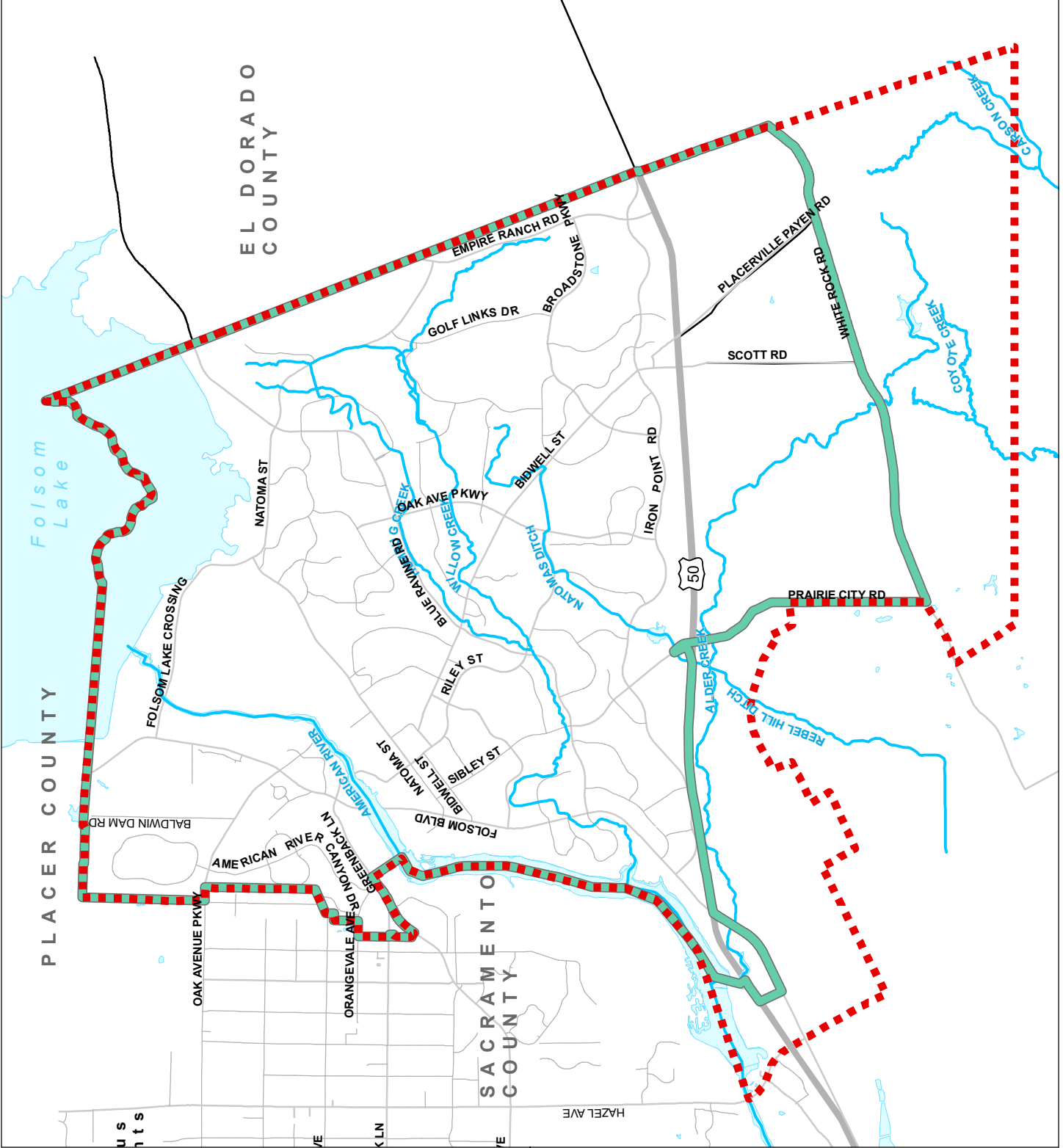
Surface Waters in the Folsom Area

-  2035 General Plan Planning Area
-  Folsom City Boundary
-  Streams and Rivers
-  Ponds and Lakes



Created by
Planning Partners 2018.

Additional Sources:
City of Folsom, 2017;
California Department of
Water Resources, 2012;
Federal Emergency
Management Agency, 2012.



North of Highway 50, storm drains collect and convey urbanized runoff into Willow Creek, Humbug Creek, Hinkle Creek, Gold Creek, and Alder Creek; all of which drain into the Lower American River (see Figure 14-1). Hinkle Creek and Gold Creek drain the northwestern portion of Folsom north of the American River, while Willow Creek and Humbug Creek drain the southeastern portion of the city. Alder Creek drains a small portion north of Highway 50, but drains most of the Folsom Plan Area Specific Plan (FPASP) area (area south of Highway 50).

Four creeks drain the FPASP area, Alder Creek, Carson Creek, Buffalo Creek, and Coyote Creek (see Figure 14-1). Alder Creek and Buffalo Creek are tributaries to the American River; Coyote Creek and Carson Creek are tributaries to the Cosumnes River. Draining a basin of approximately 11 square miles, the Alder Creek Watershed is the largest of the four watersheds in the FPASP area. Alder Creek and its tributaries generally flow east to west and eventually join the American River three miles west of Prairie City Road at Lake Natoma. The headwater tributaries of Alder Creek can generally be characterized as ephemeral and intermittent. Off-site tributary subwatersheds also contribute flow to Alder Creek, including areas where the recent Broadstone and Willow Springs developments are located north of U.S. 50. These tributaries are generally characterized as having perennial flows due to the developed nature of their respective subwatershed areas. As a result, flows in the Alder Creek mainstem within the FPASP area, transition from ephemeral to perennial with inputs from the tributaries originating in the developed areas north of U.S. 50. (City of Folsom 2011).

In 2010 the City completed the Alder Creek Watershed Management Action Plan, which presents a comprehensive assessment of watershed conditions and recommends actions to protect, preserve, enhance, and restore the health of the watershed.

LAKES AND PONDS

Folsom Lake

The City of Folsom city limits include a portion of Folsom Lake (see Figure 14-1). The lake, created by the construction of Folsom Dam in 1955, is operated by the U.S. Bureau of Reclamation (USBR) to meet a variety of uses, including: flood management, water supply, water quality, power generation, recreation, and fish and wildlife habitat. The lake has a storage capacity of 977,000 acre-feet, and serves as the principal water source for the City of Folsom, through a contract with USBR.

Lake Natoma

Lake Natoma, formed by Nimbus Dam, is an afterbay or regulating reservoir for Folsom Dam. This allows Folsom Dam to operate efficiently for power generation, while smoothing out flows downstream of the lake. Two 6,750 kilowatt generators produce power from Nimbus Dam water releases. Nimbus also serves as a diversion dam to direct water into Folsom South Canal. Lake Natoma provides recreational opportunities for many people, including Folsom residents.

Ponds

There are five ponds within the FPASP area and three ponds upstream (to the south of White Rock Road) that appear to hold water throughout the year. In addition, there are numerous small ponds and storage reservoirs scattered throughout the portion of the city north of Highway 50.

SURFACE WATER QUALITY

Under Section 303(d) of the Clean Water Act, the U.S. Environmental Protection Agency (EPA) maintains a list of water bodies impaired by pollution. In California, this list is maintained by the State Water Resources Control Board (SWRCB) (SWRCB 2017). The following is a list of the water bodies within the City of Folsom that are included on the Section 303(d) list, along with the pollutants for which they are listed:

- Lower American River (Nimbus Dam to Sacramento River) – mercury, polychlorinated biphenyls, unknown toxicity
- Folsom Lake – mercury
- Lake Natoma – mercury.

The identified sources of inorganic (elemental) mercury in the American River watershed include tunnels, hydraulic mine workings, dredge tailings, and ground sluices associated with historic mining operations. Elemental mercury may be converted to an organic form, methylmercury (a highly toxic form of the metal) by bacteria in wetlands, rivers, and reservoir sediments.

Comprehensive water quality data for water bodies within Folsom are limited. Monitoring of water quality in the American River at Nimbus Dam is performed as part of the Sacramento Stormwater Quality Partnership (SSQP) Joint Program in compliance with the Sacramento Municipal Separate Storm Sewer System National Pollutant Discharge Elimination System (NPDES) Stormwater Permit, and as described in the SSQP's Stormwater Quality Improvement Plan. Monitoring activities required by the permit included urban runoff (discharge) characterization, receiving water, urban tributary (creek), bioassessment, and additional pesticide monitoring including Diazinon and Chlorpyrifos.

Monitoring at the “American River at Nimbus Dam” station (below its confluence with Alder Creek) has shown at various times low levels of dissolved oxygen, and high levels of E. coli, fecal coliform, dissolved lead, and total aluminum

These data, together with fish samples previously collected from the lower American River by the SWRCB Toxic Substances Monitoring Program and the Sacramento River Watershed Program, were evaluated by the State of California Office of Environmental Health Hazard Assessment, in an effort to determine whether there may be potential adverse health effects associated with consuming sport fish from these water bodies. Results from the study showed that elevated concentrations of mercury were found in fish tissues samples at high enough levels to warrant the publishing of a health advisory and fish consumption guidelines for Lake Natoma (including nearby creeks and ponds) and the lower American River. (City of Folsom 2011)

The Central Valley Regional Water Quality Control Board (RWQCB) is preparing a plan to reduce levels of mercury (particularly methylmercury, a form of mercury that accumulates in food chains) in the American River Basin (including Folsom Lake, Lake Natoma, and the Lower American River). This plan, known as a Total Maximum Daily Load (TMDL), will identify the maximum amount of mercury that these water bodies are able to contain, while still allow the beneficial uses that these waters are put to, to continue.

The USBR undertook a water quality study in 2002, in response to concerns from the U.S. Geological Survey (USGS) regarding mercury contamination in Lake Natoma and its tributaries.

Although mercury was not detected in water quality samples, reconnaissance-level surveys of mercury contamination in edible fish tissue taken from several sites in Lake Natoma, including the vicinity of the mouth of Alder Creek, showed that concentrations of mercury found in fish tissue samples were high enough to warrant publishing a health advisory and safe fish consumption guidelines for Folsom Lake and Lake Natoma (Sacramento, El Dorado and Placer Counties) as well as the Lower American River (Sacramento County). The advisory and guidelines are still in effect today. (City of Folsom 2014)

In addition, water quality concerns have arisen regarding Alder Creek. Limited data collected at Alder Pond (a stillwater section of Alder Creek south of U.S. 50 near the Folsom Auto Mall) raised concerns regarding the following constituents:

- Nutrient loading (e.g., nitrogen and phosphorus), largely a result of landscape irrigation runoff (fertilizers) and car washing (detergents) in urbanized areas of the watershed;
- Metals (e.g., copper, lead, zinc) as a result of automobile use associated with US 50, other roadways, and parking lots; and
- Coliforms/pathogens as a result of pet and animal waste.

GROUNDWATER BASINS HYDROLOGY AND WATER QUALITY

The City of Folsom is not located in an area of important groundwater recharge. It is situated in an area dominated by bedrock formations of the Sierra Nevada foothill complex, where groundwater is found primarily in fractured geologic formations. Domestic water in the city is provided solely from surface water sources. (City of Folsom 2016)

Two groundwater subbasins of the Sacramento Valley Groundwater Basin underlie the City of Folsom, the North American Subbasin and the South American River Subbasin.

Sacramento Valley Groundwater Basin, North American Subbasin

The North American groundwater subbasin lies in the eastern central part of the Sacramento Valley groundwater basin. The northern boundary of the subbasin is the Bear River and the Yuba/Placer County Line. The eastern boundary is the edge of the alluvial basin, where little or no groundwater flows into or out of the groundwater basin from the rock of the Sierra Nevada. The southern boundary is the American River and the western boundary is the Sacramento and Feather Rivers. The portion of Folsom north of the American River is located above this subbasin. (Department of Water Resources [DWR] 2016)

Sacramento Valley Groundwater Basin, South American Subbasin

The South American subbasin of the Sacramento Valley Groundwater Basin is bounded on the east by the Sierra Nevada, on the west by the Sacramento River, on the north by the American River, and on the south by the Cosumnes and Mokelumne Rivers. These perennial rivers generally create a groundwater divide in the shallow subsurface, and the groundwater of adjacent subbasins interacts at greater depths. The Mehrten and Laguna Formations are the principal water-bearing rock strata (City of Folsom 2011). The portion of Folsom south of the American River is located over this subbasin.

FLOODING

Flood Risks

Most of the FPASP area has been designated as Zone X, areas that have been determined to be outside the 100- and 500-year floodplains; however, this area has not been studied by the Federal Emergency Management Agency (FEMA) for the purpose of drafting an effective Flood Insurance Study. The California DWR, under the Awareness Flood Mapping Program, has prepared area floodplain maps, and the area along Alder Creek flowing through the FPASP area has been designated by DWR as lying within a 100-year floodplain (see Figure 14-2). (DWR 2008)

In the portion of the city north of Highway 50, areas adjacent to the principle streams have been designated by FEMA as a 100-year floodplain (see Figure 14-2). These areas has not yet been surveyed in order to define a 200-year floodplain.

Inundation Due to Dam Failure

The Folsom Dam and Reservoir is located on the American River within the City of Folsom. The dam was completed in 1956 by the ACOE and is owned and operated by the USBR. The reservoir has a storage capacity of approximately 977,000 acre-feet and includes about 4.5 miles of man-made dike with a crest elevation of 480.5 feet above sea level. Folsom Lake Dam infrastructure includes Folsom Dam, Folsom Right Wing, Dikes 4-8, and the Mormon Island Auxiliary Dam.

A number of improvements have been made to Folsom Dam in recent years to improve its flood control function. These have included:

- Construction of the Folsom Dam Auxiliary Spillway to allow water to be released earlier and more safely from Folsom Lake during a high water event
- Raising the Mormon Island Auxiliary Dam, the right wing dam, and the dykes, to increase flood protection.

For planning purposes, the State Office of Emergency Services (OES), with information from the USBR and DWR, has the responsibility to provide local governments with critical hazard response information, including information related to potential flooding from levee failure or dam inundation. There are five dammed ponds within the FPASP area and three dammed ponds upstream (to the south of White Rock Road) that appear to hold water throughout the year. The FPASP area is not in an area protected by levees; however, Folsom Dam is located approximately 4.5 miles north and OES has mapped the dam inundation zones in Sacramento County for Folsom Dam. The map shows that a relatively large portion of Sacramento County and the City of Folsom, including the northwest portion of the FPASP area, would be inundated with water in the event of a dam or dike failure.

Figure 14-2

City of Folsom

Location of 100-Year Flood Plains in the Folsom Area

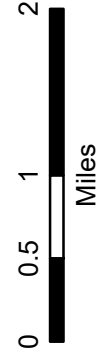
2035 General Plan Planning Area

Folsom City Boundary

100-Year Flood Plain

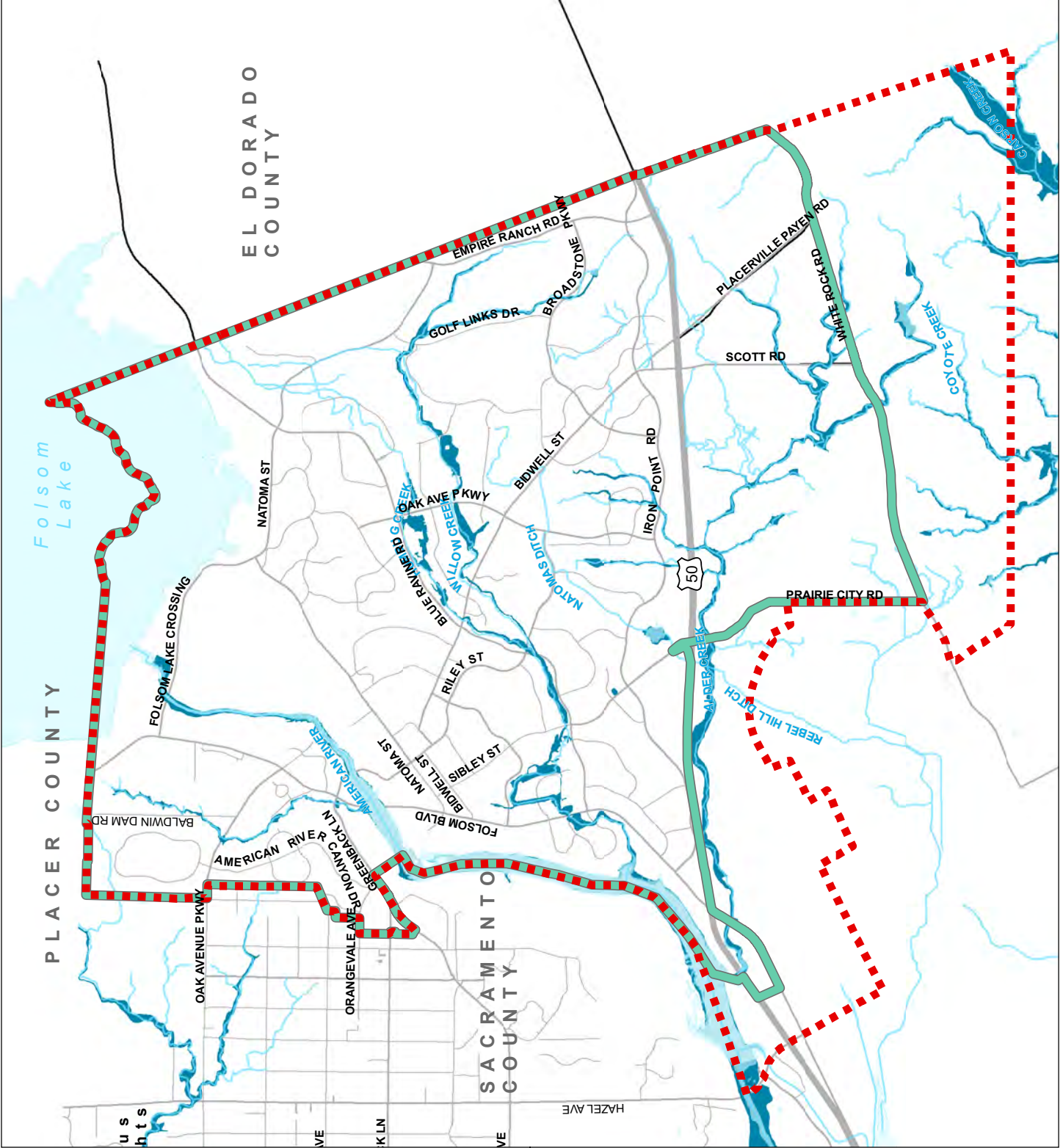
Ponds and Lakes

Streams and Rivers



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Additional Sources:
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California Department of Water Resources, 2012;
Federal Emergency Management Agency, 2012



14.1.2 REGULATORY SETTING

The following federal, state, and local regulations govern various aspects of water quality and flood management. These regulations are summarized below and discussed in detail in Appendix C.

FEDERAL LAWS AND REGULATIONS

- **Clean Water Act** - Administered by the EPA; implemented by the SWRCB and the nine RWQCBs in California; Section 303(d) requires states to develop and maintain lists of water bodies that don't attain water quality standards; Section 402 sets standards for pollutant discharges; Section 404 regulates the placement of dredge and fill materials in waters of the U.S., including wetlands.
- **National Flood Insurance Act** – Administered by FEMA; authorized FEMA to develop regulations and establish requirements for floodplain management; includes requirements for obtaining flood insurance.

CALIFORNIA LAWS AND REGULATIONS

- **Porter-Cologne Water Quality Control Act** - Overseen by the SWRCB and RWQCBs; requires development of regional water quality control plans; authorizes programs and plans that may be triggered by urban development; implemented in coordination with Clean Water Act programs (NPDES, storm water protection plans, TMDL).
- **Sustainable Groundwater Management Act** - Requires the formation of local Groundwater Sustainability Agencies for all groundwater basins in the state; requires development of Groundwater Sustainability Plans for all basins. Process locally controlled; SWRCB can intervene to manage basin and develop sustainability plan.
- **Senate Bill 5** - SB 5 required DWR and the Central Valley Flood Protection Board to prepare and adopt a Central Valley Flood Protection Plan that establishes 200-year protection as the minimum urban level of flood protection, and sets deadlines for cities and counties in the Central Valley to amend their general plans and their zoning ordinances to conform to the Plan within 24 months and 36 months (i.e., approximately 2014 and 2015), respectively, of its adoption.
- **Central Valley Flood Protection Plan** - The Central Valley Flood Protection Plan (CVFPP) is intended to be a sustainable, integrated flood management plan for the Central Valley. The CVFPP (DWR 2017) describes existing flood risks in the Central Valley and recommends actions to remove the risks of future flooding and lessen the consequences in the event that a flooding event occurs, and provide recommendations for improvements to the federal and state flood protection systems.
- **Assembly Bill 162 (AB 162)** AB 162 requires the Conservation Element of General Plans to identify rivers, creeks, streams, flood corridors, riparian habitat, and other land that may accommodate floodwater for purposes of groundwater recharge and stormwater management. The intent is to conserve areas used for groundwater recharge and stormwater management and to minimize urban development in these areas. Figure 14-1 shows the major rivers, creeks, streams, flood corridors, riparian habitat, and other land within the city that may accommodate floodwater for purposes of groundwater recharge and stormwater management.

- **California Water Code – Dam Safety Program** - Division 3 gives supervision responsibilities for dams above a certain size to the State of California through the DWR Division of Safety of Dams (DSOD). DSOD is responsible for administering Dam Safety Program; principal goal to avoid dam failure and prevent loss of life and destruction of property; within Folsom pertains to Folsom Dam and Nimbus Dam.

LOCAL LAWS AND REGULATIONS

Regional Regulations

- **Sacramento Area Flood Control Agency** – The Sacramento Area Flood Control Agency (SAFCA) leads flood control improvement projects to provide a minimum of 100-year level flood protection immediately with the intention of eventually achieving 200-year level protection. The Folsom Dam Joint Federal Project, which would improve dam safety and management of large flood events at the dam, and result in 200-year flood protection, is a SAFCA project (the improvements to Folsom Dam and some of the ancillary dams are within the City of Folsom).
- **Sacramento Stormwater Quality Partnership** – The City of Folsom is a co-permittee to the Sacramento Areawide NPDES Municipal Separate Storm Sewer System (MS4) Permit under Section 402 of the Clean Water Act. The permittees formed the Sacramento Stormwater Quality Partnership to coordinate and implement permit compliance activities. The city requires new development projects to integrate stormwater quality treatment controls into project designs to ensure that pollutants in site runoff are reduced to the maximum extent practicable.
- **Sacramento Groundwater Authority** – A joint powers authority (JPA) formed in 1998 to manage the groundwater basin in Sacramento County north of the American River; in January 2016 became the exclusive Groundwater Sustainability Agency in conformance with the Sustainable Groundwater Management Act of 2014 for its portion of the North American Subbasin. Folsom is a signatory to the JPA.
- **Sacramento Central Groundwater Authority** – A JPA with management authority over the South American Subbasin; Folsom is a signatory to the JPA.

City Regulations

The City of Folsom has adopted ordinances and standard conditions to protect water resources during the construction and operation of urban land uses. These requirements are found in the Folsom Municipal Code (FMC) and in the City’s Standard Construction Specifications, and are discussed below.

Stormwater Management and Discharge Control (FMC Chapter 8.70)

Establishes conditions and requirements for the discharge of urban pollutants and sediments to the storm-drainage system; requires preparation and implementation of Stormwater Pollution Prevention Plans (SWPPP).

Grading and Drainage (FMC Chapter 14.29)

Requires a grading permit prior to the initiation of any grading, excavation, fill or dredging; establishes standards, conditions, and requirements for grading, erosion control, stormwater drainage, and revegetation; requires post-project stormwater flows to not exceed pre-project flows.

Flood Damage Prevention (FMC Chapter 14.32)

Restricts or prohibits uses that cause water or erosion hazards, or that result in damaging increases in erosion or in flood heights; establishes the base level of protection as the 100-year flood; requires that uses vulnerable to floods be protected against flood damage; controls the modification of floodways; regulates activities that may increase flood damage or that could divert floodwaters.

City of Folsom Hillside Development Standards (FMC Chapter 14.33)

Illustrates key design principles and issues that City staff will use in evaluating applications for development of any site within hillside areas of the city. The standards address street design, grading, site design, parking, drainage, architecture, landscaping, visual impact, and preservation of natural features.

Folsom Standard Construction Specifications

- **General Provisions Section 6.01 J: Use of Pesticides** – Requires contractors to store, use, and apply a wide range of chemicals in a manner that is consistent with all local, state, and federal rules and regulations.
- **General Provisions Section 6.08: Water Pollution** - Requires compliance with City water pollution regulations, including National Pollution Discharge Elimination System (NPDES) provisions. Also requires the preparation of a Stormwater Pollution Prevention Plan (SWPPP) to control erosion and siltation of receiving waters.
- **Section 8.3: Reseeding** - Specifies seed mixes and methods for the reseeded of graded areas.
- **Section 9.1: Clearing and Grubbing** - Specifies construction specifications for drainage facilities, and requires the preparation of a Stormwater Pollution Prevention Plan (SWPPP) to control erosion and siltation of receiving waters.

Folsom Plan Area Specific Plan/Russell Ranch Adopted Mitigation Measures

Mitigation measures adopted by the City during its approval of the FPASP and the Russell Ranch projects related to water resources include:

Folsom Plan Area Specific Plan EIR/EIS

- 3A.9-1: Acquire Appropriate Regulatory Permits and Prepare and Implement SWPPP and BMPs.
- 3A.9-2: Prepare and Submit Final Drainage Plans and Implement Requirements Contained in Those Plans.
- 3A.9-3: Develop and Implement a BMP and Water Quality Maintenance Plan.
- 3A.9-4: Inspect and Evaluate Existing Dams Within and Upstream of the Project Site and Make Improvements if Necessary.

Russell Ranch EIR

- 3A.3-1a: Design Stormwater Drainage Plans and Erosion and Sediment Control Plans to Avoid and Minimize Erosion and Runoff to All Wetlands and Other Waters That Are to Remain on the SPA (*FPASP area*) and Use Low Impact Development Features.
- 3A.7-3: Prepare and Implement the Appropriate Grading and Erosion Control Plan.

- 3A.9-1: Acquire Appropriate Regulatory Permits and Prepare and Implement SWPPP and BMPs.
- 3A.9-2: Prepare and Submit Final Drainage Plans and Implement Requirements Contained in Those Plans.
- 3A.9-3: Develop and Implement a BMP and Water Quality Maintenance Plan.

14.1.3 PROPOSED GENERAL PLAN POLICIES

The following policies from the proposed 2035 General Plan address flood hazards and water quality, as well as guide the location, design, and quality of development to protect important wildlife, plants, and natural processes.

SAFETY AND NOISE ELEMENT

Policy SN 1.1.1: Emergency Operations Plan. Develop, maintain, and implement an Emergency Operations Plan that addresses life and safety protection, medical care, incident stabilization, property conservation, evacuation, escape routes, mutual aid agreements, temporary housing, and communications.

Policy SN 1.1.2: Community Emergency Response Team. Support the Community Emergency Response Team program to train and prepare residents to mobilize in the event of a disaster.

Policy SN 1.1.3: Cooperation. Coordinate with emergency response agencies, school districts, utilities, relevant nonprofits, and business interests to ensure a coordinated response to and recovery from a disaster.

Policy SN 1.1.4: Multi-Hazard Mitigation Plan. Maintain on-going hazard assessment as part of the Sacramento County Multi-Hazard Mitigation Plan within the city.

Policy SN 3.1.1: 100-Year Floodway. Regulate new development within the 100-year floodway to assure that the water flows upstream and downstream from the new development will not be altered from existing levels.

Policy SN 3.1.2: Development within the Inundation Boundary. Coordinate with the U.S. Army Corps of Engineers in developing standards for development within the inundation boundary resulting from a failure of Folsom Dam or the dikes retaining Folsom Lake.

Policy SN 3.1.3: Public Facilities. Require that new critical facilities (e.g., hospitals, emergency command centers, communication facilities, fire stations, police stations) are located outside of 100- and 200-year floodplains, or where such location is not feasible; design the facilities to mitigate potential flood risk to ensure functional operation during a flood event.

Policy SN 3.1.4: Flood Control Costs. Minimize new development in the 100-year floodway to reduce the long-term public costs of fixing and maintaining flood control improvements, as required by FEMA and state law.

SN 3.1.5: Agency Coordination. Coordinate with local, regional, State, and Federal agencies with responsibility for flood management to minimize flood hazards and improve safety.

PARKS AND RECREATION

Policy PR 4.1.5: Waterway Recreation and Access. Coordinate with Federal agencies, State agencies, Sacramento County Regional Parks, private landowners, and developers to manage, preserve, and enhance the American River Parkway, urban waterways, and riparian corridors to increase public access for active and passive recreation.

NATURAL AND CULTURAL RESOURCES ELEMENT

Policy NCR 1.1.1: Habitat Preservation. Support State and Federal policies for preservation and enhancement of riparian and wetland habitats by incorporating, as deemed appropriate, standards published by the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service into site-specific development proposals.

Policy NCR 1.1.2: Preserve Natural Resources. Require that a qualified biologist conduct a vegetative/wildlife field survey and analysis prior to consideration of development applications for projects located in sensitive habitat areas and potential habitats for sensitive wildlife and floral species.

Policy NCR 1.1.3 Wetland Preservation. Require developers to prepare a wetland mitigation and monitoring plan that describes the habitats present within the proposed project site and establishes a plan for the long-term monitoring and mitigation of sensitive habitats.

Policy NCR 4.1.2: Community Education. Consistent with requirements of stormwater quality permits, educate community members on the importance of water quality and the role streams and watersheds play in ensuring water quality.

Policy NCR 4.1.3: Protection. Ensure the protection of riparian corridors, buffer zones, wetlands, and undeveloped open space areas to help protect water quality.

Policy NCR 4.1.4: Creek Clean-Up. Sponsor a citywide volunteer creek clean-up day during “Creek Week.”

Policy NCR 4.1.5: New Development. Require new development to protect natural drainage systems through site design, runoff reduction measures, and on-site water treatment (e.g., bioswales).

Policy NCR 4.1.6: Low-Impact Development. Require new development to protect the quality of water resources and natural drainage systems through site design, source controls, runoff reduction measures, best management practices (BMP), and Low-Impact Development (LID).

14.2 ENVIRONMENTAL EFFECTS

14.2.1 SIGNIFICANCE CRITERIA

As set forth in Appendix G, Question IX of the State CEQA Guidelines, the following criteria have been established to quantify the level of significance of an adverse effect related to stormwater, flood hazards or on water quality evaluated pursuant to CEQA. An impact would exceed an impact threshold if it would:

- Violate any water quality standards or waste discharge requirements? *(IX.a)*
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? *(IX.b)*
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? *(IX.c)*
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? *(IX.d)*
- 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? *(IX.e)*
- Otherwise substantially degrade water quality? *(IX.f)*
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? *(IX.g)*
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows? *(IX.h)*
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? *(IX.i)*
- Inundation by seiche, tsunami, or mudflow? *(IX.j)*

14.2.2 ANALYSIS METHODOLOGY

The analysis of impacts of the 2035 General Plan related to hydrology and water quality were evaluated qualitatively, using available information. The analysis of hydrology impacts focused on whether the additional development associated with the 2035 General Plan would lead to increased flooding, or place structures within the floodplain. For the FPASP area, information on impacts was obtained from the FPASP EIR/EIS. For the area north of Highway 50, impacts were identified by conducting a GIS analysis to determine if any of the vacant parcels available to be developed fall within the mapped FEMA 100-year floodplain.

Information on the water quality impacts of development in the FPASP area was obtained from the FPASP EIR/EIS. The impacts of development north of Highway 50 were evaluated qualitatively, using information about the location of available parcels and the potential water quality impacts of development.

14.2.3 LESS-THAN-SIGNIFICANT IMPACTS

Based on the evaluations set forth below, potential impacts for the following specific topics with respect to stormwater, flood hazards, or water quality were found to be less than significant. Therefore, they will not be evaluated further in this chapter.

IX. HYDROLOGY AND WATER QUALITY		
Would the Project:	Less than Significant Impact	No Impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	X	
j) Inundation by seiche, tsunami, or mudflow?	X	

EVALUATION OF LESS-THAN-SIGNIFICANT IMPACTS

Question (b) Substantially Deplete Groundwater Supplies: Less-than-significant Impact.

The water supply for the City of Folsom, including all areas to be developed with urban uses pursuant to the 2035 General Plan, is almost entirely provided from surface water sources. There are only two permitted wells within the City of Folsom, and they provide water only for minor uses; substantial amounts of groundwater would not be used (see Chapter 16, *Public Services and Recreation*). The effects of the development envisioned in the 2035 General Plan would create some additional impermeable surface on land overlying the basin, but the amount of new impermeable surface would be very small in relation to the size of the basin. Thus, the effects of development envisioned under the 2035 General Plan would have only minor effects on groundwater levels, and this impact would be considered to be less than significant.

Question (e) Seiche, tsunami, mudflow: Less-than-significant Impact. The only potential for the City of Folsom to be affected by an earthquake-triggered seiche would be areas surrounding Folsom Lake. These lands would only have the potential to be inundated if a major earthquake struck the Folsom area while Folsom Lake was full or nearly full. The USGS/CGS Probabilistic Seismic Hazards Assessment Model, revised in 2008, places Folsom in the second lowest category for seismic shaking potential out of nine zones in California. Forecast levels of ground shaking in Folsom would equate to a maximum VI intensity earthquake on the Mercalli scale, with strong perceived shaking and light potential damage (USGS 2006). Thus, the likelihood that these circumstances would occur at the same time is remote.

The City of Folsom is located roughly 100 miles inland from the California Coast, and is therefore not subject to inundation by tsunami. The Folsom Hillside Development Standards provide detailed development guidance to ensure that development on hillsides does not result in mass wasting events such as mudflows. Therefore, this impact is considered less than significant.

14.2.4 POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

The following discussion examines the potential impacts of the proposed 2035 General Plan based on the impact threshold criteria described above.

Impact HWQ-1 Violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality	
Applicable Regulations	Clean Water Act Section 402 (Sacramento Stormwater Partnership), Porter-Cologne Water Quality Control Act, Folsom Municipal Code Chapters 8.70, 14.29, 14.33; Folsom Standard Construction Specifications Section 6.01J.
Adopted Mitigation Measures	FPASP Mitigation Measures: 3A.9-1, 3A.9-2, 3A.9-3; Russell Ranch Mitigation Measures: 3A.9-1, 3A.9-2, 3A.9-3.
Proposed GP Policies that Reduce Impacts	Policies NCR 1.1.1 - 1.1.3, NCR 4.1.2 - 4.1.5
Significance after Implementation of GP Policies	Less than significant; no mitigation required.

Implementation of the 2035 General Plan could adversely affect the water quality of surface water bodies within the city limits of the City of Folsom. The effects of the development envisioned by the 2035 General Plan related to violations of water quality or Waste Discharge Requirements would encompass the impacts of developing the Folsom Plan area, south of Highway 50, and the development of 441 acres encompassing 453 isolated parcels north of Highway 50.

Urban development and infrastructure identified in the 2035 General Plan has the potential to contribute pollutants to stormwater runoff both during construction and operation of urban land uses. This could result in violations of water quality standards or waste discharge requirements contained in City of Folsom permits by:

- Contributing pollutants to stormwater runoff during development of urban uses
- Contributing pollutants to stormwater runoff from developed urban land uses

The potential for development to degrade water quality through the accidental spill of hazardous materials during the transport or use of these materials is discussed in *Chapter 13: Hazards and Hazardous Materials*.

The FPASP EIR/EIS (Impact 3A.9-3) concluded that development of the FPASP area would alter the types, quantities, and timing of contaminant discharges in stormwater runoff. These changes would cause or contribute to long-term discharges of urban contaminants (e.g., oil and grease, fuel, trash) into the stormwater drainage system, and the ultimate discharge of polluted urban runoff to receiving waters would increase compared to existing conditions. The EIR/EIS noted that the storm drainage system for the FPASP area would be designed to direct runoff flows into (mainly) on-site detention basins which would be designed to incorporate water quality treatment. The stormwater quality treatment configurations would use treatment methodologies as described in the Stormwater Quality Design Manual (SSQP 2007b) and approved by the City.

The EIR/EIS analysis concluded that because final design plans and specifications had not been submitted to or approved by the City, implementation of the development could result in contaminants entering receiving waters, thus resulting in adverse effects from long-term urban runoff. It further concluded that because the development could result in impacts on water quality within on-site drainage channels and ultimately off-site drainage channels as a result of runoff from the FPASP area, the project-related water quality impacts would be potentially significant. It recommended adoption of Mitigation Measure 3A.9-3: Develop and Implement a BMP and Water Quality Maintenance Plan, and determined that with this mitigation measure, the impact would be reduced to less-than-significant.

The development of the parcels north of Highway 50 has the potential to result in the same impacts related to violation of water quality standards or waste discharge requirements. However, it should be noted that of the 453 parcels, 377 of these are lots within existing single-family subdivisions totaling 163. In addition, there are 76 parcels designated for commercial or multi-family uses. Therefore, for the most part, the water quality impacts of development will largely have been addressed in the permitting for those developments, and the impacts will largely already have taken place.

Table 14-1 includes existing federal, state, and City regulations, in addition to policies from the 2035 General Plan and mitigation measures for development of the FPASP area that protect surface water quality. The table also sets forth how each cited regulation acts to protect sensitive resources.

Table 14-1 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Violations of Water Quality Standards or Waste Discharge Requirements, or Otherwise Degrade Water Quality	
Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
FEDERAL REGULATIONS	
<i>Clean Water Act Section 402</i>	As a partner in the Sacramento Stormwater Quality Partnership, Folsom implements BMPs contained in the “Stormwater Quality Design Manual for the Sacramento and South Placer Regions” to meet the stormwater quality standards in the Partnership’s NPDES permit.
STATE REGULATIONS	
<i>Porter-Cologne Water Quality Control Act</i>	Protects the quality of surface waters through the issuance of Waste Discharge Requirements for urban development projects that require implementation of BMPs to ensure that runoff from sites meets standards set in Basin Plan.
CITY REQUIREMENTS	
<i>Folsom Municipal Code Chapter 8.70</i>	Requires preparation of SWPPP for all development projects. SWPPPs contain BMPs to minimize discharges of pollutants to surface waters.
<i>Folsom Municipal Code Chapter 14.29</i>	Requires development projects to obtain a grading permit, which establishes standards, conditions, and requirements to reduce erosion during grading, excavation, filling, or dredging activities.
<i>Folsom Municipal Code Chapter 14.33</i>	Establishes standards for development of sloped areas, to minimize erosion and contributions of sediment to stormwater runoff.
<i>Standard Construction Requirements</i>	Implements the requirements of the “Stormwater Quality Design Manual for the Sacramento and South Placer Regions” to reduce the contribution of pollutants in stormwater runoff from new development.
FOLSOM PLAN AREA SPECIFIC PLAN EIR/EIS	
<i>Mitigation Measure 3A9-1</i>	Protects surface water quality by requiring applicants to obtain regulatory approvals (Section 401 permit or Waste Discharge Requirements), which will contain BMPs to minimize the contribution of pollutants, and to prepare and implement SWPPPs which will also contain BMPs.
<i>Mitigation Measure 3A9-2</i>	Requires project applicants within the FPASP area to submit drainage plans to City for approval, prior to issuance of grading permits.

Table 14-1 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Violations of Water Quality Standards or Waste Discharge Requirements, or Otherwise Degrade Water Quality

Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
<i>Mitigation Measure 3A9-3</i>	Requires project applicants to prepare a detailed BMP and water quality maintenance plan that demonstrates that the development will meet or exceed City of Folsom water quality requirements.
RUSSELL RANCH EIR	
<i>Mitigation Measure 3A9-1</i>	Protects surface water quality by requiring applicants to obtain regulatory approvals (Section 401 permit or Waste Discharge Requirements), which will contain BMPs to minimize the contribution of pollutants, and to prepare and implement SWPPPs which will also contain BMPs.
<i>Mitigation Measure 3A9-2</i>	Requires project applicants within the Russell Ranch to submit drainage plans to City for approval, prior to issuance of grading permits.
<i>Mitigation Measure 3A9-3</i>	Requires project applicants to prepare a detailed BMP and water quality maintenance plan that demonstrates that the development will meet or exceed City of Folsom water quality requirements.
2035 GENERAL PLAN GOALS AND POLICIES	
<i>Policy NCR 1.1.1: Habitat Preservation</i>	Partially protects habitats, such as wetlands, which filter sediment and pollutants from runoff, by incorporating CDFW and USFWS standards into development proposals where deemed appropriate by the City.
<i>Policy NCR 1.1.2: Preserve Natural Resources</i>	Protects habitats such as wetlands, by requiring that surveys for such special-status species and their habitats be conducted by a qualified biologist prior to the City's consideration of development applications.
<i>Policy NCR 1.1.3: Wetland Preservation</i>	Protects wetlands by requiring developers to prepare a plan that establishes long-term monitoring and mitigation for impacts to sensitive habitats.
<i>Policy NCR 4.1.2: Community Education</i>	Contribute to the preservation of the quality of aquatic habitats such as streams and wetlands, by educating community members on the importance of water quality and the role of streams and watersheds in ensuring water quality.
<i>Policy NCR 4.1.3: Protection</i>	Protects riparian corridors, buffer zones, wetlands, and undeveloped open space areas, which protect the quality of water in aquatic systems.
<i>Policy NCR 4.1.4: Creek Clean-Up</i>	Contribute to the preservation of water quality in creek habitats by sponsoring an annual citywide creek clean-up day to remove pollutants such as trash from creeks.
<i>Policy NCR 4.1.5: New Development</i>	Protects aquatic and riparian habitats by requiring developers to protect natural drainage systems.

Source: Planning Partners 2018.

As set forth in Table 14-1, a number of federal and state laws offer protection for water quality, and would ensure that development would not lead to violations of water quality standards. Section 402 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, as implemented through participation in the Sacramento Stormwater Partnership, provide protections against the degradation of surface water quality. Compliance with these laws and ordinances both in the FPASP area and the area north of Highway 50 would reduce both construction-related water quality impacts and the ongoing impacts of new development, and would prevent violations of water quality standards or Waste Discharge Requirements.

The City of Folsom Stormwater Ordinance (FMC Chapter 8.70) and the City of Folsom Grading Ordinance (FMC Chapter 14.29) in Folsom Municipal Code, and the City of Folsom Standard Construction Specifications contain BMPs that protect against water quality violations.

A number of 2035 General Plan policies are directed towards minimizing the effects of new development on water quality. Policies NCR 1.1.1: Habitat Preservation, NCR 1.1.2: Preserve Natural Resources, NCR 1.1.3: Wetland Preservation, and 4.1.3: Protection would preserve riparian and wetland habitats on currently undeveloped lands, which function to filter runoff and preserve water quality in streams and rivers. Policy NCR 1.1.2 would require that these habitats be identified before any development may occur, while Policy NCR 1.1.1 would preserve these natural habitats by incorporating resource protection standards established by federal and state resource protection agencies into site-specific development proposals. Policy NCR 1.1.3 would require the preparation of a plan to monitor and mitigate for losses of sensitive habitats, such as wetlands. Policy NCR 4.1.3 would also protect riparian habitat, buffer zones, and wetland habitat. Policies NCR 4.1.2: Community Education and NCR 4.1.4: Creek Clean-Up would educate the community about the importance of protecting these habitats, and would engage them in protecting the quality of these habitats. Finally, Policies NCR 4.1.4: New Development and 4.1.6: Low-Impact Development would require that new development protect natural drainages, reduce run-off, and implement measures to protect water quality in runoff from these developments.

The FPASP EIR/EIS and the Russell Ranch EIR identified significant impacts to water quality caused by the implementation of the two projects. The documents identified a suite of mitigation measures, as shown in Table 14-1 and discussed above, to avoid or reduce impacts to water quality. The FPASP EIR/EIS and Russell Ranch EIR concluded that adoption of these mitigation measures would reduce the impact to less than significant.

With the protections provided by federal and state laws, local ordinances, proposed General Plan policies, and adopted mitigation measures as listed in Table 14-1, this impact would be considered to be less than significant.

Significance of Impact: Less than significant.

Mitigation Measures: None required.

Impact HWQ-2 Substantially alter drainage patterns leading to erosion or siltation	
Applicable Regulations	Clean Water Act Section 402 (Sacramento Stormwater Partnership); Porter-Cologne Water Quality Control Act; Folsom Municipal Code Chapters 8.70, 14.29, 14.33; Folsom Standard Construction Specifications Sections 6.01J, 6.08, 8.3, 9.1.
Adopted Mitigation Measures	FPASP Mitigation Measures: 3A.9-1, 3A.9-2, 3A.9-3; Russell Ranch Mitigation Measures: 3A.9-1, 3A.9-2, 3A.9-3.
Proposed GP Policies that Reduce Impacts	Policies NCR 1.1.1 - 1.1.3, NCR 4.1.2 - 4.1.6.
Significance after Implementation of GP Policies	Less than significant; no mitigation required.

Implementation of the 2035 General Plan could adversely affect water quality through increases in erosion and sedimentation within the 2035 Plan Evaluation Area. The effects of the development envisioned by the 2035 General Plan on water quality would encompass the impacts of developing the Folsom Plan Area, south of Highway 50, and the development of 441 acres encompassing 453 isolated parcels north of Highway 50.

Urban development and infrastructure identified in the 2035 General Plan has the potential to alter drainage patterns and contribute to erosion and siltation through a variety of mechanisms, including:

- Increasing the amount of impermeable surface, leading to higher runoff rates and increased erosion
- Disturbance of lands with soils subject to erosion
- Development of lands on steep slopes subject to high erosion.

The FPASP EIR/EIS evaluated both the short-term construction related impacts (Impact 3A.9-1) and long-term urban runoff impacts (Impact 3A.9-3) of development of the FPASP area. The EIR/EIS concluded that temporary, short-term construction activities associated with the development would disturb large areas of land and substantially alter on-site drainage patterns. It further concluded that these activities could result in impacts on water quality within on-site drainage channels and ultimately off-site drainage channels, and that the erosion and water quality impacts would be significant. However, with implementation of Mitigation Measure 3A.9-1, this impact would be reduced to less than significant.

Regarding the long-term effects of urban runoff, the FPASP EIR/EIS concluded that because final design plans and specifications had not been submitted to or approved by the City, implementation of the Proposed Project Alternative could result in contaminants entering receiving waters, thus resulting in adverse effects from long-term urban runoff. It further concluded that the development could result in impacts on water quality within on-site drainage channels and ultimately off-site drainage channels as a result of runoff from the FPASP area, and that these impacts would be potentially significant. However, with implementation of Mitigation Measure 3A.9-3, this impact would be reduced to less than significant.

The development of the 441 acres of isolated parcels north of Highway 50 has the potential to result in these same impacts. However, as described above under Impact HWQ-1, of the 453 parcels that are available for development, 377 of these are lots (totaling 163 acres) area within existing single-family subdivisions. In addition, there are 76 parcels designated for commercial or multi-family uses. An evaluation using Google Earth indicates that the overwhelming majority of these parcels are

portions of bigger subdivisions or larger developments, and have already been disturbed by prior rough grading and the installation of infrastructure. Thus, the potential for impacts in the north of Highway 50 area is much lower than in the FPASP area.

Table 14-2 sets forth existing federal, state, and City regulations, in addition to policies from the 2035 General Plan and mitigation measures for development of the FPASP area that protect the quality of surface waters. The table also sets forth how each cited regulation acts to protect these resources.

Table 14-2 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Alterations of Drainage Patterns Leading to Increased Erosion and Sedimentation	
Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
FEDERAL REGULATIONS	
<i>Clean Water Act Section 402</i>	As a partner in the Sacramento Stormwater Quality Partnership, Folsom must implement BMPs contained in the “Stormwater Quality Design Manual for the Sacramento and South Placer Regions” to meet the stormwater quality standards in the Partnership’s NPDES permit.
STATE REGULATIONS	
<i>Porter-Cologne Water Quality Control Act</i>	Protects the quality of surface waters through the issuance of Waste Discharge Requirements for urban development projects that requires implementation of BMPs to ensure that runoff from sites meets standards set in Basin Plan.
CITY REQUIREMENTS	
<i>Folsom Municipal Code Chapter 8.70</i>	Requires preparation of SWPPP for all development projects. SWPPPs contain BMPs to minimize discharges of pollutants to surface waters, including sediment.
<i>Folsom Municipal Code Chapter 14.29</i>	Requires development projects to obtain a grading permit, which establishes standards, conditions, and requirements to reduce erosion during grading, excavation, filling, or dredging activities.
<i>Folsom Municipal Code Chapter 14.33</i>	Establishes standards for development of sloped areas, to minimize erosion and contributions of sediment to stormwater runoff.
<i>Standard Construction Specifications</i>	Implements the requirements of the “Stormwater Quality Design Manual for the Sacramento and South Placer Regions” to reduce the contribution of pollutants (including sediment) in stormwater runoff from new development. Section 8.3: Reseeding reduces erosion by specifying methods for reseeding graded areas.
FOLSOM PLAN AREA SPECIFIC PLAN EIR/EIS	
<i>Mitigation Measure 3A9-1</i>	Reduces erosion and sedimentation by requiring applicants to obtain regulatory approvals (Section 401 permit or Waste Discharge Requirements), which will contain BMPs to minimize the contribution of pollutants, and to prepare and implement SWPPPs which will also contain BMPs.
<i>Mitigation Measure 3A9-2</i>	Requires project applicants within the FPASP area to submit drainage plans to City for approval, prior to issuance of grading permits, which will include bio-engineered stream stabilization measures to reduce erosion, and BMPs to reduce the erosive force of stormwater runoff.

Table 14-2 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Alterations of Drainage Patterns Leading to Increased Erosion and Sedimentation

Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
<i>Mitigation Measure 3A9-3</i>	Requires project applicants to prepare a detailed BMP and water quality maintenance plan that demonstrates that the development will meet or exceed City of Folsom water quality requirements, including onsite storage and treatment of stormwater runoff, which will reduce sediment concentrations in runoff.
RUSSELL RANCH EIR	
<i>Mitigation Measure 3A9-1</i>	Reduces erosion and sedimentation by requiring applicants to obtain regulatory approvals (Section 401 permit or Waste Discharge Requirements), which will contain BMPs to minimize the contribution of pollutants, and to prepare and implement SWPPPs which will also contain BMPs.
<i>Mitigation Measure 3A9-2</i>	Requires project applicants within the Russell Ranch to submit drainage plans to City for approval, prior to issuance of grading permits, which will include bio-engineered stream stabilization measures to reduce erosion, and BMPs to reduce the erosive force of stormwater runoff.
<i>Mitigation Measure 3A9-3</i>	Requires project applicants to prepare a detailed BMP and water quality maintenance plan that demonstrates that the development will meet or exceed City of Folsom water quality requirements, including onsite storage and treatment of stormwater runoff, which will reduce sediment concentrations in runoff.
2035 GENERAL PLAN GOALS AND POLICIES	
<i>Policy NCR 1.1.1: Habitat Preservation</i>	Partially protects habitats, such as wetlands, which filter sediment and pollutants from runoff, by incorporating CDFW and USFWS standards into development proposals where deemed appropriate by the City.
<i>Policy NCR 1.1.2: Preserve Natural Resources</i>	Protects habitats such as wetlands, by requiring that surveys for such special-status species and their habitats be conducted by a qualified biologist prior to the City's consideration of development applications.
<i>Policy NCR 1.1.3: Wetland Preservation</i>	Protects wetlands by requiring developers to prepare a plan that establishes long-term monitoring and mitigation for impacts to sensitive habitats.
<i>Policy NCR 4.1.2: Community Education</i>	Contribute to the preservation of the quality of aquatic habitats such as streams and wetlands, by educating community members on the importance of water quality and the role of streams and watersheds in ensuring water quality.
<i>Policy NCR 4.1.3: Protection</i>	Protects riparian corridors, buffer zones, wetlands, and undeveloped open space areas, which protect the quality of water in aquatic systems.
<i>Policy NCR 4.1.5: New Development</i>	Protects aquatic and riparian habitats by requiring developers to protect natural drainage systems.
<i>Policy NCR 4.1.6: Low-Impact Development</i>	Requires new development to incorporate features to protect water quality, through site design, source controls, runoff reduction measures, BMPs, and Low-Impact-Development features.

Source: Planning Partners 2018.

As shown in Table 14-2, a number of federal and state laws, especially Section 402 of the Clean Water Act and the Porter-Cologne Water Quality Control Act require the protection of surface water quality. These regulations would apply to both the FPASP area and the area north of Highway 50.

The City of Folsom provides protection for surface water quality through its Municipal Code and existing Standard Construction Specifications as shown in Table 14-2. Three City ordinances implement aspects of the City's Stormwater NPDES permit: the City Stormwater Management and Discharge Control Ordinance (FMC Chapter 8.70); the City of Folsom Grading Ordinance (FMC Chapter 14.29); and the Hillside Development Standards Ordinance (FMC Chapter 14.33). Also, several sections of the Folsom Standard Construction Specifications detail construction methods required to protect water quality and minimize erosion.

In approving the FPASP and the Russell Ranch projects south of Highway 50, the City adopted a series of mitigation measures (shown in Table 14-2) to avoid or reduce effects to surface water quality. The adopted mitigation measures require the preparation and implementation of SWPPPs, preparation and implementation of a drainage plan, and development of a Water Quality Maintenance Plan, all of which are intended to reduce erosion and sedimentation.

Proposed 2035 General Plan policies (see Table 14-2) also are intended to reduce erosion and siltation. Specifically, NCR 1.1.1: Habitat Preservation, NCR 1.1.2: Preserve Natural Resources, NCR 1.1.3: Wetland Preservation, and NCR 4.1.3: Protection, would preserve natural habitats such as wetland and riparian areas that filter runoff and reduce siltation of waterways. In addition, NCR 4.1.5: New Development and NCR 4.1.6: Low-Impact Development would require new urban uses to implement BMPs that reduce runoff and erosion.

The FPASP EIR/EIS (Impacts 3A.9-1, 3A.9-2, and 3A.9-3) and the Russell Ranch EIR concluded that with implementation of mitigation measures, the impact of development of the project areas would result in less than significant impacts related to erosion and sedimentation. This conclusion was based on the fact that a mitigation and monitoring plan ensuring implementation of all necessary and appropriate BMPs would minimize the potential for development envisioned by the 2035 General Plan to result in erosion and sedimentation.

For both the FPASP area, and isolated parcels north of Highway 50, with the protections provided by federal and state laws, local ordinances, standard construction specifications, proposed General Plan policies, and mitigation adopted as part of the FPASP EIR/EIS and the Russell Ranch EIR, as listed in Table 14-2, this impact would be less than significant.

Significance of Impact: Less than significant.

Mitigation Measures: None required.

Impact HWQ-3 Alter the course of a stream or river increasing runoff resulting in flooding	
Applicable Regulations	National Flood Insurance Act, Senate Bill 5, Central Valley Flood Protection Plan, Folsom Municipal Code Chapters 8.70, 14.32.
Adopted Mitigation Measures	FPASP Mitigation Measure: 3A.9-2; Russell Ranch Mitigation Measure: 3A.9-2.
Proposed GP Policies that Reduce Impacts	Policies SN 3.1.1, SN 3.1.5.
Significance after Implementation of GP Policies	Significant.
Mitigation Measures	HWQ-3a: Modify Policy SN 3.1.1 HWQ-3b: Modify Policy SN 3.1.4 HWQ-3c: Modify FMC Chapter 14.32.
Significance after Mitigation	Less than significant.

Implementation of the 2035 General Plan could adversely affect flooding within the city limits of the City of Folsom. The effects of the development envisioned by the 2035 General Plan on flooding would encompass the impacts of developing the Folsom Plan Area, south of Highway 50, and the development of 441 acres encompassing 453 isolated parcels north of Highway 50.

Urban development and infrastructure set forth in the 2035 General Plan has the potential to contribute to increases in flooding by:

- Increasing the amount of impervious surfaces, thus increasing the proportion of rainfall becoming runoff
- Altering a stream channel so as to decrease its conveyance capacity;

The FPASP EIR/EIS (Impact 3A.9-2) found that development of the FPASP area would involve development on approximately 2,218 acres of land, most of which has not been previously developed. The various types of proposed land uses would each contribute different relative amounts of stormwater runoff corresponding to the percentage of impervious surface associated with each land use category, ranging from 2 percent (wetlands/open space) to 95 percent (major roads, parking, and stormwater detention). The FPASP EIR/EIS further found that his increase in impervious surface would increase the peak discharge rate of stormwater runoff generated within the FPASP area and from areas upstream.

The FPASP EIR/EIS noted that a Draft Storm Drainage Master Plan that detailed the proposed drainage system for the FPASP had been prepared, and which had been designed to satisfy the design criteria of the SSQP, FEMA National Flood Insurance Program requirements, and the 2002-2008 NPDES requirements. It also noted that the proposed project included facilities that would maintain stormwater flows originating within the FPASP area during and after buildout, at a level equal to or less than predevelopment flows.

The FPASP EIR/EIS described the hydrologic modeling that had been completed for the analysis, and determined that the Draft Stormwater Drainage Master Plan could appropriately convey upstream off-site runoff and would appropriately detain project-related on-site runoff in a manner that effectively meets current stormwater management criteria to acceptable levels. However, it noted that hydromodification was not addressed in the Storm Drainage Master Plan and final designs and specifications had not been submitted or approved by the City. The EIR/EIS concluded that without the necessary information to demonstrate that all stormwater criteria and

standards, including hydromodification management, are being met, it cannot be assumed that potentially significant impacts would not occur, and found that the project could result in potentially significant, direct and indirect impacts related to stormwater runoff and the subsequent risk of flooding and/or hydromodification. It further concluded that with adoption of Mitigation Measure 3A.9-2, the impact could be reduced to less than significant.

The development of the parcels north of Highway 50 has the potential to result in the same impacts related to flooding. However, it should be noted that of the 453 parcels, 377 of these are lots within existing single-family subdivisions totaling 163. In addition, there are 76 parcels designated for commercial or multi-family uses. Therefore, for the most part, the flooding and drainage impacts of this development would already have been addressed through compliance with the City’s Grading and Drainage Ordinance (FMC Chapter 14.29).

Table 14-3 lists existing federal, state, and City regulations, in addition to policies from the 2035 General Plan and mitigation measures for development of the FPASP area that protect against flooding, as well as how each cited regulation acts to provide that protection.

Table 14-3 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Altering the Course of a Stream or River, Resulting in Flooding	
Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
FEDERAL REGULATIONS	
<i>National Flood Insurance Act</i>	FEMA creates map of the 100-year floodplain and requires that all property owners within the floodplain obtain flood insurance. Discourages development in the 100-year floodplain.
STATE REGULATIONS	
<i>SB 5</i>	Establishes the 200-year protection as the minimum level of urban flood protection, discouraging development within the 200-year floodplain.
<i>Central Valley Flood Protection Plan</i>	Describes flood risks and recommends actions to reduce flood risk within the Central valley, including auxiliary spillway at and raising of Folsom Dam.
CITY REQUIREMENTS	
<i>Folsom Municipal Code Chapter 14.29</i>	Requires developers to obtain a grading permit prior to initiating soil-disturbing actions; permit includes requirements related to stormwater management; requires post-project stormwater flows to not exceed pre-project flows.
<i>Folsom Municipal Code Chapter 14.32</i>	Prohibits approval of uses that result in increases in flood heights or velocities; regulates activities that could unnaturally divert floodwaters.
FOLSOM PLAN AREA SPECIFIC PLAN EIR/EIS	
<i>Mitigation Measure 3A9-2</i>	Requires project applicants within the FPASP area to submit drainage plans to City for approval, prior to issuance of grading permits. Plans must demonstrate that stormwater flows do not increase following project implementation.
RUSSELL RANCH EIR	
<i>Mitigation Measure 3A9-2</i>	Requires project applicants within Russell Ranch to submit drainage plans to City for approval, prior to issuance of grading permits. Plans must demonstrate that stormwater flows do not increase following project implementation.

Table 14-3 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Altering the Course of a Stream or River, Resulting in Flooding

Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
2035 GENERAL PLAN GOALS AND POLICIES	
<i>Policy SN 3.1.1: 100-Year Floodway</i>	Regulates new development within the 100-year floodplain to ensure that new development will not alter flows upstream and downstream of the development.
<i>Policy SN 3.1.4: Flood Control Costs</i>	Seeks to minimize new development within the 100-year floodway.
<i>Policy SN 3.1.5: Agency Coordination</i>	Requires the City to coordinate with other agencies to minimize flood hazards.

Source: Planning Partners 2018.

As shown in Table 14-3, a number of federal and state laws serve to protect against flooding, or to reduce the damage created by flooding, should it occur. The National Flood Insurance Act and SB 5 discourage development within floodplains. The Central Valley Flood Protection Plan includes actions that reduce the likelihood of flooding.

The City of Folsom Municipal Code contains two regulations that ensure that proper drainage is provided by new urban development, and that the volume of stormwater does not increase compared to pre-development levels, as shown in Table 14-3.

In approving the FPASP and Russell Ranch projects south of Highway 50, the City adopted mitigation measures (shown in Table 14-3) to reduce adverse effects related to flooding.

Three 2035 General Plan policies, shown in Table 14-3, would also minimize the effects of new development on flooding. Policies SN 3.1.1: 100-Year Floodway, SN 3.1.4: Flood Control Costs, and SN 3.1.5: Agency Coordination would act to reduce flood risks by siting new development outside of flood hazard areas.

The FPASP EIR/EIS and Russell Ranch EIR concluded that with the recommended mitigation measures, the impact of development within the FPASP area and Russell Ranch on flooding would be less than significant. Protections provided by the laws, regulations, local ordinances, and proposed General Plan policies listed in Table 14-3, would reduce flooding impacts on new development north of Highway 50. However, because Policies SN 3.1.1 and SN 3.1.4 reference the 100-year floodplain as a standard, the 2035 General Plan would not comply with the requirements of SB 5, which establishes the 200-year floodplain as the standard for urban areas within the boundaries of the Central Valley Flood Protection Plan, including the City of Folsom both north of Highway 50 and in the FPASP area. This inconsistency could expose future urban development to flood risks deemed unacceptable by the State. Therefore, this impact would be considered to be significant.

Significance of Impact: Significant.

Mitigation Measure HWQ-3a:

Modify **Policy SN 3.1.1: 100-Year Floodway.**

SN 3.1.1: ~~100-Year~~ 200-Year Floodway.

Regulate new development or construction within the ~~100-year~~ 200-year floodway to assure that the water flows upstream and downstream from the new development or construction will not be altered from existing levels.

Mitigation Measure HWQ-3b:

Modify **Policy SN 3.1.4: Flood Control Costs.**

Minimize new development in the ~~100-year~~ 200-year floodway to reduce the long-term public costs of building and maintaining flood control improvements, as required by FEMA and state law.

Mitigation Measure HWQ-3c:

Modify City of Folsom Municipal Code Chapter 14.32 so as to be in compliance with the provisions of SB 5 that require urban areas to provide a 200-year level of flood protection.

Environmental Effects of Measures: Implementation of Mitigation Measures HWQ-3a through HWQ-3c would result in revised policies and a revision to the City of Folsom Municipal Code that would regulate development within the 200-year floodplain. Implementation of the Measure could result in limiting the development of some parcels, and may result in additional requirements for future urban and infrastructure development projects. From the standpoint of reducing flood damage, this would be a beneficial effect. Implementation of the measure would not result in an expansion of the area within the 2035 Plan Evaluation Area devoted to urbanized land uses, and would not act to increase the intensity of existing or planned land uses. No environmental effects would occur beyond those identified in this PEIR.

Level of Significance After Mitigation: Less than significant.

The modification of proposed Policies 3.1.1: 100-Year Floodway, SN 3.1.4: Flood Control Costs, and Folsom Municipal Code Chapter 14.32 would bring Folsom policy into compliance with state law requiring 200-year flood protection, and would therefore reduce the impact to less than significant.

Impact HWQ-4 Contribute runoff that exceeds stormwater drainage capacity or contributes additional polluted runoff	
Applicable Regulations	Folsom Municipal Code Chapters 8.70, 14.29, 14.33.
Adopted Mitigation Measures	FPASP Mitigation Measure 3A.9-2; Russell Ranch Mitigation Measure 3A.9-2.
Proposed GP Policies that Reduce Impacts	Policies SN 3.1.1, SN 3.1.4 - 3.1.5.
Significance after Implementation of GP Policies	Significant.
Mitigation Measures	HWQ-4: Implement Mitigation Measure HWQ-3a, HWQ-3b, and HWQ 3c.
Significance after Mitigation	Less than significant.

Implementation of the 2035 General Plan could contribute runoff that exceeds stormwater drainage capacity or contributes additional polluted runoff within the city limits of the City of Folsom. The effects of the development envisioned by the 2035 General Plan on drainage capacity and water quality would encompass the impacts of developing the Folsom Plan Area, south of Highway 50, and the development of 441 acres encompassing 453 isolated parcels north of Highway 50.

The potential for the future development to contribute sources of pollution is addressed under Impact HWQ-1 above. Therefore, this section focuses on impacts related to stormwater drainage.

Urban development and infrastructure as detailed in the 2035 General Plan has the potential to exceed stormwater drainage capacity through a variety of mechanisms, including:

- Increasing the amount of impervious surface, leading to increased runoff volumes
- Under-designing the capacity of site drainage facilities

The FPASP EIR/EIS identified the potential for development of the FPASP area to lead to an increased risk of flooding and hydromodification by increasing the amount of impervious surface, leading to increases in both the total volume of runoff and the peak runoff volume. The FPASP concluded that this impact (Impact 3A.9-2) would be a significant impact, but that with adoption of Mitigation Measure 3A.9-2, this impact would be reduced to less than significant. Mitigation Measure 3A.9-2 requires that developers provide the City with final drainage plans that include calculations of pre- and post-project runoff volumes, runoff calculations for 10-year and 100-year storm events, that contain Low Impact Development methods for reducing runoff, that demonstrate that 100-year flood flows would be appropriately channeled and contained, and that hydromodification would not increase compared to pre-project conditions.

The development of parcels north of Highway 50 has the potential to result in increased runoff exceeding drainage capacity as well. However, of the 453 parcels that could be developed north of Highway 50, 377 are lots within existing single-family subdivisions totaling 163 acres where preliminary development of streets, infrastructure, and rough grading of lots has already occurred. The 76 parcels designated for commercial or multi-family uses were evaluated for ground cover and disturbance using Google Earth (Google Earth 2017). This review indicates that the overwhelming majority of the 76 parcels are portions of bigger subdivisions where infrastructure will already have been approved by the City and installed. Thus, the potential for development north of Highway 50 to contribute to stormwater runoff in excess of drainage capacity is substantially lower than in the south of Highway 50 area.

Table 14-4 includes existing federal, state, and City regulations, in addition to policies from the 2035 General Plan and mitigation measures for development of the FPASP area that would minimize the potential for runoff to exceed drainage capacity. The table also sets forth how each cited regulation acts to protect sensitive resources.

Table 14-4 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Contributing Runoff that Exceeds Stormwater Drainage Capacity or Contributes Additional Polluted Runoff	
Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
FEDERAL REGULATIONS	
<i>None</i>	
STATE REGULATIONS	
<i>None</i>	
CITY REQUIREMENTS	
<i>Folsom Municipal Code Chapter 8.70</i>	Requires preparation of SWPPP for all development projects. SWPPPs contain BMPs to minimize discharges of pollutants to surface waters.
<i>Folsom Municipal Code Chapter 14.29</i>	Requires developers to obtain a grading permit prior to initiating soil-disturbing actions; permit includes requirements related to stormwater management; requires post-project stormwater flows to not exceed pre-project flows.
<i>Folsom Municipal Code Chapter 14.33</i>	Provides detailed standards for developments on hillsides that include requirements for handling drainage.
FOLSOM PLAN AREA SPECIFIC PLAN EIR/EIS	
<i>Mitigation Measure 3A9-2</i>	Requires project applicants within the FPASP area to submit drainage plans to City for approval, prior to issuance of grading permits. Plans must demonstrate that stormwater flows do not increase following project implementation.
RUSSELL RANCH EIR	
<i>Mitigation Measure 3A9-2</i>	Requires project applicants within the Russell Ranch to submit drainage plans to City for approval, prior to issuance of grading permits. Plans must demonstrate that stormwater flows do not increase following project implementation.
2035 GENERAL PLAN GOALS AND POLICIES	
<i>Policy SN 3.1.1: 100-Year Floodway</i>	Regulates new development within the 100-year floodplain to ensure that new development will not alter flows upstream and downstream of the development.
<i>Policy SN 3.1.5: Agency Coordination</i>	Encourages City to coordinate flood management activities with federal, state, and regional agencies to minimize flood hazards.

Planning Partners, 2018.

As set forth in Table 14-4, no federal or state laws offer protection from exceeding stormwater drainage capacity.

The City of Folsom provides protection through its Municipal Code against stormwater discharges from new development exceeding stormwater drainage capacity as shown in Table 14-4. Three City ordinances define the requirements for design of stormwater drainage systems, the City Stormwater Management and Discharge Control Ordinance (FMC Chapter 8.70); the City of Folsom Grading Ordinance (FMC Chapter 14.29); and the Hillside Development Standards (FMC Chapter 14.33).

FMC Chapter 14.29 specifically requires that post-development stormwater flows from a site not exceed pre-project flows.

In approving the FPASP and Russell Ranch project south of Highway 50, the City adopted mitigation measures (shown in Table 14-4) to ensure that development does not result in increases in stormwater runoff, and that drainage systems are built with sufficient capacity to handle projected runoff volumes.

Proposed 2035 General Plan Policy 3.1.1 requires that new development within the 100-year floodplain be designed so that stormwater flows both upstream and downstream of the development do not increase compared to pre-project conditions.

The FPASP EIR/EIS identified a significant impact related to the exceedance of stormwater drainage capacity, and identified mitigation measures as shown in Table 14-2 and discussed above to avoid this impact. The FPASP EIR/EIS (Impact 3A.9-2) concluded that with the implementation of the mitigation measure described above, the impact would be less than significant.

The protections provided by local ordinances, and proposed General Plan policies listed in Table 14-4 would act to reduce the potential that the capacities of stormwater drainage facilities would not be exceeded. Additionally, the FPASP EIR/EIS concluded that Impact 3A.9-2 would be reduced to less than significant with the implementation of Mitigation Measure 3A.9-2. However, because Policies SN 3.1.1 and SN 4.1.4, and FMC Chapter 14.32 reference the 100-year floodplain as a standard, the 2035 General Plan and Folsom Municipal Code would not comply with the requirements of SB 5, which establishes the 200-year floodplain as the standard for urban areas within the boundaries of the Central Valley Flood Protection Plan, including the City of Folsom both north of Highway 50 and in the FPASP area. This inconsistency could expose future urban development within the 2035 Plan Evaluation Area to flood risks deemed unacceptable by the State. Therefore, this impact would be considered to be significant.

Significance of Impact: Significant.

Mitigation Measure HWQ-4:

Implement Mitigation Measures HWQ-3a, HWQ-3b, and HWQ-3c.

Environmental Effects of Measures: Implementation of Mitigation Measures HWQ-3a, HWQ-3b, and HWQ 3c would result in a revised policy that would regulate development and construction within the 200-year floodplain. Implementation of the Measure could result in limiting the development of some parcels, and may result in additional requirements for future urban and infrastructure development projects. From the standpoint of reducing flood damage, this would be a beneficial effect. Implementation of the measure would not result in an expansion of the area within the 2035 Plan Evaluation Area devoted to urbanized land uses, and would not act to increase the intensity of existing or planned land uses. No environmental effects would occur beyond those identified in this Draft PEIR.

Level of Significance After Mitigation: Less than significant.

The modification of proposed Policies 3.1.1: 100-Year Floodway, SN 3.1.4: Flood Control Costs, and FMC Chapter 14.32 would bring Folsom policy into compliance with state law requiring 200-year flood protection, and would therefore reduce the impact to less than significant.

Impact HWQ-5 Place housing or other structures within 100-year flood hazard area	
Applicable Regulations	National Flood Insurance Act, Senate Bill 5, Central Valley Flood Protection Plan, Folsom Municipal Code Chapters 14.29, 14.32.
Adopted Mitigation Measures	FPASP Mitigation Measures: 3A.9-2; Russell Ranch Mitigation Measure 3A.9-2.
Proposed GP Policies that Reduce Impacts	Policies SN 3.1.1, SN 3.1.4, NCR 1.1.1 - 1.1.2, NCR 4.1.3, NCR 4.1.6.
Significance after Implementation of GP Policies	Significant.
Mitigation Measures	HWQ-5: Implement Mitigation Measures HWQ-3a HWQ-3b, and HWQ 3c.
Significance after Mitigation	Less than significant.

Implementation of the 2035 General Plan would adversely affect safety by placing housing or other structures within the 100-year floodplain within the city limits of the City of Folsom. The effects of the development envisioned by the 2035 General Plan related to the placement of housing or other structures within the 100-year floodplain would encompass the impacts of developing the Folsom Plan Area, south of Highway 50, and the development of 441 acres encompassing 453 isolated parcels north of Highway 50.

Urban development and infrastructure set forth in the 2035 General Plan has the potential to result in the placement of housing in the 100-year floodplain through the following mechanisms:

- Approval of new housing within the 100-year floodplain
- Approval of other new structures within the 100-year floodplain
- Approval of new development that increases stormwater runoff, resulting in existing housing or other structures being within the floodplain

The effects of the development envisioned in the 2035 General Plan, particularly in the FPASP area would have the potential to place housing and other structures within the 100-year flood hazard area.

Because the FPASP EIR/EIS was prepared subsequent to the passage of SB 5, it evaluates the potential for the FPASP to result in the placement of structures within the 200-year floodplain, rather than the 100-year floodplain (Impact 3A.9-5). The 200-year floodplain in the FPASP area was mapped, and notes that SB 5 prohibits local governments from approving entitlements or permits, including permits for the construction of new residences and other structures, unless 200-year flood protection is provided, pursuant to the Central Valley Flood Protection Plan. For this reason, all development in the FPASP area was planned to avoid placing structures within it. Therefore, it concluded that this impact was less than significant.

The 200-year floodplain has not yet been mapped for the area north of Highway 50. Of the 453 undeveloped parcels north of Highway 50, 377 are lots within existing single-family subdivisions where preliminary development of streets, infrastructure, and rough grading of lots has already occurred. The 76 parcels designated for commercial or multi-family uses were evaluated for ground cover and disturbance using Google Earth (Google Earth 2017). This review indicates that the overwhelming majority of the 76 parcels are portions of bigger subdivisions or larger development projects and that most of the parcels have already been disturbed by prior rough grading and the installation of infrastructure. Because the 200-year floodplain in the north of Highway 50 area has not yet been delineated, and because they were approved under the City of Folsom’s existing Municipal Code provisions, the development of these parcels have the potential to be within the 200-year floodplain.

Table 14-5 includes existing federal, state, and City regulations, in addition to policies from the 2035 General Plan and mitigation measures for development of the FPASP area that govern development within the floodplain. The table also sets forth how each cited regulation acts to prevent development within the floodplain.

Table 14-5 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Placement of Housing or Other Structures within the 100-Year Flood Hazard Area	
Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
FEDERAL REGULATIONS	
<i>National Flood Insurance Act</i>	FEMA creates map of the 100-year floodplain and requires that all property owners within the floodplain obtain flood insurance. Discourages development in the 100-year floodplain.
STATE REGULATIONS	
<i>SB 5</i>	Establishes the 200-year protection as the minimum level of urban flood protection, discouraging development within the 200-year floodplain.
<i>Central Valley Flood Protection Plan</i>	Describes flood risks and recommends actions to reduce flood risk within the Central valley, including auxiliary spillway at and raising of Folsom Dam.
CITY REQUIREMENTS	
<i>Folsom Municipal Code Chapter 14.32</i>	Prohibits approval of uses that result in increases in flood heights or velocities; regulates activities that could unnaturally divert floodwaters; establishes the base level of protection as the 100-year flood.
FOLSOM PLAN AREA SPECIFIC PLAN EIR/EIS	
<i>Mitigation Measure 3A9-2</i>	Requires project applicants within the FPASP to submit drainage plans to City for approval, prior to issuance of grading permits. Plans must demonstrate that stormwater flows do not increase following project implementation.
RUSSELL RANCH EIR	
<i>Mitigation Measure 3A9-2</i>	Requires project applicants within the Russell Ranch to submit drainage plans to City for approval, prior to issuance of grading permits. Plans must demonstrate that stormwater flows do not increase following project implementation.
2035 GENERAL PLAN GOALS AND POLICIES	
<i>Policy SN 3.1.1: 100-Year Floodway</i>	Regulates new development within the 100-year floodplain to ensure that new development will not alter flows upstream and downstream of the development.
<i>Policy SN 3.1.4: Flood Control Costs</i>	Minimizes new development in the 100-year floodway to reduce the long-term public costs of building and maintaining flood control improvements.
<i>Policy NCR 1.1.1: Habitat Preservation</i>	Reduces the likelihood of development within the 100-year floodplain by preserving habitats that typically occur in floodplains.
<i>NCR 1.1.2: Preserve Natural Resources</i>	Reduces the likelihood of development within the 100-year floodplain by preserving habitats that typically occur in floodplains.
<i>NCR 4.1.3: Protection</i>	Reduces the likelihood of development within the 100-year floodplain by preserving habitats that typically occur in floodplains.
<i>NCR 4.1.6: New Development</i>	Reduces the likelihood of development.

Source: Planning Partners 2018.

As shown in Table 14-5, a number of federal and state laws serve to prevent development within the 100-year floodplain or to reduce the damage created by flooding, should it occur. The National Flood Insurance Act authorized FEMA to map the 100-year floodplain and to establish requirements for floodplain management. However, California Senate Bill 5 (SB 5) establishes 200-year flood protection as the minimum level of urban flood protection, and prohibits local governments from approving entitlements or permits, including permits resulting in the construction of a new residence, in a flood hazard zone unless 200-year flood protection is provided pursuant to implementation of the Central Valley Flood Protection Plan.

The City of Folsom Municipal Code contains provisions that discourage development within the 100-year floodplain, as shown in Table 14-5. Policies NCR 1.1.1: Habitat Preservation, NCR 1.1.2: Preserve Natural Resources, NCR 4.1.3: Protection, and NCR 4.1.6: New Development would protect features such as natural drainages and discourage development in floodplains.

In approving the FPASP and Russell Ranch projects, the City adopted mitigation measures (shown in Table 14-5) to avoid or reduce development within the floodplain. The FPASP EIR/EIS and Russell Ranch EIR concluded that with the recommended mitigation measures (Mitigation Measure 3A.9-2), the impact of development of the FPASP area and Russell Ranch associated with an increased risk of flooding would be less than significant. For the area north of Highway 50, protections provided by existing laws, regulations, local ordinances, and proposed General Plan policies listed in Table 14-5, would provide some protection. However, the vast majority of lots in the north of Highway 50 are part of development projects that have already been permitted by the City under their existing standard of only 100-year flood protection. Also, because Policies SN 3.1.1 and SN 3.1.4 use the 100-year floodplain as a standard, they are inconsistent with the requirements of SB 5, which establishes the 200-year floodplain as the standard for urban areas within the boundaries of the Central Valley Flood Protection Plan, including the entire City of Folsom. Therefore, this impact would be considered to be significant.

Significance of Impact: Significant.

Mitigation Measure HWQ-5:

Implement Mitigation Measures HWQ-3a, HWQ-3b, and HWQ-3c.

Environmental Effects of Measures: Implementation of Mitigation Measures HWQ-3a, HWQ-3b, and HWQ 3c would result in a revised policy that would regulate development and construction within the 200-year floodplain. Implementation of the Measure could result in limiting the development of some parcels, and may result in additional requirements for future urban and infrastructure development projects. From the standpoint of reducing flood damage, this would be a beneficial effect. Implementation of the measure would not result in an expansion of the area within the 2035 Plan Evaluation Area devoted to urbanized land uses, and would not act to increase the intensity of existing or planned land uses. No environmental effects would occur beyond those identified in this Draft PEIR.

Level of Significance After Mitigation: Less than significant.

The modification of proposed Policies 3.1.1: 100-Year Floodway, SN 3.1.4: Flood Control Costs, and Folsom Municipal Code Chapter 14.32 would bring Folsom policy into compliance with state law requiring 200-year flood protection, and will therefore reduce the impact to less than significant.

Impact HWQ-6 Expose people or structures to significant risk due to flooding	
Applicable Regulations	National Flood Insurance Act, Senate Bill 5, Central Valley Flood Protection Plan, FMC Chapter 14.32.
Adopted Mitigation Measures	None available.
Proposed GP Policies that Reduce Impacts	Policies SN 1.1.1 - 1.1.4, SN 3.1.1 - 3.1.5
Significance after Implementation of GP Policies	Less than significant.

The effects of the development envisioned in the 2035 General Plan would have the potential to expose people or structures to a significant risk of loss, injury, or death due to flooding, including flooding resulting from the failure of a levee or dam. This would include flooding in the FPASP area and north of Highway 50.

The effects of new development related to a variety of flood risks are discussed under previous impact statements. Impacts related to:

- Flooding due to the alteration of the course of a stream or river are discussed under *Impact HWQ-3*
- New development leading to runoff levels that exceed stormwater drainage capacity are discussed under *Impact HWQ-4*
- The placement of housing within a 100-year floodplain is discussed under *Impact HWQ-5*.

This section therefore focuses on the flooding risk associated with the failure of dams and levees.

There are no levees protecting the City of Folsom. However, Folsom is subject to flooding associated with the failure of Folsom Dam or one of the saddle or auxiliary dams that also hold water in the lake. In addition, there are a number of small dams that impound water in the FPASP area, which could impact proposed development in that area.

Dam failures can result from a number of natural or man-made causes such as earthquakes, erosion of the face or foundation, improper siding, rapidly rising flood waters, structural/design flaws, and deliberate human actions (Sacramento County 2016). The catastrophic failure of a dam can result in numerous adverse impacts on a community, including:

- Loss of life
- Damage to property
- Creation of secondary hazards such as release of hazardous materials or exposure of high-voltage electric lines
- Loss of electrical generation and other life support systems

The impacts of potential flooding in the FPASP area resulting from failure of Folsom Dam was not evaluated in the FPASP EIR/EIS. The inundation zone shown in the 2016 Sacramento Countywide Local Hazard Mitigation Plan Update inundation map shows that the northwest portion of the FPASP area is subject to inundation. Much of that area is reserved as open space associated with Alder Creek, but some areas planned for urban development would also be affected.

The FPASP EIR/EIS evaluated the impacts of failure of the five dammed ponds within the FPASP area and three dammed ponds upstream of this area that appear to hold water throughout the year, and therefore pose some flooding threat due to dam failure. The EIR/EIS noted that height of most of the dams and the volume of water they store is unknown, and it is therefore also unknown whether any of these dams are within the jurisdiction of DSOD, and no evaluation of these dams has not been conducted to determine stability, potential for risk of failure, or estimated area of downstream inundation in the event of failure. Because of these uncertainties, the FPASP EIR/EIS concluded that development in the FPASP area could result in people or structures downstream of these features to be exposed to a significant risk of flooding if the dams were to fail. The EIR/EIS identified Mitigation Measure 3A.9-4, which requires the inspection of all of dams within the FPASP area and upstream of it, the evaluation of the potential inundation area for all existing dams, and the implementation of all feasible recommendations from these studies. The EIR/EIS concluded that, with the adoption of Mitigation Measure 3A.9-4, this impact would be reduced to a less-than-significant level.

The principal risk related to inundation due to dam failures within the 2035 Plan Evaluation Area, including the FPASP area, and the area north of Highway 50, would be the failure of Folsom Dam, the Mormon Island Auxiliary Dam, or one of the wing dams or dykes, particularly as a result of a seismic event. The Local Hazard Mitigation Plan (Sacramento County 2016) contains the results of a simulation of the failure of one or more of the Folsom Dam system (Folsom Dam, one of the five dikes, the wing dam, or the Mormon Island Auxiliary Dam). This simulation estimated that such a failure would result in the inundation of more than 15,000 parcels within the city and place roughly 40,000 residents at risk. In addition, 91 critical facilities (e.g. emergency services, hospitals, schools, care facilities, critical infrastructure) would be within the inundation zone. Monetary losses were estimated at between 2.8 and 9.2 billion dollars.

As noted in the Local Hazard Mitigation Plan, the likelihood of dam failure is considered unlikely. As defined by the Local Hazard Mitigation Plan, “unlikely” is an event with a “less than 1 percent chance of occurrence in the next 100 years, or (*with*) a recurrence interval of greater than every 100 years. (Sacramento County 2016)

Additionally, most of the FPASP area would be outside of the inundation zone, as would the southeast portion of the city north of Highway 50. As indicated on Draft PEIR Figure 5-1, these two areas would be the locations of the majority of new urban development identified by the 2035 General Plan.

Table 14-6 lists existing federal and state laws, City regulations, policies from the 2035 General Plan, and mitigation measures included in the FPASP EIR/EIS that could reduce the impacts of dam failures. This table also sets forth how each cited law or regulation acts to reduce these impacts.

Table 14-6 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Exposure of People or Structures to Significant Risk Due to Flooding

Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
FEDERAL REGULATIONS	
<i>National Flood Insurance Act</i>	Discourages development in the 100-year floodplain, which could reduce the number of structures exposed to floods due to dam failure. Requires flood insurance for structures within the 100-year floodplain, which could mitigate the cost impact of a dam failure.
STATE REGULATIONS	
<i>SB 5</i>	Discourages development within the 200-year floodplain, which could reduce the number of structures exposed to floods due to dam failure.
<i>Central Valley Flood Protection Plan</i>	Supports actions to reduce flood risk within the Central valley, including auxiliary spillway at and raising of Folsom Dam.
<i>California Water Code – Dam Safety Program</i>	DWR Division of Safety of Dams provides oversight for the construction and maintenance of dams above a certain size, including Folsom Dam. Requires periodic maintenance, inspections, and reporting.
CITY REQUIREMENTS	
<i>Folsom Municipal Code Chapter 14.32</i>	Requires uses vulnerable to floods to be protected against flood damage, which could reduce the impact of inundation due to dam failure.
FOLSOM PLAN AREA SPECIFIC PLAN EIR/EIS	
<i>Mitigation Measure 3A.9-4</i>	Reduces risks associated with failure of small dams located within FPASP by requiring inspection of these dams and implementing improvements recommended by inspectors.
RUSSELL RANCH EIR	
<i>None</i>	
2035 GENERAL PLAN GOALS AND POLICIES	
<i>Policy SN 1.1.1: Emergency Operations Plan</i>	Reduces impacts resulting from dam failure by developing and implementing an Emergency Operations Plan to define City's emergency response.
<i>Policy SN 1.1.2: Community Emergency Response Team</i>	Reduces impacts resulting from dam failure by training citizens to mobilize and provide assistance during an emergency.
<i>Policy SN 1.1.3: Cooperation</i>	Reduces impacts resulting from dam failure by coordinating response with other institutions in the City.
<i>Policy SN 1.1.4: Multi-Hazard Mitigation Plan</i>	Reduces impacts resulting from dam failure by defining and implementing measures to prepare for and respond to emergencies.
<i>Policy SN 3.1.1: 100-Year Floodway</i>	Regulates new development within the 100-year floodplain which may reduce the number of structures impacted by inundation from dam failure.
<i>Policy SN 3.1.2: Development within the Inundation Boundary</i>	Reduces impacts resulting from dam failure by developing standards, in coordination with USACE to develop standards for development within the inundation boundary.
<i>Policy SN 3.1.3: Public Facilities</i>	Reduces impacts resulting from dam failure by requiring the location of critical emergency response facilities outside of the 200-year floodplain, which may also be outside of the dam failure inundation boundary.

Table 14-6 Regulatory Requirements and Proposed 2035 General Plan Goals/Policies Related to Exposure of People or Structures to Significant Risk Due to Flooding

Measure Identification	How the Regulation or Policy Avoids or Reduces Impact
<i>Policy SN 3.1.4: Flood Control Costs</i>	Reduces impact resulting from dam failure by minimizing new development within the 100-year floodplain which may reduce the number of structures impacted by inundation from dam failure.
<i>Policy SN 3.1.5: Agency Coordination</i>	Coordination of flood management activities with federal, state, and regional agencies could reduce the loss of life and property associated with a dam failure by providing early warning of a disaster, and coordinating rescue and relief efforts.

Source: *Planning Partners 2017.*

As set forth in Table 14-6, a number of federal and state regulations may reduce, but not eliminate the impact of dam failures. The National Flood Insurance Act incidentally may lead to fewer urban uses being sited within the inundation area of a failure of Folsom Dam. The Act also requires that urban uses within the 100-year floodplain obtain flood insurance, reducing the potential monetary losses associated with a dam failure. SB 5 also could act to discourage new development within the 200-year floodplain thereby reducing the population at risk. The Central Valley Flood Protection Program has supported improvements to the Folsom Dam system that have reduced the likelihood of failure. The Dam Safety Program element of the California Water Code reduces the risk of failure of Folsom Dam or other smaller dams in the FPASP area by requiring inspections and maintenance of dams. These regulations would apply to both the FPASP area and the area north of Highway 50.

The City of Folsom provides certain limited protection against the impacts of dam failure through its Municipal Code, as shown in Table 14-6.

The FPASP EIR/EIS does not contain any mitigation measures that would protect against or mitigation the impacts of a failure of Folsom Dam. However, it does contain a mitigation measure addressing the impacts of failure of the small dams located within and adjacent to the FPASP area that store water year-round.

While the potential impacts of the failure of Folsom Dam would be catastrophic, such an event would be unlikely. Additionally, implementation of the 2035 General Plan would not substantially increase the number of structures and people exposed to inundation due to the failure of Folsom Dam since much of the new development identified in the General Plan would be constructed outside of the inundation zone. For these reasons, this impact would be considered to be less than significant.

Significance of Impact: Less than significant.

Mitigation Measures: None required.