4.5 WATER RESOURCES AND WATER QUALITY

This section presents the existing conditions for surface water and groundwater resources in the planning area, summarizes the regulatory framework, and analyzes the impacts on surface water and groundwater resources associated with adoption and implementation of the Draft General Plan and GGRP. Impacts related to water supply and water treatment are discussed in Section 4.10, "Utilities."

4.5.1 REGULATORY SETTING

FEDERAL

U.S. Bureau of Reclamation

The U.S. Bureau of Reclamation (USBR) is responsible for development and conservation of most water resources in the western United States. The original purpose of the Bureau has changed from the reclamation of arid and semiarid lands in the west, to current agency functions ranging from providing water supplies through the Central Valley Project (CVP); generating hydroelectric power; providing irrigation water for agriculture; improving water quality, flood control, and river navigation; providing river regulation and control and fish and wildlife enhancement; offering water-based recreation opportunities; and conducting research on a variety of water-related topics. The City uses USBR water through a contract with the San Juan Water District. The USBR also owns and operates the Folsom Lake Dam and infrastructure (Folsom Right Wing, Dikes 4-8, and Mormon Island). Folsom Lake is a water source for the City and the City is located in the inundation zone in the event of dam infrastructure (Dike 5) failure (see Section 4.9 "Public Services").

U.S. Geological Survey

The U.S. Geological Survey (USGS) National Water Use Information Program is responsible for compiling and disseminating the nation's water-use data. USGS works in cooperation with federal, state, and local environmental agencies to collect water-use information at the local level. USGS gauging stations collect streamflow and water quality data, and well monitoring stations collect groundwater yield and groundwater quality data in the Arcade Creek drainage basin encompassing part of the City.

Federal Clean Water Act of 1972

The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into waters of the United States and setting water quality standards for all contaminants in surface waters. Water quality standards are designed to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. Thus, water quality standards must contain:

- Designation of beneficial uses of water, and
- Establishment of water quality criteria to protect those designated uses.

EPA's Office of Water is responsible for implementing the Clean Water Act and Safe Drinking Water Act (described below). The Office provides guidance, specifies scientific methods and data collection requirements, performs oversight, and facilitates communication among the federal, State, and local agencies that manage water quality. EPA has delegated the State of California as the authority to implement and oversee most of the programs authorized or adopted for CWA compliance through the Porter-Cologne Water Quality Control Act of 1969. The Porter-Cologne Act is described in the State regulatory setting below.

National Pollutant Discharge Elimination System

In 1972, the CWA was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. In California, the State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards (RWQCBs) are authorized to implement this program. NPDES permits cover industrial and municipal discharges, discharges from storm sewer systems in larger cities, storm water associated with numerous kinds of industrial activity, runoff from construction sites disturbing more than one acre of soil, mining operations, and animal feedlots and agricultural facilities above certain thresholds.

Stormwater discharges from both large and small construction sites are now subject to NPDES requirements. Large construction sites are those that involve one or more acres of soil disturbance. The SWRCB has issued an NPDES General Permit for Discharges of Storm Water Associated with Construction Activity (General Construction Permit) under the Clean Water Act. The permit requires the preparation of a Storm Water Pollution Prevention Plan (SWPPP) for proposed construction activities of greater than one acre in size. A SWPPP is an operational plan that identifies and describes the Best Management Practices (BMPs) to be implemented at the construction site to control pollution of stormwater runoff. Since 2008, small construction sites (those involving disturbance of less than one acre of soil) have also required an NPDES permit as part of Phase II of EPA's NPDES Storm Water Program. Phase II is intended to further reduce adverse effects on water quality and aquatic habitat by instituting the use of BMPs on previously unregulated sources of stormwater discharges that have the greatest likelihood of causing continued environmental degradation (EPA 2000).

The Phase II requirements also impose new obligations on municipal separate stormwater systems (MS4s). Small MS4s (i.e., those located in an incorporated city or a county of less than 100,000 people) that are located within urbanized areas as defined by the U.S. Census must now be covered by a NPDES permit. Details of the NPDES permit system as it pertains to the General Plan Update are discussed in the State and local regulatory settings below.

Safe Drinking Water Act of 1974

The Safe Drinking Water Act was originally passed by Congress in 1974 to protect public health by regulating the quality of public drinking water. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources, which are rivers, lakes, reservoirs, springs, and groundwater wells. The Safe Drinking Water Act authorizes EPA to set national health-based standards for drinking water to protect against pollutants. EPA, states, and local agencies then work together to make sure that these standards are met (EPA 1999).

EPA has delegated to the California Department of Public Health (CDPH) the responsibility for administering California's drinking-water program. CDPH is accountable to EPA for program implementation and for adopting standards and regulations that are at least as stringent as those developed by EPA. The applicable state primary and secondary maximum contaminant levels (MCLs) are set forth in Title 22, Division 4, Chapter 15, Article 4 of the California Code of Regulations (CCR), discussed in State Regulations below.

Section 303(d) of the Clean Water Act

Section 303(d) of the CWA requires states to develop lists of water bodies (or segments of water bodies) that will not attain water quality standards after implementation of minimum required levels of treatment by point source dischargers (e.g., municipalities and industries). Section 303(d) requires states to develop a total maximum daily load (TMDL) for each of the listed pollutants and water bodies. A TMDL is the amount of loading that the water body can receive and still meet water quality standards. The TMDL must include an allocation of allowable loadings to point and nonpoint sources, with consideration of background loadings and a margin of safety. NPDES permit limitations for listed pollutants must be consistent with the load allocation prescribed in the TMDL. The TMDL must also include an analysis that shows links between loading reductions and the attainment

of water quality objectives. The EPA must either approve a TMDL prepared by the state or, if it disapproves the state's TMDL, issue its own. NPDES permit limits for listed pollutants must be consistent with the waste load allocation (WLA) prescribed in the TMDL. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated.

On October 25, 2006, the SWRCB approved California's 2006 Section 303(d) List of Water Quality Limited Segments. The 303(d) waterbodies in the planning area are discussed in "Water Quality" below.

Section 404 of the Clean Water Act

Section 404 of the Clean Water Act establishes a requirement to obtain a permit before conducting any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. This permit is issued by the USACE and may be required for development activities in or near watercourses or associated riparian areas in the City. Wetland protection elements administered by the USACE under Section 404 of the CWA, including permits to dredge or fill wetlands, are discussed in Section 4.6, "Biological Resources."

Section 401 Water Quality Certification

Section 401 of the Clean Water Act states that any person applying for a federal permit or license that may result in the discharge of pollutants into waters of the United States must obtain a state certification that the activity complies with all applicable water quality standards, limitations, and restrictions. This certification is administered in California by the SWRCB, via the RWQCBs. No license or permit may be granted by a federal agency until certification required by Section 401 has been granted. Further, no license or permit may be issued if certification has been denied. Section 401 water quality certifications are typically required in order to obtain a Clean Water Act Section 404 permit from USACE.

National Toxics Rule and California Toxics Rule

In 1992, EPA promulgated the National Toxics Rule under the Clean Water Act to establish numeric criteria for priority toxic pollutants for California. The National Toxics Rule established water quality standards for 42 pollutants not covered under California's statewide water quality regulations at that time. As a result of the court-ordered revocation of California's statewide Basin Plans in September 1994, EPA initiated efforts to promulgate additional federal water quality standards for California. In May 2000, EPA issued the California Toxics Rule, which includes all the priority pollutants for which EPA has issued numeric criteria not included in the National Toxics Rule. These criteria apply to discharges to surface waters in the planning area.

Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations that limit development in floodplains. FEMA also issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection covered by the FIRMs is established by FEMA, with the minimum level of flood protection for new development determined to be the 1-in-100 annual exceedance probability (AEP) (i.e., the 100-year flood event). As developments are proposed and constructed FEMA is also responsible for issuing revisions to FIRMs, such as Conditional Letters of Map Revision (CLOMR) and Letters of Map Revision (LOMR) through the local agencies that work with the NFIP.

Executive Order 11988

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding a project in a floodplain to do the following:

- avoid incompatible floodplain development,
- be consistent with the standards and criteria of the National Flood Insurance Program (NFIP), and
- restore and preserve natural and beneficial floodplain values.

STATE

California Department of Water Resources

The California Department of Water Resources (DWR) is responsible for preparation of the California Water Plan, management of the State Water Project (SWP)[1], protection and restoration of the Sacramento–San Joaquin River Delta (Delta), regulation of dams, provision of flood protection, and other functions related to surface water and groundwater resources. These other functions include helping water agencies prepare their Urban Water Management Plans (UWMPs) and reviewing such plans to ensure that they comply with the related Urban Water Management Planning Act.

TITLE 22 STANDARDS

California's drinking water quality standards are contained in Title 22 of the California Code of Regulations (CCR). Water quality standards are enforceable limits composed of two parts: the designated beneficial uses of water and criteria (i.e., numeric or narrative limits) to protect those beneficial uses. Municipal and domestic supply (MUN) is among the "beneficial uses" defined in Section 13050(f) of the Porter-Cologne Act as uses of surface water and groundwater that must be protected against water quality degradation. Maximum contaminant levels (MCLs) are components of the drinking water standards adopted by the California Department of Public Health (CDPH) pursuant to the California Safe Drinking Water Act (Title 22 of the CCR, Division 4, Chapter 15, Domestic Water Quality and Monitoring). Primary water quality objectives were established for protection of health. Secondary water quality objectives were established for aesthetic concerns (e.g., taste and odor, staining of laundry and porcelain fixtures), and at elevated levels do not pose a health hazard.

Drinking water MCLs directly apply to water supply systems "at the tap" (i.e., at the point of use by consumers in, for example, their home and office), and are enforceable by the State and water providers serving Citrus Heights. California MCLs, both primary and secondary, directly apply to groundwater and surface water resources when they are specifically referenced as water quality objectives in the pertinent basin plan. In such cases, MCLs become enforceable limits by the SWRCB and RWQCBs. When fully health protective, MCLs may also be used to interpret narrative water quality objectives prohibiting toxicity to humans in water designated as a source of drinking water (MUN) in the basin plan.

Porter Cologne Water Quality Control Act of 1969

The Porter Cologne Water Quality Control Act, otherwise known as the California Water Code, is California's statutory authority for the protection of water quality. Under the Porter Cologne Act, the state must adopt water quality policies, plans, and objectives that protect the state's waters for the use and enjoyment of the people. The Porter Cologne Act sets forth the obligations of the SWRCB and RWQCBs pertaining to the adoption of Basin Plans and establishment of water quality objectives. It also authorizes the SWRCB and RWQCBs to issue and enforce permits containing waste discharge requirements. Basin Plans establish beneficial uses, water quality objectives, and implementation programs for each of the nine regions in California. Unlike the federal Clean Water Act, which regulates only surface water, the Porter Cologne Act regulates both surface water and groundwater.

[1] The State Water Project is a series of dams, dykes, levees, reservoirs, aqueducts, power plants, pumping stations, habitat restoration projects, and other improvements beginning in the late 1950s designed to provide water to over 23 million Californians and 755,000 acres of irrigated farmland.

State Water Resources Control Board

In 1967, the State Water Resources Control Board (SWRCB) was created to administer state water rights and water quality functions. The SWRCB and its nine RWQCBs administer water rights and enforce pollution control standards throughout the state. The SWRCB is responsible for granting of water right permits and licenses through an appropriation process following public hearings and appropriate environmental review by applicants and responsible agencies. In granting water right permits and licenses, the SWRCB must consider all beneficial uses, including water for downstream human and environmental needs. In addition to granting the water right permits needed to operate new water supply projects, the SWRCB also issues water quality–related certifications to developers of water projects under Section 401 of the federal Clean Water Act.

Central Valley Regional Water Quality Control Board

The Central Valley RWQCB is responsible for the preparation and implementation of basin water quality plans consistent with the federal Clean Water Act. Enforcement of these plans ensures that local water quality is protected. RWQCBs may become involved in water supply programs as a responsible agency with respect to project effects on downstream beneficial uses. Citrus Heights is within the jurisdiction of the Central Valley RWQCB.

Municipal Regional Stormwater Permit

In the City of Citrus Heights, storm water discharge through the City's municipal storm drain system is managed through a joint NPDES Permit with the County of Sacramento and the cities of Sacramento, Folsom, Rancho Cordova, Elk Grove and Galt (NPDES Permit No. CAS082597, WDR Order No. R5-2008-0142). The joint NPDES permit regulates all wet and dry weather runoff discharge in the County, including the City of Citrus Heights. The joint permit requires implementation of a storm water management program (the Sacramento Stormwater Quality Partnership described below addresses this requirement) which includes the use of BMPs.

Wastewater discharges from wastewater treatment plants (WWTPs) are also required to have an NPDES permit. WWTPs are typically required to obtain individual permits from the RWQCB. The permits include findings, discharge prohibitions, effluent limitations, provisions and self-monitoring requirements. The findings of the NPDES permit process provide information about treatment plant design and operations, beneficial uses to be protected, and applicable standards.

NPDES General Permit for Construction

The SWRCB’s statewide stormwater general permit for construction activity (Order 2009-0009-DWQ) approved on September 2, 2009 and effective July 1, 2010 applies to all land-disturbing construction activities that would disturb more than one acre. Construction activities subject to the general construction activity permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-storm water discharges to storm sewer systems and other waters. The permit also requires dischargers to consider the use of post-construction permanent BMPs that will remain in service to protect water quality throughout the life of the project. Types of BMPs include source controls, treatment controls, and site planning measures.

Activities subject to the NPDES general permit for construction activity must develop and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP includes a site map and description of construction activities and identifies the BMPs that will be employed to prevent soil erosion and discharge of other construction related pollutants, such as petroleum products, solvents, paints, and cement, that could contaminate nearby water resources. A monitoring program is generally required to ensure that BMPs are implemented according to the SWPPP and are effective at controlling discharges of storm water related pollutants.

Senate Bill 7

In 2009, California lawmakers passed, and the Governor subsequently signed, a package of four water policy bills and a $11.14 billion bond bill devoted to water resources and conservation. These bills, termed the "2009 Water Package," provide for new management of the Sacramento-San Joaquin Delta, set aggressive water conservation targets, establish a Statewide groundwater monitoring program, and dedicate funds for increased enforcement of illegal water diversions. A key component of the 2009 Water Package is Senate Bill (SB) 7, which expands water conservation requirements for urban and agricultural water suppliers throughout California. The intent of these requirements is to help the State meet its goal for reducing per capita water use by 20% in 2020. With limited exceptions, starting in 2016, eligibility for State water grants and loans will be conditioned on meeting the requirements of SB 7. An urban retail water supplier will not be eligible for a water grant or loan awarded or administered by the State unless the supplier has met water use and conservation targets.

REGIONAL/LOCAL

Sacramento Stormwater Quality Partnership

Sacramento area public agencies, including the County of Sacramento and the Cities of Sacramento, Citrus Heights, Elk Grove, Folsom, Galt, and Rancho Cordova, have joined together to form the Sacramento Stormwater Quality Partnership (SSQP). The agencies work together to implement the conditions of the Municipal Regional Stormwater Permit described above. In addition to implementation of the permit requirements, the goals of the SSQP are to:

- educate and inform the public about urban runoff pollution,
- encourage public participation in community and clean-up events,
- work with industries and businesses to encourage pollution prevention,
- require construction activities to reduce erosion and pollution, and
- require development projects to include pollution controls that will continue to operate after construction is complete.

The SSQP coordinates and cost-shares various major elements of its activities, including monitoring, target pollutant reduction, special studies, regional public outreach, and program evaluation. The partnership members also coordinate and cost-share selected construction/new development and commercial/industrial activities. The County and City of Sacramento generally conduct and manage the joint work and are reimbursed by the other members according to a cost-share Memorandum of Understanding (MOU).

Sacramento Area Flood Control Agency

The Sacramento Area Flood Control Agency (SAFCA) is a Joint Powers Agency formed in 1989 by the City of Sacramento, County of Sacramento, Sutter County, the American River Flood Control District, and Reclamation District 1000. SAFCA is tasked with addressing deficiencies in flood control in the Sacramento area. 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 (a portion of Citrus Heights is in the inundation area for Dike 5, part of the dam infrastructure).

Senate Bill 5

SB 5 (2007) enacts the Central Valley Flood Protection Act of 2008. Requirements of DWR and the CVFP Board (previously known as the State Reclamation Board) under SB 5 are:

- To prepare and adopt a Central Valley Flood Protection Plan (the Plan) (described below) by 2012.

- To establish 200-year protection as the minimum urban level of flood protection, effective with respect to specific development projects as of 2015 or 2025, as explained below.

    - The DWR is directed to produce preliminary (i.e. Best Available) maps for 100-year and 200-year floodplains protected by project levees, and to make them available to cities and counties in the Sacramento-San Joaquin Valley ("Central Valley"). (Water Code Section 9610[a]) These best available maps were made available on September 8, 2008, and can be found at the California Department of Water Resources <http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/best_available_maps/>.

    - 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.

    - Obligates Central Valley counties to develop flood emergency plans within 24 months of adoption of the Plan.

No later than 2015, but potentially sooner depending on when the Central Valley Flood Protection Plan takes effect, SB 5 will prohibit local governments from entering into development agreements or approving entitlements or permits, including ministerial permits which result in construction of a new residence in a flood zone unless one of three conditions are met:

- flood management facilities provide level of protection necessary to withstand a 200-year flood event;

- the development agreement or other entitlements include conditions that provide protections necessary to withstand a 200-year flood event; or

- the local flood management agency has made adequate progress on construction of a flood protection system that shall result in protections necessary to withstand a 200-year flood event by 2025.

Central Valley Flood Protection Plan

The Central Valley Flood Protection Plan (CVFPP) is a part of the Central Valley Flood Management Planning (CVFMP) Program that is intended to be a sustainable, integrated flood management plan for the Central Valley. The CVFPP will describe existing flood risks in the Central Valley and recommend actions to remove the risks of future flooding, lessen the consequences in the event that a flooding event occurs, and provide recommendations for improvements to the State and federal flood protection systems. DWR is in the process of preparing the CVFPP, and is required to adopt it by January 1, 2012, with regular updates to the plan occurring every five years.

Assembly Bill 162

Assembly Bill (AB) 162 (2007) requires each city and county located within the Sacramento-San Joaquin Drainage District to submit draft safety elements of their general plans and amendments to their safety elements to the Central Valley Flood Protection Board (CVFPB) for review and comment. This requirement went into effect on January 1, 2009.

Sacramento County Stormwater and Grading Ordinances

Sacramento County Stormwater Ordinance (Sacramento County Code 15.12) prohibits unauthorized non-stormwater discharge to the County's stormwater conveyance system and local creeks. It applies to private and public projects located in the unincorporated County, including areas within the Citrus Heights planning area located outside the City limits, regardless of size or land use type. In addition, Sacramento County Code 16.44 (Land Grading and Erosion Control) requires private construction sites in the unincorporated County disturbing one or more acres or moving 350 cubic yards or more of earthen material to obtain a grading permit. To obtain a

grading permit, project proponents must prepare and submit for approval an Erosion and Sediment Control (ESC) Plan describing erosion and sediment control best management practices (BMPs) that will be implemented during construction to prevent sediment from leaving the site and entering the County's storm drain system or local receiving waters.

City of Citrus Heights Standards

City of Citrus Heights Municipal Code Chapter 106.30.040 "Creekside Development & Flood Hazard Mitigation" contains performance standards and requirements for development near creeks, setback areas to open spaces, and flood hazard mitigation.

4.5.2 EXISTING CONDITIONS

SURFACE WATER HYDROLOGY

The planning area is situated within several drainage basins, including Arcade and Cripple Creeks and their associated tributaries (Exhibit 4.5-1). In addition to these two main drainages, entire reaches of Brooktree, Mariposa, and San Juan creeks, and a small portion of Coyle Creek are also located within the City. All streams generally flow to the west, ultimately draining into Arcade Creek. Outside of Citrus Heights, Arcade Creek flows west past American River College and through Del Paso Park, draining into the Natomas Main Drainage Canal and ultimately into the Sacramento River.

Headwaters of Arcade and Cripple Creeks originate in Sacramento County, draining the southwest portion of Orangevale. Both streams maintain perennial flows, except in their upper reaches. Similarly, many of the named and unnamed tributaries also maintain perennial flows, although historically these streams were seasonal, flowing under the influence of precipitation. As such, a significant portion of perennial flow in drainages of Arcade and Cripple Creeks is comprised of urban runoff, with existing dry season summer flows likely greater than historic dry season summer flows.

For the most part, the streams in Citrus Heights are unaltered (i.e., they have not been straightened and/or concrete lined), and maintain a riparian corridor.[2] Cripple Creek and associated named and unnamed tributaries drain the northern half of Citrus Heights, while Arcade Creek and associated named and unnamed tributaries drain the southern half of Citrus Heights, and portions of unincorporated Sacramento County.

The climate in the region is Mediterranean, characterized by hot, dry summers, and cool, moist winters. On average, precipitation ranges from 0.10 inch in August, the average driest month, to 4.46 inches in January, which is the average wettest month (http://www.weather.com/weather/wxclimatology/monthly/graph/95621). Slightly over half of the total average annual precipitation occurs from November through February (City and County of Sacramento 1996:4-10). Temperatures in July vary from an approximate average daily high of 94 degrees Fahrenheit (°F) to an average daily low of 60°F, while temperatures in January vary from an approximate average daily high of 54°F to an average daily low of 40°F. Extreme temperatures in Sacramento County have been recorded as low as 17°F in December 1932 and as high as 114°F in July 1925 (Bevan and Cline 2005:1–5).

GROUNDWATER HYDROLOGY

Groundwater occurs in the "saturation zone" which is an area below ground that accumulates water. Water from precipitation, irrigation, and stream flows enters the ground from the surface and trickles down to the saturation zone. The rate of groundwater recharge (i.e., water flowing into the saturation zone) depends upon a variety of geologic and hydrologic factors. Groundwater is a primary source of water supply for domestic, municipal, and agricultural uses throughout Sacramento County; as a result excess removal (also known as "overdraft") of this

[2] A riparian corridor is the natural vegetation found growing along the bank of a creek or water body.

Source: City of Citrus Heights, 2010

Citrus Heights Creeks and Tributaries **Exhibit 4.5-1**

resource has been documented.[3] Overdraft is a concern in three areas of Sacramento County: Rio Linda-Elverta, Elk Grove-Laguna and Galt. The Citrus Heights area is not currently experiencing groundwater overdraft.

Citrus Heights is located on the Fair Oaks Geologic Formation (DWR 1978). This geologic formation is comprised of relatively thick deposits of silt and clay with thinner deposits of sand and gravel. The Fair Oaks Formation can yield moderate to high quantities of water, primarily dependent upon whether fine grained or coarse material is present (DWR 1978). Wells to depths greater than 300 feet may encounter the underlying Mehrten Formation, with water yields roughly equivalent to the Fair Oaks Formation. Groundwater in the vicinity of Citrus Heights generally flows to the west and ranges in depth from approximately 80 feet above mean sea level (msl) in the east to 20 feet below msl in the west (County of Sacramento 1996).

SURFACE WATER QUALITY

Surface water quality is predominantly influenced by surrounding land uses. A portion of summer dry season perennial flow in those streams that carry water year round is comprised of urban runoff. Urban runoff includes surface drainage from residential and commercial land uses, including landscape irrigation, driveway and parking lot cleaning, swimming pool draining, and other similar activities. In addition to this dry season urban runoff, storm water discharge to the creek system conveys precipitation from areas of soil saturation or impermeable surfaces to low-lying collection areas and creeks. Storm water flow in an urban area often includes contaminants collected from surrounding land uses. Both urban dry-season runoff and storm water discharge influence surface water quality.

WATERWAYS CURRENTLY AFFECTED

Arcade Creek has been identified as not meeting water quality standards for copper. A Total Maximum Daily Load (TMDL) for copper is scheduled for completion by 2020. In 2004, the Regional Water Quality Control Board, Central Valley Region, prepared a TMDL report for diazinon and chlorpyrifos analyzing six creeks in the region, including Arcade Creek. In 2006, the Central Valley RWQCB finalized a TMDL for diazinon and chlorpyrifos in the Sacramento River and San Joaquin River basins (Central Valley RWQCB 2006).

Pesticides containing the active ingredients diazinon and chlorpyrifos are among the most heavily used pesticides in Sacramento County (Russick 2001). These pesticides are primarily used by farmers/growers in the agricultural environment to control insect infestations in and around structures, on landscaping, and in crop fields (RWQCB 2004). The sources of these compounds are agricultural and urban runoff. Agriculture will be the dominant source in the near future, since the USEPA has banned the sale of all non-agricultural uses of diazinon and most non-agricultural uses of chlorpyrifos (Central Valley RWQCB 2006:6).

The TMDL Report for the pesticides Diazinon & Chlorpyrifos in Arcade Creek, Elder Creek, Elk Grove Creek, Morrison Creek, Chicken Ranch Slough, and Strong Ranch Slough includes specific measures to reduce the amount of diazinon and chlorpyrifos entering the watershed. The TMDL Report indicates that the largest contributor of diazinon and chlorpyrifos is urban runoff. The reduction measures are implemented through the National Pollutant Discharge Elimination System (NPDES) permit program.

Other major pesticides of concern in Sacramento River basin urban creeks are the insecticides carbaryl and malathion, which are less persistent in water than diazinon and chlorpyrifos (Kuivila and Hiadik 2008:8).

STORM WATER QUALITY MANAGEMENT

As of 2008, the City's annual storm water management budget was approximately $3.1 million. Appropriation of this budget to specific improvements and management projects is a joint effort on the part of the City of Citrus Heights and the County of Sacramento, where the monies originate. In 2010, Citrus Heights took over the

[3] Groundwater overdraft is a condition where more water is removed from the saturation zone than is entering it.

management of Stormwater Utility Funds generated within the City. The City's General Services Department is currently in the process of identifying and planning for future capital improvement projects.

GROUNDWATER QUALITY

Groundwater quality in Citrus Heights has not been comprehensively documented. The City is not included in any known regional plume of gross groundwater contamination. Thus, groundwater quality is considered to be good in the Citrus Heights area.

DAM FAILURE AND INUNDATION HAZARDS

Dam failure inundation is defined as the flooding that occurs as the result of structural failure of a dam. Dam failure may be caused by seismic activity itself or seismic activity may result in inundation caused by a seismically- induced wave which overtops the dam without also causing dam failure known as a seiche. Dams may also be at risk due to potential acts of terrorism.

The Folsom Dam and Reservoir is located on the American River, about 20 miles upstream of the City of Sacramento, four miles east of Citrus Heights. Completed in 1956 by the Corps of Engineers, Folsom Dam is owned and operated by the U.S. Bureau of Reclamation (USBR). The reservoir has a storage capacity of 1 million acre-ft at gross pool. The reservoir includes about 4.5 miles of man-made dike with a crest elevation of 480.5 ft above sea level. Folsom Lake Dam infrastructure includes Folsom Dam, Folsom Right Wing, Dikes 4-8, and Mormon Island (USBR 1999).

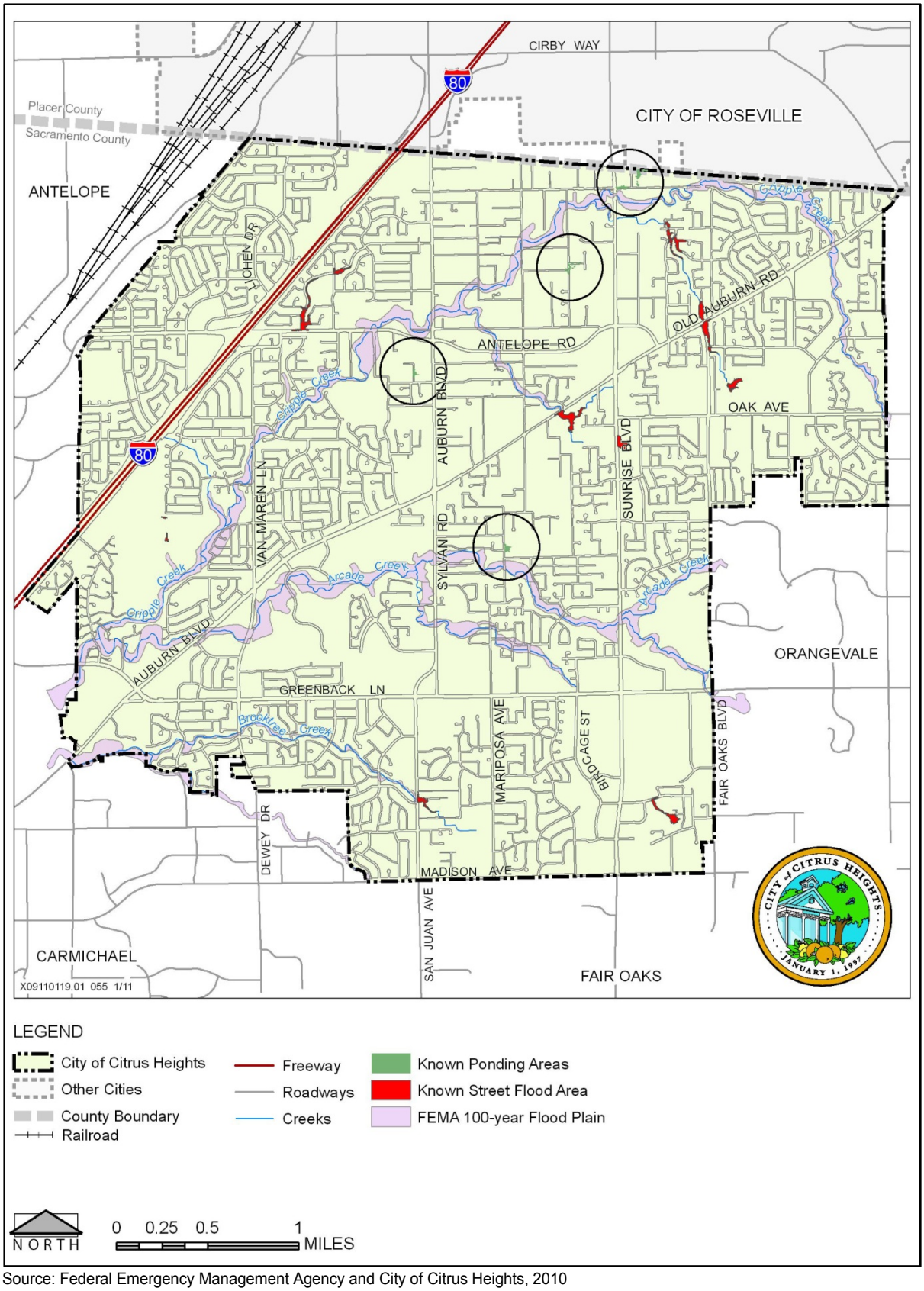
FLOODING

Flooding is defined as an overflowing of normally dry land, often after heavy rain. When the capacities of streams and storm drainage facilities are exceeded, flooding often occurs. Arcade and Cripple Creeks have relatively small hydrologic capacity and can be quickly overwhelmed during severe storm runoff events resulting in the overflowing of stream channel banks and the temporary inundation of floodplains and connected low lying areas.

The Federal Emergency Management Agency (FEMA) maintains flood maps (flood insurance rate maps [FIRMs]) on which the 100-year floodplain of significant drainages are identified. The 100-year floodplain is used to identify unacceptable safety hazards and indicates the geographic area having a one percent chance of being flooded in any given year. Citrus Heights (Sacramento County) FIRM panels 80, 85, 90, 95, and 105 (Community # 060262) identify the 100-year floodplains for the streams in the planning area (FEMA 1998). Approximate boundaries of flood hazard areas (100-year floodplains) for the Citrus Heights area are shown on Exhibit 4.5-2.

Development (structures, bridges, fill) within the 100-year floodplain is evaluated to ensure consistency with the restrictions of the Zoning Code. Development within a floodplain could increase the flood hazard to adjacent properties by raising upstream floodplain elevations and/or increasing downstream flow and water velocities. A raised upstream floodplain can occur with downstream displacement of flood storage, which occurs when a floodplain is filled. Such floodplain disturbance can result in a constriction in the natural flow of water which increases the speed of water traveling downstream. The Citrus Heights Zoning Code prohibits new construction within the 100-year floodplain except for fences and landscaping. The Zoning Code also includes minimum creek setbacks for development adjacent to creeks. For existing properties that are entirely in the floodplain and comply with the City's Drainage and Development Policy, development may occur, provided that each structure is designed to have the habitable finished floor elevation a minimum of two feet above the 100-year floodplain.

The General Services Department maintains a citywide list of past chronic flooding within the City. This list includes flood complaints registered with the General Services Department using data from the past several years.



Source: Federal Emergency Management Agency and City of Citrus Heights, 2010

100-Year Flood Plain and Flood Issues Map **Exhibit 4.5-2**

Exhibit 4.5-2 depicts the FEMA 100-year floodplain as well as known ponding and street flooding locations in the City.

FLOOD CONTROL/MANAGEMENT

The City is provided flood control and management services from the Sacramento County Water Agency (SCWA). The SCWA, through its efforts at managing the flood control system under its jurisdiction, has created three Zones, which the City is covered under. These Zones include Zone 11, Zone 12, and Zone 13.

Zone 11 is a drainage fee zone formed to provide funding for the construction of drainage facilities in Sacramento County. Fees are collected through Zone 11 from new development. Zone 12, now a separate utility, provides storm drain maintenance and improvements for Sacramento County, such as channel clearing and servicing pumping plants. Zone 13, an assessment district, provides funding for flood control and water supply planning, groundwater studies, and FEMA programs. Zone 13 collects fees from benefiting parties.

Since July 2010, the City no longer contracts with Sacramento County for the operations and maintenance of drainage facilities. The City contracts with private contractors to provide these services.

4.5.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

Based on Appendix G of the State CEQA Guidelines, a drainage, hydrology, or water quality impact is considered significant if implementation of the proposed project would do any of the following:

- Violate any water quality standards, waste discharge requirements, or otherwise substantially degrade water quality.
- 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).
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, which would result in substantial erosion or siltation on- or off-site.
- 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.
- 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.
- Otherwise substantially degrade water quality.
- 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.
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows.
- 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.

- Inundation by seiche, tsunami, or mudflow.

The planning area is located in an area not subject to seiche or tsunami, and the area topography is relatively level and not subject to mudflow. Therefore these issues are not discussed further in this EIR.

IMPACT ANALYSIS

IMPACT 4.5-1 Violation of Water Quality Standards. *Future land uses consistent with the Draft General Plan would result in additional discharges of pollutants to receiving water bodies from nonpoint sources. Such pollutants would result in adverse changes to the water quality of local water bodies. However, with adoption and implementation of policies and actions in the Draft General Plan, combined with current land use, stormwater, grading, and erosion control regulations, this impact would be* less than significant.

An increase in the amount of impervious surfaces (e.g., rooftops, sidewalks, driveways, streets, parking lots) as a result of implementation of the Draft General Plan would result in higher rates of runoff during rain events. Surface runoff from impervious surfaces can be a source of surface water pollution. Sediment, organic contaminants, nutrients, trace metals, pathogens (e.g., bacteria and viruses), and oil and grease compounds are common urban runoff pollutants. Sources of these pollutants may be erosion from disturbed areas, deposition of atmospheric particles derived from automobiles or industrial sources, corrosion or decay of building materials, rainfall contact with toxic substances, and spills of toxic materials on surfaces that receive rainfall and generate runoff. New urban industrial and commercial development can generate urban runoff from parking areas, as well as any areas of hazardous materials storage exposed to rainfall.

Sediment sources include roads and parking lots, destabilized landscaped areas, stream banks, unprotected slopes, and denuded or disturbed areas. Sediments, in addition to being contaminants in their own right, transport other contaminants such as trace metals, nutrients, and hydrocarbons that adsorb to suspended sediment particles. Nutrients include nitrogen, phosphorus, and other organic compounds that can be found in organic litter, fertilizers, food waste, sewage, and sediment. Animal wastes, sanitary sewer overflow, and improperly sited or functioning septic systems can contribute bacteria and viruses either to surface waters or to groundwater through percolation. Sources of oil and grease compounds include motor vehicles, food service establishments, and fueling stations.

Construction activities associated with Draft General Plan implementation, including construction-related alteration of drainages, could result in soil erosion and stormwater discharges of suspended solids, increased turbidity, and potential mobilization of other pollutants from construction sites, as contaminated runoff to on-site and ultimately off-site drainage channels. This is discussed in Impact 4.5-2 below.

Draft General Plan Policies and Actions

The Draft General Plan includes the following policies and actions designed to protect water quality and enhance water resources.

Policies

- **34.2:** Achieve and maintain a balance between conservation, development and utilization of open space to enhance air and water quality.
- **34.3:** Provide for “no net loss” of sensitive habitats such as aquatic and riparian areas.
- **37.3:** Implement water sensitive urban design techniques to promote water efficiency and protect water quality.

- **38.2:** Continue working with the Sunrise Recreation and Park District to develop an integrated creekside trail system including low impact development strategies.

- **49.1:** Promote drainage improvements through natural means and practices that minimize flooding.

- **49.5:** Seek control over drainage facilities which may include ownership or easement.

- **49.8:** Reduce pollutants being discharged into the drainage system to the maximum extent feasible to meet required federal National Pollution Discharge Elimination System standards.

Actions

34.2.A. Prepare and adopt Community Design Guidelines to include standards to protect habitat areas from encroachment of lighting, non-native landscaping, noise, soil erosion and toxic substances.

34.2.B. Revise grading guidelines to minimize removal of significant vegetation and promote creation of pervious surfaces around natural habitat areas.

34.2.C. Adopt a landscape ordinance complying with Department of Water Resources guidelines. The City's landscape ordinance should update landscape provisions to incorporate climate-appropriate native trees and water conserving landscaping that increase infiltration rates and protect sensitive areas.

34.3.A. Update development standards to limit construction activity and development to maximize the water-holding capacity and maintain natural nutrient levels of the soil within buffer zones adjacent to drainages.

34.3.B. Require new development and redevelopment projects to incorporate LID measures and source controls in all cases to reduce runoff to the community's sensitive habitat areas.

38.2.A. Establish a City trail network program for acquisition, development and administration of a natural trails system and recruit volunteers for trail construction and maintenance.

38.2.C. Implement low impact development strategies such as pervious paving for trails, and water conserving landscapes along the trails to enhance water quality of creeks and promote public education.

49.1.A. Work with Sacramento County and other local, regional, state and federal agencies to develop Best Management Practices (BMPs) through stormwater management programs, and to finance, construct and plan improvements to improve health of the watershed and minimize flooding in and around the City of Citrus Heights.

49.5.A. Strongly implement Federal and State laws regarding modifications or use of creek areas.

49.5.B. Identify locations within parks and City-owned open spaces with creeks running through them to implement low impact development programs to enhance water quality and flood control while promoting public education.

49.8.A. Continue to assist private developers seeking National Pollution Discharge Elimination System permits by serving as co-permitee.

49.8.B. Provide public education and awareness programs to reduce pollutant discharges into the drainage system.

49.8.C. Develop a set of Best Management Practices (BMPs) and design guidelines for all development to use to meet Federal National Pollution Discharge Elimination System.

49.8.D. Establish erosion and sediment control standards as required in the National Pollutant Discharge Elimination System municipal permit.

49.8.E. Conduct regular public workshops to raise community awareness about ways to reduce water pollution.

Conclusion

Impacts related to pollutants associated with impervious surfaces are reduced primarily by City implementation of RWQCB waste discharge permits and through preparation and implementation of a SWPPP and Standard Urban Stormwater Mitigation Program (SUSMP), including identification of required BMPs for both construction and post-construction discharges.

In addition, as detailed above, the Draft General Plan includes a variety of policies and actions designed to protect water quality. Policy 34.2 would create Community Design Guidelines that include standards to protect against encroachment of soil erosion and toxic substances on habitat areas, which include creek and riparian areas. This policy would also create a new landscape ordinance that would increase infiltration rates and consequently decrease the amount of stormwater runoff, thereby decreasing the potential for this runoff to transport pollutants to waterways. Finally, this policy would ensure the revision of grading guidelines to promote creation of pervious surfaces, also reducing stormwater runoff and consequently improving water quality. Policy 34.3 would ensure new development and redevelopment projects incorporate LID measures and source controls, thereby reducing runoff and consequently the potential for transportation of pollutants. In addition, Policy 49.5 ensures locations within parks and City-owned open spaces with creeks running through them would be identified for incorporation of LID measures. Policy 49.8 commits the City to implement public education and awareness programs to educate community members about how they can reduce water pollution.

Adoption and implementation of Draft General Plan policies and actions, combined with enforcement of current land use, stormwater, grading, and erosion control regulations as described in "Regulatory Setting," would reduce this impact to a **less-than-significant** level. No mitigation beyond Draft General Plan policies and actions is required.

IMPACT 4.5-2 Construction-Related Water Quality Impacts. *Construction and grading activities associated with future land uses consistent with the Draft General Plan could result in soil erosion and stormwater discharges of suspended solids and increased turbidity. Such activities could mobilize other pollutants from project construction sites as contaminated runoff to on-site and ultimately off-site drainage channels. Many construction-related wastes have the potential to degrade existing water quality. Project construction activities that are implemented without mitigation could violate water quality standards or cause direct harm to aquatic organisms. However, with implementation of existing regulations and water quality policies and actions contained in the Draft General Plan, this impact would be less than significant.*

Construction and grading activities associated with future land uses consistent with the Draft General Plan could result in soil erosion and stormwater discharges of suspended solids and increased turbidity. Such activities could mobilize other pollutants from project construction sites as contaminated runoff to on-site and ultimately off-site drainage channels. Many construction-related wastes have the potential to degrade existing water quality by altering the dissolved-oxygen content, temperature, pH, suspended-sediment and turbidity levels, or nutrient content, or by causing toxic effects in the aquatic environment. Project construction activities that are implemented without mitigation could violate water quality standards or cause direct harm to aquatic organisms.

Localized erosion hazards are regarded as relatively low because the planning area is generally flat. However, intense rainfall and associated stormwater runoff could result in short periods of sheet erosion within areas of exposed or stockpiled soils. If uncontrolled, these soil materials could cause sedimentation and blockage of drainage channels. Further, the compaction of soils by heavy equipment may reduce the infiltration capacity of

soils and increase the potential for runoff and erosion. Non-stormwater discharges could also result from activities such as construction dewatering procedures, and discharge or accidental spills of hazardous substances, such as fuels, oils, concrete, paints, solvents, cleaners, or other construction materials.

As described in the Regulatory Setting, ongoing NPDES stormwater permitting programs regulate municipal storm drain systems, industrial facilities, and construction sites. NPDES permits generally identify effluent and receiving-water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities. Under the NPDES permitting program, the preparation and implementation of SWPPPs is required for construction activities.

A SWPPP must include site maps and a description of construction activities, and must identify the BMPs that will be employed to prevent soil erosion and discharge of other construction-related pollutants, such as petroleum products, solvents, paints, and cement, that could contaminate nearby water resources. All NPDES permits also have inspection, monitoring, and reporting requirements to ensure that BMPs are implemented according to the SWPPP and are effective at controlling discharges of stormwater-related pollutants. Source controls, treatment controls, and site planning measures are typical types of BMPs.

Construction activities subject to the general construction activity permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. The permit also requires dischargers to consider the use of post-construction permanent BMPs that will remain in service to protect water quality throughout the life of the project.

Draft General Plan Policies and Actions

The Draft General Plan includes the following policies and actions addressing construction or grading activities.

Policies

- **34.2:** Achieve and maintain a balance between conservation, development and utilization of open space to enhance air and water quality.
- **49.8:** Reduce pollutants being discharged into the drainage system to the maximum extent feasible to meet required federal National Pollution Discharge Elimination System standards.

Actions

34.2.B. Revise grading guidelines to minimize removal of significant vegetation and promote creation of pervious surfaces around natural habitat areas.

34.2.C. Adopt a landscape ordinance complying with Department of Water Resources guidelines. The City's landscape ordinance should update landscape provisions to incorporate climate-appropriate native trees and water conserving landscaping that increase infiltration rates and protect sensitive areas.

49.8.A. Continue to assist private developers seeking National Pollution Discharge Elimination System permits by serving as co-permitee.

49.8.B. Provide public education and awareness programs to reduce pollutant discharges into the drainage system.

49.8.C. Develop a set of Best Management Practices (BMPs) and design guidelines for all development to use to meet Federal National Pollution Discharge Elimination System.

49.8.D. Establish erosion and sediment control standards as required in the National Pollutant Discharge Elimination System municipal permit.

49.8.E. Conduct regular public workshops to raise community awareness about ways to reduce water pollution.

Conclusion

Preparation and implementation of a SWPPP with appropriate BMPs such as source control, detention basins, revegetation and erosion control would be required, in order to conform with the SWRCB statewide NPDES stormwater permit for general construction activity, and any other necessary site-specific Waste Discharge Requirements (WDRs) or waivers under the Porter-Cologne Act (see the State Regulatory Setting) and County and City design standards and requirements (see the Regional/Local Regulatory Setting). Policy 34.2 would require grading improvements reducing the potential for sedimentation as a result of construction-related grading activities. Policy 49.8 would require improvements in meeting the requirements of NPDES construction-related BMPs. Therefore, adoption and implementation of the proposed policies and actions in the Draft General Plan, combined with enforcement of current NPDES construction permitting regulations would reduce this impact to a **less-than-significant** level. No mitigation beyond Draft General Plan policies and actions is required.

IMPACT 4.5-3 Interference with Groundwater Recharge or Substantial Depletion of Groundwater Supplies. *Future land uses consistent with the Draft General Plan would result in additional impervious surfaces and the diversion of groundwater to surface water. Resulting reductions in groundwater recharge in the groundwater basins underlying the planning area could affect groundwater levels and the yield of hydrologically connected wells. However, with implementation of Draft General Plan policies and actions, this impact would be less than significant.*

Future land uses consistent with the Draft General Plan would result in additional impervious surfaces, as well as the diversion of groundwater to surface water through subsurface drainage features or localized dewatering measures. As a result, levels of groundwater recharge in the underlying groundwater basin would decline. Reductions in groundwater recharge in a given area could affect groundwater levels and the yield of hydrologically connected wells.

Three water providers supply the City: Citrus Heights Water District (CHWD), Sacramento Suburban Water District (SSWD), and Cal American Water Company (CAWC). CHWD and SSWD extract groundwater for public water supply from the North American Subbasin of the Sacramento Valley Groundwater Basin (Basin Number 5-21.64) as defined by the California Department of Water Resources (DWR). This subbasin has never been defined as overdrafted and it is not projected to become overdrafted by DWR (CHWD 2005).

Groundwater Use Provisions

Under current State law, all urban water suppliers with more than 3,000 service connections or water use of more than 3,000 acre feet per year (afy) are required to submit an UWMP to DWR every 5 years, designed to ensure that groundwater is used at a sustainable rate. SSWD and CHWD prepared and submitted UWMPs in 2005, and are currently developing UWMPs for 2010. CAWC has prepared and submitted a UWMP in 2010.

All three suppliers are participating agencies in the Sacramento Groundwater Authority (SGA), which adopted its groundwater management plan in December 2003. The authority to prepare a plan is granted to SGA through the Joint Powers Agreement executed between the County of Sacramento and the cities of Citrus Heights, Folsom, and Sacramento. The plan was prepared in compliance with Water Corde Section 10753.7 resulting from passage of Senate Bill 1938 in 2002.

Draft General Plan Policies and Actions

The Draft General Plan includes the following policies and actions addressing groundwater infiltration and recharge.

Policies

- **34.2:** Achieve and maintain a balance between conservation, development and utilization of open space to enhance air and water quality.
- **34.3:** Provide for "no net loss" of sensitive habitats such as aquatic and riparian areas.
- **37.1:** Implement low impact development strategies to create water-conserving landscapes.
- **37.2:** Celebrate potable water as a critical community resource.
- **37.3:** Implement water sensitive urban design techniques to promote water efficiency and protect water quality.
- **62.1:** Ensure that adequate water supply and distribution facilities are available to serve the community.
- **62.2:** Continue working with the Sacramento Groundwater Authority to formalize combined-use agreements among regional water providers.
- **62.3:** Pursue development of emergency water supplies to anticipate a major drought or disaster.
- **62.4:** Continue working with regional water suppliers to identify and implement water conservation practices to meet a 20% reduction in per capita use by 2020.
- **62.5:** Promote development of additional water storage facilities to meet future peak hour and fire flow demands.

Actions

34.2.B. Revise grading guidelines to minimize removal of significant vegetation and promote creation of pervious surfaces around natural habitat areas.

34.2.C. Adopt a landscape ordinance complying with Department of Water Resources guidelines. The City's landscape ordinance should update landscape provisions to incorporate climate-appropriate native trees and water conserving landscaping that increase infiltration rates and protect sensitive areas.

34.3.B. Require new development and redevelopment projects to incorporate LID measures and source controls in all cases to reduce runoff to the community's sensitive habitat areas.

62.1.A. Approve new development only if water purveyors can demonstrate an adequate water supply and delivery system.

62.4.A. Require water-conserving building design and equipment in new construction.

62.4.B. Adopt a landscape ordinance for new development, consistent with Department of Water Resources guidance.

62.4.C. Develop water conservation education programs to promote water efficient retrofits and landscaping.

62.4.D. Prepare and adopt a water conservation program.

Conclusion

Adoption and implementation of policies and actions in the Draft General Plan would reduce the potential for impacts on groundwater levels resulting from increased impervious-surface coverage in areas that contribute to groundwater recharge. Policies in the Draft General Plan include a variety of actions aimed at increasing stormwater infiltration, as noted in the impact discussion on water quality standards above, which would address groundwater recharge impacts as well. In addition, Policy 34.2 would ensure the adoption of a landscape ordinance incorporating climate-appropriate native trees and water conserving landscaping, which would address groundwater recharge impacts by reducing water demand. Policy 37.1 would ensure the implementation of LID strategies to create water-conserving landscapes, while Policy 37.3 would ensure implementation of water sensitive urban design techniques to promote water efficiency. Both policies would reduce water demand and thereby reduce the potential for groundwater recharge impacts. Policy 62.1 would prevent new development unless it can prove it has an adequate water supply, thereby protecting against overdraft of groundwater supplies. Policy 62.5 would implement a variety of measures to reach a 20% reduction in per capita water use by 2020, thereby decreasing demand significantly and addressing groundwater recharge impacts.

There is hydrological connectivity with the underlying groundwater basins surrounding the planning area and this connectivity can influence groundwater recharge or substantial depletion of groundwater supplies in the area. Regional coordination is necessary to address this hydrological connectivity. Accordingly, Policy 62.2 commits the City to working with the Sacramento Groundwater Authority to formalize combined-use agreements among regional water providers, the intent of which is in part to maintain groundwater recharge and avoid substantial depletion of the area's groundwater supplies.

Implementation of the Draft General Plan would avoid substantial depletion of the area's groundwater supplies, reducing the potential for interference with groundwater recharge or substantial depletion of groundwater supplies. With incorporation of Draft General Plan policies and actions, the impact is considered **less than significant**. No mitigation beyond Draft General Plan policies and actions is required.

IMPACT 4.5-4 On-Site and Downstream Erosion and Sedimentation. *Future land uses consistent with the Draft General Plan would increase the amount of impervious surfaces, thereby increasing the total volume and peak discharge rate of stormwater runoff. This could alter local drainage patterns, increasing watershed flow rates above the natural background level (i.e., peak flow rates). Increased peak flow rates may exceed drainage system capacities, exacerbate erosion in overland flow and drainage swales and creeks, and result in downstream sedimentation. Sedimentation, in turn, could increase the rate of deposition in natural receiving waters and reduce conveyance capacities, resulting in an increased risk of flooding. Erosion of upstream areas and related downstream sedimentation typically leads to adverse changes to water quality and hydrology. However, with adoption and implementation of the policies and actions in the Draft General Plan, combined with current grading, erosion, and flood control regulations, this impact would be* ***less than significant****.*

Implementation of the Draft General Plan would not involve the alteration of existing streams, rivers, or drainage channels. As stated in "Regional/Local Regulatory Setting," Citrus Heights is a member of the SSQP, which implements the requirements of the Sacramento Municipal Separate Storm Sewer System NPDES Stormwater Permit. The SSQP also requires construction activities to reduce erosion and pollution, and development projects to include pollution controls that will continue to operate after construction is complete.

Draft General Plan Policies and Actions

The Draft General Plan includes the following policies and actions addressing stormwater drainage and increases in runoff volume and sedimentation.

Policies

- **34.2:** Achieve and maintain a balance between conservation, development and utilization of open space to enhance air and water quality.
- **34.3:** Provide for "no net loss" of sensitive habitats such as aquatic and riparian areas.
- **49.1:** Promote drainage improvements through natural means and practices that minimize flooding.
- **49.4:** Maintain local storm drain systems to ensure capacity for maximum runoff flows.
- **49.8:** Reduce pollutants being discharged into the drainage system to the maximum extent feasible to meet required federal National Pollution Discharge Elimination System standards.

Actions

34.2.A. Prepare and adopt Community Design Guidelines to include standards to protect habitat areas from encroachment of lighting, non-native landscaping, noise, soil erosion and toxic substances.

34.2.B. Revise grading guidelines to minimize removal of significant vegetation and promote creation of pervious surfaces around natural habitat areas.

34.3.B. Require new development and redevelopment projects to incorporate LID measures and source controls in all cases to reduce runoff to the community's sensitive habitat areas.

49.1.A. Work with Sacramento County and other local, regional, state and federal agencies to develop Best Management Practices (BMP) through stormwater management programs, and to finance, construct and plan improvements to improve health of the watershed and minimize flooding in and around the City of Citrus Heights.

49.1.B. Continue working on solutions to localized flooding problems in the vicinity of Cripple and Arcade Creeks.

49.4.B. Discourage construction activities, including grading, building, and fill within natural swale areas.

49.8.A. Continue to assist private developers seeking National Pollution Discharge Elimination System permits by serving as co-permitee.

49.8.B. Provide public education and awareness programs to reduce pollutant discharges into the drainage system.

49.8.C. Develop a set of Best Management Practices (BMPs) and design guidelines for all development to use to meet Federal National Pollution Discharge Elimination System.

49.8.D. Establish erosion and sediment control standards as required in the National Pollutant Discharge Elimination System municipal permit.

49.8.E. Conduct regular public workshops to raise community awareness about ways to reduce water pollution.

Conclusion

Policy 34.2 would commit the City to preparing and adopting Community Design Guidelines to include standards to protect habitat areas from encroachment of soil erosion. This policy would also commit the City to revise grading guidelines to minimize removal of significant vegetation. Both elements of Policy 34.2 would reduce downstream flooding and erosion. Policy 49.1 would commit the City to implement a variety of efforts aimed at reducing flooding, which contributes directly to erosion. Policy 49.4 would discourage construction activities, including grading, building, and fill within natural swale areas, decreasing the potential for erosion in these areas. Policy 49.8 would establish erosion and sediment control standards as required in the NPDES municipal permit.

Adoption and implementation of the policies and actions in the Draft General Plan, combined with enforcement of the existing City and County grading, erosion, and flood control regulations described in the Regional/Local Regulatory Setting, would reduce this impact to a **less-than-significant** level. No mitigation beyond Draft General Plan policies and actions is required.

IMPACT 4.5-5 Exposure of People or Structures to Flood Hazards from Increased Stormwater Runoff. *Future land uses consistent with the Draft General Plan could result in the development of residential or commercial structures in floodplains, thereby exposing people and structures to flood hazards. However, implementation of policies and actions in the Draft General Plan, combined with enforcement of existing flood control regulations, would reduce this impact to a less-than-significant level.*

Implementation of the Draft General Plan would increase the amount of impervious surface in the planning area, thereby increasing surface runoff. This increase in surface runoff would result in an increase in both the total volume and the peak discharge rate of stormwater runoff, and therefore could result in greater potential for on- and off-site flooding.

Draft General Plan Policies and Actions

The Draft General Plan includes the following policies and actions addressing flooding and development in the floodplain.

Policies

- **49.1:** Promote drainage improvements through natural means and practices that minimize flooding.
- **49.4:** Maintain local storm drain systems to ensure capacity for maximum runoff flows.
- **49.5:** Seek control over drainage facilities which may include ownership or easement.

Actions

49.1.A. Work with Sacramento County and other local, regional, state and federal agencies to develop Best Management Practices (BMP) through stormwater management programs, and to finance, construct and plan improvements to improve health of the watershed and minimize flooding in and around the City of Citrus Heights.

49.1.B. Continue working on solutions to localized flooding problems in the vicinity of Cripple and Arcade Creeks.

49.1.C. Modify the storm drainage program to provide for City collection and allocation of all storm drainage fees.

49.1.D. Develop a capital improvement program for storm drainage projects.

49.4.A. Continue annual maintenance of the channels, pipes and inlets of the storm drain system.

49.4.B. Discourage construction activities, including grading, building, and fill within natural swale areas.

49.5.A. Strongly implement Federal and State laws regarding modifications or use of creek areas.

49.5.B. Identify locations within parks and City-owned open spaces with creeks running through them to implement low impact development programs to enhance water quality and flood control while promoting public education.

Conclusion

Policy 49.1 would commit the City to developing BMPs through stormwater management programs, construct improvements to minimize flooding, and develop a capital improvement program for storm drainage projects. Such actions would improve the City's stormwater system to ensure minimal impacts should flooding associated with stormwater runoff occur. Policy 49.4 would ensure adequate capacity in the local storm drain system for maximum runoff flows, thereby decreasing the possibility of flooding. Adoption and implementation of the policies and actions in the Draft General Plan, including Policy 49.5, would require enforcement of and compliance with existing State and federal flood control regulations. These policies and programs include coordination and design that would ensure adequate drainage and detention of stormwater in the appropriate facilities. Therefore, this impact would be **less than significant**. No mitigation beyond Draft General Plan policies and actions is required.

IMPACT 4.5-6 Place Housing in a 100-Year Flood Hazard Area or Structures in a 100-Year Flood Area that would Impede or Redirect Flood Flows. *Portions of the planning area lie within a 100-year flood plain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map. The planning area may potentially be affected by flooding if structures were allowed in these areas. Implementation of the policies and actions in the Draft General Plan, combined with other relevant local regulations, would minimize the potential for effects from flooding. This impact would be less than significant.*

Development (structures, bridges, fill) within the 100-year floodplain is evaluated by the City to ensure consistency with the restrictions of the Zoning Code. Development within a floodplain could increase the flood hazard to adjacent properties by raising upstream floodplain elevations and/or increasing downstream flow and water velocities. A raised upstream floodplain can occur with downstream displacement of flood storage, which occurs when a floodplain is filled. Such floodplain disturbance can result in a constriction in the natural flow of water which increases the speed of water traveling downstream.

Draft General Plan Policies and Actions

The Draft General Plan includes the following policies and actions designed to protect persons and property from flooding.

Policies

- **49.2:** Continue to implement floodplain zoning and undertake other actions required to comply with State and federal floodplain development requirements and maintain the City's eligibility under the National Flood Insurance Program.

- **49.3:** Require evaluation of potential flood hazards prior to approval of development projects.

- **49.7**: Protect buildings and property from flooding.

Actions

49.2.A. Request that the Federal Emergency Management Agency update and revise City flood maps.

49.3.A. Require major proposed development projects to submit accurate topographic and flow characteristic information, including depiction of 100-year floodplain boundaries under fully-developed, pre- and post-project runoff conditions.

49.7.A. Use storm drainage fees and/or other funding sources to assist in the raising of existing residences above the 100-year base flood elevation.

49.7.B. Ensure that new construction conforms to all applicable provisions of the National Flood Insurance Program.

Conclusion

The Citrus Heights Zoning Code prohibits new construction within the 100-year floodplain, except for specific landscaping and fences. The Zoning Code also includes minimum creek setbacks for development adjacent to creeks. For existing properties that are entirely in the floodplain and comply with the City's Drainage and Development Policy, development may occur, provided that each structure is designed to have the habitable finished floor elevation a minimum of two feet above the 100-year floodplain. Therefore, housing would not be placed in the 100-year flood hazard area that could put residents in danger, nor would any structures built in the 100-year flood hazard area impede or redirect flood flows.

In addition, Policy 49.2 in the Draft General Plan commits the City to continue to implement floodplain zoning and undertake actions required to comply with the flood-related regulations described in "Regulatory Setting." Policy 49.3 requires that potential flood hazards are analyzed before development is approved. Finally, Policy 49.7 directs the City to assist in the raising of existing residences above the 100-year base flood elevation and ensuring that new construction conforms to all applicable provisions of the National Flood Insurance Program. With implementation of existing local, state and federal policy and Draft General Plan policies, the impact would be **less than significant**.

IMPACT 4.5-7 Potential for Failure of a Dam or Levee. *The planning area may potentially be affected in the unlikely event of a dam or dike failure at Folsom Lake. Implementation of policies and actions in the Draft General Plan, combined with other relevant state and local regulations, would minimize the potential for effects from dam failure. This impact would be* less than significant.

In 1997, the USBR analyzed the potential effects of the Folsom Dam/Other Dam Infrastructure failure on the Sacramento region. Based on the results of the analysis, the City may be at risk if portions of the Dam/Infrastructure were to fail. The analysis indicates that if Folsom Dam itself were to fail, no portion of Citrus Heights would be inundated by the resulting flood. However, if Dike 5 were to fail, the northeastern corner of the City as well as the portion of the City parallel to I-80, southwest to the City limits may become inundated up to 8.2-feet within approximately five-hours of breaching. Furthermore if the Folsom Right Wing were to fail, a portion of the floodwaters would follow the Cripple Creek channel resulting in inundation depths of up to 6.5-feet.

The Folsom Dam is undergoing modifications, a two-fold project, to increase flood protection. According to the Draft EIR for the Sacramento County 2035 General Plan, Folsom Dam currently provides approximately 100-year flood protection. After construction of an auxiliary spillway that will allow greater releases out of the dam during the first parts of a storm, Folsom Dam will provide 200-year protection. Project completion for the auxiliary

spillway is estimated in 2015. The second part of the project will raise the existing dikes by 3.5 feet, which will increase the amount of flood storage available to route the flood safely through the dam and downstream levee system. Raising the dikes will increase the protection level from 200-year to 240-year, and is expected to be completed in 2016 (Sacramento County 2009).

Draft General Plan Policy and Actions

The Draft General Plan includes a policy and actions designed to protect persons and property in the event of dam failure at Folsom Dam.

Policy

- **49.7:** Protect buildings and property from flooding.

Actions

51.1.B. Establish appropriate evacuation routes, and incorporate them into the Emergency Preparedness and Response Plan.

58.7.A. Establish agency responsibilities, and incorporate them into the Emergency Preparedness and Response Plan.

Conclusion

Policies and actions in the Draft General Plan, as well as regulations in the City's Zoning Code (See Impact 4.5-5), include a variety of actions designed to protect people and structures from flood risks. With adherence to and implementation of these regulations, policies, and actions, program-level flooding and dam inundation impacts would be **less than significant**. Individual development projects would be reviewed for project-specific impacts during required environmental reviews. If project-specific significant impacts are identified, applicable mitigation measures will be placed on the project as conditions of approval.

This page intentionally left blank.