CITY OF MANTECA

MANTECA SB 5 SAFETY ELEMENT AMENDMENT

May 14, 2016

Prepared for:

Community Development Department
Planning Division
City of Manteca
1001 W. Center St.
Manteca, CA 95337

Prepared by:

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1.0 INTRODUCTION

The requirements of the Senate Bill 5 (SB 5) Bills must be incorporated into the Manteca General Plan 2023 (GP 2023) on or before July 2, 2015, and into the City's Zoning Code within 12 months following the General Plan Amendment. This General Plan Amendment (GPA) document, describes the amendments to the GP 2023 needed to reflect the requirements of the SB 5 Bills based on new flood information and data that was unavailable during the previous Safety Element Amendment in 2013. This GPA is organized as follows:

- Section 1.0. Introduction: provides an overview of the City of Manteca, background information for the environmental setting and flood protection considerations, and the general requirements of the SB 5 Bills to be met in the GPA.
- Section 2.0 Environmental Setting and Flood Protection: provides an overview of the San Joaquin River flooding and flood protection history, the Manteca flood protection profile, and area flood concerns.
- Section 3.0 Flood Hazard Area Mapping: provides an overview of area flood mapping projects, and best available flood mapping data.
- Section 4.0 Flooding Emergency Response and Exposure Reduction: provides an overview of local, State, and Federal emergency response to flood events, and exposure reduction strategies.
- Section 5.0 Flood Agency Profile and Organization: provides an overview of local, regional, State, and Federal flood agencies and their roll in flood protection.
- Section 6.0 Regulatory Framework: provides the regulatory setting for flood requirements.
- Section 7.0 Proposed Amendment of the Safety Element: the proposed amendment includes the analysis of background information describing areas subject to flooding, agency flood protection responsibilities, existing and planned flood protection improvements, and emergency response responsibilities to develop flood hazard, goals, policies and implementation measures that address flood protection as required by the SB 5 Bills. This section is intended to be included in the Manteca General Plan 2023 Policy Document Section 7.2 (Flood Hazards).
- Section 8.0 Consistency Review; reviews the consistency between the GPA and the GP 2023, and any need for amendments to the GP 2023 to enhance clarity and maintain internal consistency and comply with General Plan Requirements.

TERMS:

The following policy terms are uses throughout this document are described below:

200-Year Flood Exposure and Depth are those geographic areas and depths as defined on Figure 10, or subsequent maps approved by the City of Manteca, or Floodplain Administrator.

New Development is defined as a development agreement, a tentative map, or a parcel map for which a tentative map was not required, a discretionary approval or a ministerial permit that would

result in the construction of a new residence, as described in Government Code §65865.5(a), 65962(a), or 66474.5(a), as amended.

Adequate Progress is as defined in California Government Code Sections 65007, 65865.5(a)(3), 65962(a)(3) or 66474.5(a)(3).

Critical Facilities are as defined in the City of Manteca General Plan as police and fire stations, school facilities, hospitals, hazardous materials manufacturing and storage facilities, and large public assembly halls.

Development includes certain development agreements, subdivision maps and development permits as described in Government Code §65865.5(a), 65962(a) and 66474.5(a).

Flood Hazard Zones are Special Flood Hazard Areas (SFHAs) as defined and mapped by FEMA.

Non-Urban or **Not Urbanizing** means a developed area or an area outside a developed area in which there are fewer than 10,000 residents that is not an urbanizing area.

Urban Level of Flood Protection (ULOP) means the level of protection that is necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year using criteria consistent with, or developed by, the Department of Water Resources. "Urban level of flood protection" shall not mean shallow flooding or flooding from local drainage that meets the criteria of the national Federal Emergency Management Agency standard of flood protection (GC 65007). The DWR-approved criteria are described in *Urban Level of Flood Protection Criteria, November 2013*.

Urban Levee Design Criteria (ULDC) are engineering criteria and guidance for civil engineers to follow in meeting the requirements of California's Government Code Sections 65865.5, 65962, and 66474.5 with respect to Findings that levees and floodwalls in the Sacramento-San Joaquin Valley provide protection against a flood that has a 1-in-200 chance of occurring in any given year. The criteria are described in *Urban Level Design Criteria,* May 2012.

Urban and Urbanizing Areas Urban areas are defined as a developed area in which there are 10,000 residents or more. Urbanizing areas are a developed area or an area outside a developed area that is planned or anticipated to have 10,000 residents or more within the next 10 years.

1.1 THE CITY OF MANTECA

The City of Manteca is located in San Joaquin County California, and had a U.S Census population estimate of 73,494 in 2014. The City lies east of the north flowing San Joaquin River, Interstate 5 (I-5), and Interstate 205 (I-205). The City includes State Route 120 (SR-120) which bisects the City running east/west, and State Route 99 (SR-99 Golden State Highway) running north/south in the eastern portion of the City. Figure 1 shows the City's regional location.

1.2 MANTECA GENERAL PLAN

The California Government Code §65000 et. seq. requires each City and County to adopt a General Plan "for the physical development of the County or City, and any land outside its boundaries which bears relation to its planning" (§65300). The General Plan has been deemed by the California courts to be the jurisdiction's "constitution for future development." The General Plan describes the community's land use and development goals, policies, and standards and the measures needed to implement the plan.

The General Plan includes seven required elements: Land Use, Circulation, Housing, Conservation, Open-Space, Safety and Noise. Implementation measures may include the means for providing street and utility infrastructure needed to support new development, how natural resources will be conserved, and how public health and safety will be protected. Most local government decisions related to development are required by law to be consistent with the General Plan. The General Plan is to be comprehensive in its treatment of land use and related issues, and the multi-faceted plan must also be "internally consistent", and serves as a framework for public and private development, and establishes requirements for additional planning studies where greater specificity is needed.

The City of Manteca has adopted a comprehensive General Plan that addresses the applicable Government Code requirements in a range of specialized elements adapted to local conditions. The City, adopted the *City of Manteca General Plan* (2023 GP) on October 6, 2003 and has included the following amendments since adoption: Circulation Element Amended April 5, 2011; Air Quality Element Amended October 15, 2013; and Safety Element Amended December 17, 2013. The City of Manteca General Plan Land Use Map designates land uses within the City Limits and Sphere of Influence (SOI). The City's General Plan Land Use Map is shown on Figure 2.

The Manteca General Plan includes the seven State-mandated elements and four optional elements. The eleven elements that comprise this General Plan include:

- ***Land Use*** - establishes land use designations with types and intensities of use and sets policies and programs regarding future development of the City.
- ***Community Design*** - establishes urban design guidelines to ensure that new development is attractive and contributes to the sense of Manteca as a location.
- ***Circulation*** - contains policies for the City's roadway system, transit, pedestrian and bicycle circulation, and methods of managing transportation demand, accounting for the relationship between land use and circulation.
- ***Economic Development*** - addresses the need for Manteca to broaden its employment base to maintain the high quality of life currently enjoyed and implementing an economic development strategy.
- ***Housing*** - includes policies and programs to increase the variety and types of housing in the City, emphasizing infill sites, increased density, and mixed uses downtown, and also includes a discussion of housing needs and programs to provide additional housing for special needs populations.
- ***Public Facilities and Services*** - discusses public facilities including domestic water, sewer, storm drainage, electricity services, solid waste, education, police protection, fire protection, and parks and recreation.
- ***Safety*** - contains policies and programs to protect the community from injury, loss of life, and property damage resulting from natural disasters and hazardous conditions.
- ***Resource Conservation*** - emphasizes the accommodation of population growth while conserving and protecting the area's natural resources and quality of life.
- ***Noise*** - identifies policies that will protect the community from noise hazards.
- ***Air Quality*** - addresses the community's need to cooperate regionally so that increased development does not further degrade the air quality.
- ***Administration -*** provides a tool to City staff and elected officials to administer and implement the General Plan.

1.3 MANTECA GENERAL PLAN SAFETY ELEMENT

The City of Manteca Safety Element identifies the potential hazards in the community that must be considered when planning the location, type, and intensity of development. The primary objective of the Safety Element is to reduce the potential for loss of life, injuries, and property damage that could result from a natural or a man-made disaster. Specific topics addressed in this Element include: Geologic and Seismic Hazards, Flood Hazards, Hazardous Materials, and Emergency Response Planning.

Public safety flood services within the City include flood protection, floodplain management and emergency response in the event of flooding. These services are delivered in cooperation with a variety of Federal, State and local agencies. Locally, these agencies include the reclamation districts that are directly responsible for levee maintenance, the Manteca Police Department, Lathrop-Manteca Fire District, and San Joaquin County Office of Emergency Services. The various agency involvements are defined in greater detail throughout this document.

1.4 MANTECA GENERAL PLAN SAFETY ELEMENT UPDATE

California general plans have since 1971 been required to include a Safety Element that addresses flooding, geologic hazards, emergency response and other public safety concerns; the adopted Manteca General Plan 2023 includes goals, policies, and implementation measures related to these safety concerns. However, recent legislation including SB 5 outlined a more aggressive State flood protection agenda, which established the 200-year flood protection standard and placed most of the responsibility for meeting the new standard, and for implementing new policy, on local government. The individual SB 5 Bills are described in more detail in Section 6.0 (Regulatory Framework).

The Manteca General Plan Safety Element was amended on December 17, 2013 (Resolution NO. R2013-222). Amendments to the Safety Element included text revisions and the addition of policies and implementation measures to reflect the City's commitment to comply with provisions outlined in Senate Bill (SB) 5 and the Central Valley Flood Protection Plan.

In 2014, The City of Manteca, in conjunction with the adjacent City of Lathrop, jointly funded studies to produce the 200-year Freeboard Analysis & Floodplain Mapping within RD 17. This analysis produced a refined version of available Federal and State hydraulic modeling, 200-year water surface profiles in the San Joaquin River, and mapping of the 200-year floodplain area (and depth) for all areas protected by RD 17 levees. This initial effort was completed in May 2014, and as a result of additional information (unavailable at the time of the 2013 Safety Element Update), this General Plan amendment incorporates the recent studies to include additional 200-year standards and other requirements of the SB 5 Bills into the GP 2023.

1.5 200-YEAR FLOOD REQUIREMENTS FOR LOCAL GOVERNMENT

The State's overall long-term program for improving flood protection includes expanded availability of flood risk and planning information, establishment of flood protection and facility design standards, technical assistance to flood protection and land use agencies, and an enforcement system for the new requirements. A key feature of the State program is the Central Valley Flood Protection Plan (the "CVFPP"), adopted by the Central Valley Flood Protection Board in 2012; the CVPPP, to be updated on a 5-year cycle, provides an overall understanding of flooding risk and exposure in the Central Valley, the general nature and adequacy of existing flood protection systems, and a statewide strategy for the allocation of available funding for flood protection improvements; the financing strategy is known as the Statewide System Investment Approach (SSIA).

The CVFPP is primarily concerned with State Plan of Flood Control (SPFC) facilities, which are shared Federal/State facilities the State is obligated to cooperate in maintaining and improving. In defining the SSIA, DWR considered three principal approaches to flood protection: 1) repair or improvements to SPFC levees, 2) 200-year flood protection improvements in high-risk urban and urbanizing areas, and 3) integrated projects, such as setback levees that improve the flood system capacity while achieving other goals.

The CVFPP identifies the need for more area-specific Regional Flood Management Plans. An RFMP has been drafted for the Lower San Joaquin River-South Delta area (SJAFCA, 2014). Another key requirement of the SB 5 Bills is that "urban and urbanizing" areas must be provided with an Urban Level of Flood Protection (ULOP). Levees that are intended to provide ULOP must conform to State-defined Urban Levee Design Criteria (ULDC). RD 17 has identified providing ULOP as their individual goals for Long-Term Level of Flood Protection. RD 2094 is not currently protected from the 100-year flood, does not include existing or planned urban areas and does not need to or intend to provide ULOP.

Upon the effective date of the Zoning Code Amendment, the City of Manteca may not approve new urban development in potential 200-year floodplain areas where predicted flood depths would be 3 feet or more unless ULOP has been provided, or unless the City certifies, based on substantial evidence that "adequate progress" has been made toward provision of ULOP by 2025.

1.6 AGENCY CONSULTATION AND REVIEW

Government Code §65352(a), which governs the preparation and amendment of general plans, includes general requirements for review of general plans and amendments prior to adoption, and also mandatory consultation requirements for the amendment of Safety Elements as required by the SB 5 Bills. Documentation of the City's consultation and review efforts, comments submitted in response to these efforts, and the City's consideration of comments will be included in Appendix A.

1.7 GPA APPROVAL AND ADOPTION

The City of Manteca will conduct public hearings with respect to the GPA before the Manteca Planning Commission and City Council. Hearings will be noticed in accordance with the requirements of Government Code §65353 and §65091. After consideration of public comment, review of CEQA documentation, and the Planning Commission's recommendations, the City Council will consider approving the GPA.

2.0 ENVIRONMENTAL SETTING AND FLOOD PROTECTION

2.1 SAN JOAQUIN RIVER HYDROLOGY AND FLOODING

The City of Manteca is located approximately 0.5 miles east of the San Joaquin River. Upstream (south) of the City of Manteca the San Joaquin River collects runoff from all of the major rivers draining the 13,500-square mile San Joaquin Valley; the drainage area, excluding the Tulare Lake Basin, includes approximately 40% of the land area in California. Figure 3 displays the San Joaquin River drainage basin and major tributaries. The San Joaquin River is the primary source of flooding hazards in Manteca. The River conveys seasonally high flows, which can result from prolonged rainfall, snow melt and rain-on-snow events in the watershed. The Manteca area, unlike areas to the west and northwest, is not subject to tidal flooding. High flows on the San Joaquin River that are derived from rainfall generally occur between November and April and are characterized by high peak flows of moderate duration. Snowmelt flows, however, normally occur later in the year, between April and June. High flows derived from snowmelt may be sustained for weeks and months. The quantity of flow reaching the Manteca area under either high flow condition or snowmelt are moderated by upstream reservoirs operated by Federal, State and local agencies for various purposes, primarily water supply but also including flood protection. Local flood protection systems are primarily levee constructed and maintained to Federal standards by RDs 17, and 2094 under the authority of the State (SJAFCA, 2014). Figure 4 Displays reclamation district boundaries in the general vicinity of Manteca.

The San Joaquin River discharges an average of more than 3 million acre-feet of water annually. Historically, as recorded by the US Geological Survey near Vernalis (approximately 8 miles south of the City of Manteca), monthly average flows have ranged from less than 100 cubic feet per second (cfs) in the late summer of dry years, to sustained winter and spring flows of 40,000 cfs. The highest recorded flow on the San Joaquin River at Vernalis was estimated at 79,000 cfs in 1950 including estimated flows through failed levees; however, the river reached its maximum flood elevation as recently as 1997.

DWR's *Regional Flood Atlas* (DWR, 2013) estimates the design capacity of the San Joaquin River for floodwater passage at 52,000 cfs south and upstream of the City of Manteca, and 37,000 cfs along the San Joaquin River near the cities of Manteca and Lathrop.

2.2 FLOOD AND FLOOD PROTECTION HISTORY

Potential flooding involves significant risks to lives and property in the City. Flooding effects can include loss of life and injury, damage to and destruction of buildings and site improvements, permanent damage to or temporary loss of utility services, damage to roads and bridges, unavailability of goods and services, entrainment of hazardous materials and the threat of waterborne diseases as well as social and economic effects on the community.

The current State Plan of Flood Control (SPFC) system protects a population of over one-million people and many billions of dollars in public and private assets currently located within floodplains. These at-risk assets include major freeways, railroads, airports, water supply systems, utilities, and other public and private infrastructure of national, regional and statewide importance. Planned levee improvements will provide additional flood protection for population and assets within Flood Control (SPFC) system and the City of Manteca.

According to the San Joaquin County General Plan (SJGP, 2009), floods in the San Joaquin Valley have been recorded for over 175 years. The County reports that the "Great Flood" of 1861-1862 was followed by "major" floods in 1867, 1881, 1890, and that other major floods occurred in 1904, 1907, 1909, 1911

and 1928. These and other events led to establishment of the cooperative Federal-State flood protection system in the early 1900s. Under this system, the Federal government reconstructed existing private levees and constructed new levees to Federal standards, including several projects in San Joaquin County. These include the 1966 Lower San Joaquin River and Tributaries Project, which includes "project levees" protecting the City of Manteca including the RD 17 levee system. Although initially constructed by the Federal government, the State's contribution included the acceptance of maintenance responsibility for the levees in perpetuity. This responsibility was later assigned to the reclamation districts.

Notwithstanding the development of "project" levees over time, according to the San Joaquin County General Plan, major damaging flood events occurred in 1950, 1955, 1958, the 1962/63 season, the 1968/69 season and four times since 1980, and most recently in January 1997. The most recent area floods were caused by regional-scale storms that produced very high runoff in the San Joaquin River basin. The 1997 flood was the result of a rain-on-snow event that caused extensive flooding along the San Joaquin River and in the Delta, including flooding from 27 levee failures along the San Joaquin River. The 1997 flooding inundated both RD 2107 and RD 2062 as a result of floodwater spill from RD 2107 to RD 2062 levees. There were no failures of the RD 17 levees although high flows required sandbagging along the levee top (Gatto, Freeman, pers. comms.). The levees also sustained considerable seepage damage in 1997; RD 17 subsequently completed two phases of levee seepage improvements and restored FEMA accreditation. A third phase of RD 17 seepage improvements is planned and undergoing permit review by the USACE.

DWR's Regional Flood Atlas (DWR, 2013) contains a more detailed flood history of the Lower San Joaquin area as a whole as well as descriptions of individual events. The *Lower San Joaquin River/Delta RFMP* (SJAFCA, 2014) estimates average annual equivalent damages from floods in the Lower San Joaquin River basin at approximately $25 million annually; about 60% of the estimated amount is attributed to crop damage.

The role of Federal agencies in providing flood protection, primarily through the USACE, has historically been to evaluate flood risk, develop Federal design standards and to design and construct federally authorized flood control facilities such as reservoirs, bypasses and levees. The State has not historically had a major role in flood protection planning, standards development or construction projects. In its long-term partnership with the Federal government, the State has assumed responsibility primarily for maintenance and inspection of levees and other flood protection facilities constructed by the Federal government.

2.3 MANTECA FLOOD PROTECTION PROFILE

The City of Manteca is the second largest metropolitan area within the Lower San Joaquin River Region with a population of approximately 73,000. Manteca is not directly bordered by San Joaquin River levees, although the levees on the west side of RD 17 along the San Joaquin River, and the dryland levee on the south end of RD 17 provide flood protection for the City. The dryland levee along the south boundary of RD 2094 is not intended to hold floodwaters from the south (upstream), instead it is intended to contain flows on RD 2094 and RD 2096 in the event of a levee breach along RD 2094, RD 2096, or RD 17 levees. Figure 4 displays the reclamation district Boundaries near the City of Manteca.

The City of Manteca has a vested interest in the integrity of the RD 2094 and RD 17 levees. Additionally, the City of Manteca shares similar concerns to other metropolitan areas in the Regions regarding SB 5. The City does not directly control levee improvements made by the RDs, but land use decisions at the

City level are dependent upon these districts to make progress toward completing necessary upgrades to meet ULDC criteria. Furthermore, during the City's 2013 Safety Element Amendment, the 200-year inundation maps prepared by DWR in July 2013 did not include base flood elevations for the City of Manteca, so it was difficult to predict what area(s) within the City and SOI were within the 200 year floodplain with depths of flooding greater than 3 feet and therefore subject to SB 5.

As discussed previously, The City of Manteca, in conjunction with the adjacent City of Lathrop, jointly funded studies to produce the 200-year Freeboard Analysis & Floodplain Mapping within RD 17. This analysis produced a refined version of available Federal and State hydraulic modeling, 200-year water surface profiles in the San Joaquin River, and mapping of the 200-year floodplain area (and depth) for all areas protected by RD 17 levees.

2.4 UPSTREAM RESERVOIRS

Primary existing flood protection facilities near the City of Manteca are the Federal "project" and State Plan Flood Control levees maintained and improved by the reclamation districts, as discussed in more detail below. However, upstream of the Manteca area, potential flood flows in the San Joaquin River are mitigated to a greater or lesser extent by federal, State and local agencies responsible for operation of upstream reservoirs, as coordinated by the USACE. Federal reservoirs constructed and operated by the USACE are primarily flood control facilities with secondary water supply functions. The USDI Bureau of Reclamation facilities are primarily water supply projects that include some flood protection storage, or are operated to reduce flood flows on an individual basis. Irrigation districts and municipalities operate other water supply reservoirs that also provide some flood control benefits.

Reservoirs are operated in accordance with USACE flood control rules that require, during the flood season, a portion of the storage space in the lake to be reserved for capturing flood flow peaks and then releasing them gradually. The required flood control space is adjusted to reflect seasonal precipitation, soil moisture, and snowpack and the runoff characteristics of each river basin. During major flood events, there is close coordination between State, Federal, and local agencies to forecast weather and runoff conditions, manage and coordinate flood releases from the reservoir system, patrol and flood fight along the levee and bypass system, and operate the weirs, drainage pumps, and other flood control structures (CVFPB, 2012).

2.5 FEDERAL "PROJECT" LEVEES

Flood management facilities protecting the City of Manteca consist of "project" levees which run along both sides of the San Joaquin River. The levees are a portion of the San Joaquin River Flood Control System (SJRFCS), which includes levees on the San Joaquin River, adjacent reaches of its tributaries and distributaries, and bypasses. According to the USACE, the SJRFCS was considered "visionary" when conceived in the early 1900s. The SJRFCS has supported the economic prosperity of the Central Valley and fostered more intensive land uses in Central Valley areas including Manteca that remain physically vulnerable to flood risks. This area is also one of the fastest growing parts of California, with much of the urban growth planned to occur in flood prone areas (USACE, 2002). The SJRFCS was developed and originally constructed by the USACE and the Central Valley Flood Control Board (formerly The Reclamation Board). In addition to the "Project" levees, there are two segments of "non-project" levees located in RD 17. These are described in the following discussion of facilities managed by each district individually. The location of State-Federal SPFC Levees and Non-SPFC Levees are shown on Figure 5.

2.6 STATE PLAN OF FLOOD CONTROL (SPFC) LEVEES

The "project" levee system is the result of long-term Federal and State agreements under which the State commits to the maintenance of the federally-constructed levees; these are known as State Plan of Flood Control (SPFC) facilities. The SPFC by definition consists of the State and Federal flood control works, lands, programs, plans, policies, conditions, and mode of maintenance and operations of the; for which the (State) has provided the assurances of nonfederal cooperation to the United States. Actual maintenance work is delegated by the State to the Local Maintaining Agencies (LMAs), which in the Manteca area are the reclamation districts, and the work is overseen and inspected by the State. The riverbank levees protecting the City of Manteca are SPFC facilities, which are also "project" levees (Figure 5). The SPFC inventory is somewhat fluid as facilities added or modified; the current SPFC inventory is presented in the *State Plan of Flood Control Descriptive Document* (CVFMPP, 2010). Historically, reclamation district levees were funded by the benefitted landowners, but some financial support has been provided by the State subventions program administered by DWR. However, even with assistance from the State, many of the RDs have struggled to maintain and improve levees (SJAFCA, 2014).

2.7 RECLAMATION DISTRICT LEVEES

Reclamation districts are special districts that are authorized and created under the California Water Code and governed in accordance with the Government Code by an elected local board, usually composed of major landowners. Operation and maintenance costs are covered by property taxes, but the costs of major improvements must be met with State and Federal funding managed through cooperative agreements.

The reclamation districts were established in the 1800s and early 1900s to reclaim low-lying lands for agriculture uses. As urban development expanded into former agricultural areas, the levees were improved to higher standards as a part of USACE "projects" such as the Lower San Joaquin River and Tributaries Project; the Manteca area levees were improved to "modern" standards as a part of this project, which was completed in 1966.

RD 17, and to a lesser extent the dryland levee along the south boundary of RD 2094 are responsible for flood protection levees in the City of Manteca. The State accepted responsibility for maintenance and improvement of the federally-constructed "project" levee, which was delegated to reclamation districts, which are also known as Local Maintaining Agencies (LMAs). All flood prone land in the Manteca incorporated area and SOI is located in one of these two reclamation districts.

AB 156 requires public agencies that maintain levees that protect more than 1,000 people, such as RD 17, to adopt Flood Safety Plans and sign cooperative agreements with the City or County in order to receive State funds for Project Levee upgrades. These agreements and plans are in place for RD 17. RD 2094 does not presently meet the 1,000-person threshold but will be subject to these requirements if/when the threshold is reached. The RDs have been proactively working on their Flood Safety Plans, which are nearly complete.

2.8 RECLAMATION DISTRICT 17

The City of Manteca is located east of the San Joaquin River and is protected from flooding primarily by RD 17 levees. RD 17 is bounded on the west by the San Joaquin River, on the north by French Camp Slough and on the south by a dry land levee protecting the District from flood waters passing through Reclamation Districts 2094 and 2096; high ground defines the District boundary on the east (including

the City of Manteca). RD 17 levees also protect portions of the cities of Lathrop and Stockton as well as nearby unincorporated areas. The overall population located in RD 17 was estimated to be in excess of 43,000 residents in 2013 (RD 17, 2013).[1] RD 17 district boundary and local levee system is shown on Figure 6.

RD 17 was organized in 1863 when initial levee construction began. By 1930 RD 17 had developed a levee system considered "adequate" by the USACE, but the District was subject to levee failure and flooding in 1938, and again in 1951. USACE development of the Lower San Joaquin River and Tributaries Project from 1959-1966, and then further improvements to these "project" levees by land developers in the late 1980s led to FEMA 100-year accreditation of the RD 17 system in 1990.

During the floods of 1997, RD 17 levees did not fail but were subject to seepage damage. Two phases of seepage improvements since then have preserved RD 17's FEMA accreditation. A permit application for a third phase of seepage improvements is under consideration by the USACE.

The DWR completed detailed Urban Levee and Non-Urban Levee Evaluations (ULE, NULE) program as reported in the *Urban Levees Evaluation Program, Regional Flood Atlas 2013.* The ULEP considered general levee conditions, evaluated possible deficiencies and identified improvements needed to meet ULDC requirements. Evaluation factors included levee geometry, seepage, structural instability, erosion, settlement, penetrations, levee vegetation, rodent damage and encroachments. Based on this analysis, the RD 17 levees were classified as being of "Higher Concern."

RD 17 levees do not satisfy California's urban levee design criteria (ULDC) to provide 200-year protection as required by SB 5. The City Manteca, along with the City of Lathrop and RD 17 are developing a program for design, funding and improvement of the RD 17 levees, including the "non-project" levees, to meet the ULDC and provide ULOP. A $1.1 million technical evaluation of levee conditions, improvements needed to meet ULDC and a preliminary cost estimate for improvements was completed in 2014 (KSN, 2014) based on existing data, including the DWR ULEP studies and the *200-Year Freeboard Analysis and Floodplain Mapping within RD 17* (PBI, 2014). The evaluation found that there were no ULDC deficiencies in height, geometry or other physical characteristics. The primary concern with respect to meeting the ULDC is potential for underseepage. The primary proposed remediation is the installation of cutoff walls in the existing levees together with other relatively minor improvements to correct levee top width, acquire right-of-way and correct slope stability and existing penetration concerns. The total projected cost of improvements is approximately $168 million. The cities are moving forward with an additional $1.4 million program to complete levee evaluations, secure construction funding, and then design and construct necessary improvements to provide ULOP.

2.9 RD 2094 (WALTHAL)

Areas of the southwestern portions of Manteca and the City's Planning Area are included within RD 2094. The dryland levee along the south boundary of RD 2094 is not intended to hold floodwaters from the south (upstream), instead it is intended to contain flows on RD 2094 and RD 2096 in the event of a levee breach of levees along RD 2094, RD 2096, or RD 17. RD 2094 includes two levee units: unit No. 01 includes 2.82 miles, while unit No. 02 includes 0.46 miles of levee. RD 2094 district boundary and local levee system is shown on Figure 7.

[1] RD 17, 2013. Reclamation District 17. Emergency Operations Plan, Basic Plan, for all 3 districts (California Water Code Section 9650 Safety Plan), San Joaquin Operational Area. January 2013

While RD 2094 does not provide direct flood protection for the City of Manteca the integrity of the RD 2094 dryland levee does provide flood protection to the City in the event of and upstream levee failure or breach.

2.10 LEVEE EVALUATION

The 2012 Central Valley Flood Protection Plan (CVFPP) identified seepage, erosion, and slope stability concerns with levees in the region based on the Urban-Levee Evaluation (ULE), and Non-Urban Levee Evaluation (NULE). Details of these evaluations for levees near Manteca are presented below in Table 2.1. ULE/NULE and DWR Levee Inspection Report ratings are presented below.

NULE Levee Ratings

- **Hazard Level A** - When water reaches the assessment water surface elevation (typically the 1955/1957 profile), there is a low likelihood of either levee failure or the need to flood-fight to prevent levee failure.
- **Hazard Level B** - When water reaches the assessment water surface elevation (typically the 1955/1957 profile), there is a moderate likelihood of levee failure or the need to flood-fight to prevent levee failure.
- **Hazard Level C** - When water reaches the assessment water surface elevation (typically the 1955/1957 profile), there is a high likelihood of levee failure or the need to flood-fight to prevent levee failure.
- **Lacking Sufficient Data** (Category LD) - Lacking sufficient data regarding levee past performance or hazard indicators to be able to assign a hazard level or there is poor correlation between past performance and hazard indicators.

ULE Levee Ratings

- **M** – Meets ULDC criteria
- **MG** – Marginally meets ULDC criteria
- **DNM** – Does not meet ULDC criteria

DWR Levee Inspection Summary Ratings

- **Acceptable (A)** – No immediate work required, other than routine maintenance. The flood protection project will function as designed and intended with a high degree of reliability, and necessary cyclical maintenance is being performed adequately.
- **Minimally Acceptable (M)** – One or more deficient conditions exist in the flood protection project that needs to be improved or corrected. However, the project will essentially function as designed with a lesser degree of reliability than what the project could provide.
- **Unacceptable (U)** – One or more deficient conditions exist that may prevent the project from functioning as designed, intended, or required.

  NOTE: Instances where M* are given, this means that this levee segment would have received an “A” rating, but there were very small portions of levee that received a rating of “U”.

TABLE 2.1: NULE/ULE RESULTS OF MANTECA AREA LEVEES

RD No.	Name	Unit #	Segment #	Under-Seepage	Slope Stability	Through Seepage	Erosion	Overall
NULE Results								
2094	Walt Hall	1	201	B*	A*	B*	A*	B
		2	337	-	-	-	A	A
2096	Weatherbee Lake	1	203	B	B	B	A	B
ULE Results								
RD No.	**Name**	**Reach ID**	**Freeboard**	**Geometry**	**Seepage**	**Stability**	**Overall**	
17	Mossdale	A	M	M	MG	M	MG	-
		B	M	M	M	M	M	-
		C	M	M	M	M	M	-
		D	M	M	MG	M	MG	-
		E	M	M	MG	M	MG	-
		F	M	M	DNM*	M	DNM	-
		G	M	M	DNM*	M	DNM	-
		H	M	M	MG	M	MG	-
		I	M	M	DNM	M	DNM	-
		J	M	M	DNM	M	DNM	-
		K	M	M	DNM*	DNM	DNM	-
		L	DNM	M	MG	M	DNM	-
		M1	DNM	MG	M	M	DNM	-
		N1	DNM	M	MG	M	DNM	-

* = Denotes Independent Geotechnical Review Does Not Concur with DWR Findings: Source Lower San Joaquin River and Delta South Regional Flood Management Plan January 2014.

O&M Ratings

Maintenance of levees in and around Manteca is performed by the individual RD's. Table 2.2 below provides a summary of the overall maintenance rating for each RD affecting the City of Manteca. As noted below, RD 2096 received a U rating. This was due to major encroachment and animal control issues, while RD 17 and RD 2094 received a Minimally Acceptable and Acceptable rating respectively. A rating of "Minimally Acceptable*" was given for RD 17 due to small portions of unacceptable erosion and encroachment issues.

TABLE 2.2: O&M RATINGS

RD No.	Name	Overall O&M Rating Fall 2011	Overall O&M Rating Fall 2012
2094	Walt Hall	Acceptable	Acceptable
2096	Weatherbee Lake	Acceptable	Unacceptable
17	Mossdale	Acceptable	Minimally Acceptable*

A rating of "Minimally Acceptable*" was given for RD 17 due to small portions of unacceptable erosion and encroachment issues. RD2062 received a U rating due to vegetation, encroachment, and depressions/rutting issues. Source: Lower San Joaquin River and Delta South Regional Flood Management Plan January 2014 Draft

2.11 100 YEAR FLOOD CONCERNS

A "flood hazard zone" is defined in SB 5 as: "*an area subject to flooding that is delineated as either a special hazard area or an area of moderate or minimal hazard on an official flood insurance rate map issued by the Federal Emergency Management Agency*."

The deficiencies identified above represent areas where flood control systems have a higher likelihood of failure. The western portion of the City of Manteca is within a 100-Year and FEMA Zone X floodzone, which is primarily due to flood protection provided by RD 17 levees.

Detailed levee breach floodplains are not available for the Manteca area, but the portion of the City within the Lower San Joaquin River Region is contained within FEMA 100-yr and FEMA Shaded Zone X floodplains, meaning that the population in these areas are either within the 100-yr floodplain, or are outside the 100-yr floodplain due to levees. Table 2.3 below presents the acreage and number of parcels for different land use types within the FEMA 100-yr floodplain, and Shaded Zone X areas.

TABLE 2.3 PROPERTY AT RISK FROM 100-YEAR FLOOD EVENTS IN THE CITY OF MANTECA PLANNING AREA

100 Year Flood Zone				Protected by Levees (Zone X)			
Land Use	Parcels	Area (acres)	Area (%)	Land Use	Parcels	Area (acres)	Area (%)
Urban	15	1	0%	Urban	1186	433	24%
Veg/Graze	2	2	0%	Veg/Graze	58	86	5%
Farmland	38	433	99%	Farmland	137	1273	71%
Total	55	436	100	Total	1381	1791	100%

Source: Lower San Joaquin River and Delta South Regional Flood Management Plan January 2014

Flood Insurance Rate Maps (FIRMs) for the City of Manteca have been issued by the FEMA. Figure 8 shows areas in the City of Manteca that are shown on the FIRMs as being subject to flood risk in the various FEMA classifications.

2.12 200 YEAR FLOOD CONCERNS

Potential flooding from 200-year flood events involves significant risks to lives and property in the City. Portion of the City within the Lower San Joaquin River Region is contained within the delineated 200-year floodplains, meaning that the population in these areas are within the 200-year floodplain, at depths of less than 3 feet, or greater than 3 feet. Table 2.4 below presents the acreage and different General plan land use designations within the 200-year floodplain by depth. The extent of areas in the City of Manteca that are subject to 200-year flood risk is shown on Figure 9, and various detailed flood depth classifications and mapping is shown on Figure 10.

TABLE 2.4 AT RISK LAND FROM 200-YEAR FLOOD EVENTS IN THE CITY OF MANTECA PLANNING AREA

General Plan Land Use	Depth <=3ft (Acres)	Depth >3ft (Acres)	Total (Acres)
CITY			
Business Industrial Park (BIP)	0	179.98	179.98
Commercial Mixed Use CMU	8.96	23.41	32.37
General Commercial GC	74.34	88.61	162.95
High Density Res HDR	0	33.40	33.40
Heavy Industrial HI	44.49	3.85	48.35
Low Density Res LDR	139.22	624.02	763.25
Light Industrial LI	89.03	4.38	93.41
Medium Density Res MDR	4.34	0	4.34
Neighborhood Commercial NC	6.79	0	6.79
Open Space OS	0	345.69	345.69
Park P	8.26	21.48	29.74
Public/Quasi-Public PQP	191.58	106.88	298.45
Urban Reserve (Business Industrial Park) UR-BIP	0	70.00	70.00
Urban Reserve (Very Low Density Residential) UR-VLDR	0	127.42	127.42
Total	567.01	1629.12	2196.13
SOI			
Agriculture AG	3.54	299.37	302.91
Business Industrial Park (BIP)	0	0	0
Commercial Mixed Use CMU	5.65	4.42	10.08
General Commercial GC	0	61.46	61.46
Heavy Industrial HI	12.62	6.48	19.11
Low Density Res LDR	142.41	582.74	725.15
Light Industrial LI	211.11	79.32	290.42
Neighborhood Commercial NC	0.66	0.69	1.35
Open Space OS	0	84.23	84.23
Park P	0.59	9.85	10.44
Public/Quasi-Public PQP	25.34	5.71	31.05
Urban Reserve (PARK)	14.46	0	14.46
Very Low Density Res VLDR	216.73	302.11	518.83
Total	633.11	1436.38	2068.62
City and SOI			
Grand Total	**1200.12**	**3065.50**	**4265.62**

Source: De Novo Planning Group 2016; City of Manteca 200-Year Freeboard Analysis and Flood Data Layers 2014.

As shown in Table 2.4, residential designated areas subject to flooding within the City Limits include, 784 acres with flood depths greater than 3 feet and 144 acres with flood depths of less than 3 feet. Additionally, within the SOI, 885 acres of residential designated lands have flood depths greater than 3 ft., and 359 acres have flood depths of less-than three feet. Therefore, due to potential development restrictions within portions of the City and the City's commitment to providing for the public health and safety of Manteca residents, the City has a vested interest in providing ULFP within areas of the City that contains existing development areas designated for future development.

3.0 FLOOD HAZARD AREA MAPPING

GC §65302(g) requires that the Safety Element include a range of information related to flooding, including "flood hazard zones," FEMA National Flood Insurance Program maps, "flood hazard information available from the USACE," CVFPB floodway maps, dam failure inundation maps, Awareness Floodplain Mapping, 200-year floodplain maps available from DWR, Levee Protection Flood Zone maps, and maps of areas potentially subject to flooding in the event of a failure of levees and floodwalls. There are information overlaps between several of the listed items, and in some cases the required information has been superseded by more recent and/or accurate information.

The cities of Manteca and Lathrop, as a part of their program to provide ULOP for urban and urbanizing areas exposed to 200-year flooding, have developed local and more precise 200-year floodplain area and depth maps. These maps, are a refinement of the FEMA 100-year and 500-year and DWR floodplain mapping, are the foundation for the cities' efforts to plan and design levee improvements needed to provide ULOP.

3.1 FEMA FLOOD HAZARD ZONES

A "flood hazard zone" is defined in SB 5 as: "an area subject to flooding that is delineated as either a special hazard area or an area of moderate or minimal hazard on an official flood insurance rate map issued by the Federal Emergency Management Agency." Flood Insurance Rate Maps (FIRMs) for the City of Manteca have been issued by the FEMA. Figure 8 shows those areas in Manteca that are shown on the FIRMs as being subject to flood risk in the various FEMA classifications. FEMA floodplain mapping is also shown in the *Regional Flood Atlas*, Map 16. According to the FIRM's, approximately 436 acres in the western portion of Manteca, is located in Zone A 100-year floodplain areas where Base Flood Elevations have not been determined. These areas are classified by FEMA as Special Flood Hazard Areas (SFHAs). Areas outside of the SFHAs are classified as areas of "moderate or minimal hazard."

As shown on the FIRMs, approximately 1791 acres of the City of Manteca is located in Zone X. Zone X areas are protected from the 100-year flood by FEMA-accredited levees, and are also areas that would be exposed to flooding in the event of levee failure and that would be subject to potential 500-year flooding hazards. Zone X areas are "areas of moderate or minimal hazard" as defined by AB 162.

3.2 U.S. ARMY CORPS OF ENGINEERS FLOOD HAZARD INFORMATION

The USACE is responsible for preparing the *Sacramento and San Joaquin River Basins Comprehensive Study* (SSJRCS) after the floods of 1997. This SSJRCS (USACE, 2002) addressed the entire Central Valley flood control system, including 1) a post-1997 flood risk and damage assessment, 2) development of plans for flood control and environmental restoration, and 3) development of a hydrologic/hydraulic model of the entire system, including the operation of the existing reservoirs. Among other things, the SSJRCS included mapping of the 100-year floodplain and of the 200-year and 500- year floodplains; the information provided in these maps are largely coincident with the FEMA FIRMs and are superseded by

the FEMA regulatory maps. More recent and locally-accurate 200-year floodplain maps have been developed for the cities of Manteca and Lathrop under joint contract.

The SSJRCS maps are posted and available for review on the DWR Best Available Mapping web site (http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/best_available_maps/).

3.3 CVFPB DESIGNATED FLOODWAY MAPS

Designated floodways are the primary non-structural flood management program employed by the State through the CVFPB (CVFMPP, 2010). Land uses in designated floodways are managed to maintain flood passage capacity. Designated floodway maps that are available are posted on the CVFPB web site. Although the City of Manteca is exposed to flooding risks, a review designated floodways extent maps, shows that the CVFPB has not designated any floodways in or adjacent to the City of Manteca. Interactive CVFPB maps are available at (http://gis.bam.water.ca.gov/bam/).

3.4 LEVEE FLOOD PROTECTION ZONES

Levee Flood Protection Zones (LFPZs) are theoretical areas that could be flooded in the event of levee failure in levee-protected areas. More specifically, the LFPZs describe areas that would be flooded to depths of three feet or more, or to depths of less than 3 feet, if the river water level contained by a State/Federal "project" or SPFC levee is at the top of the levee, and then released as a result of levee failure.

These maps were developed by California DWR, as required by Water Code Section 9130, to estimate the maximum potential flooded area from levee failure. The LPFZ inundation areas in Manteca are shown on Figure 11. LPFZ inundation areas prepared by DWR do not include flood depth for the City of Manteca. The LPFZ maps are shown on Map 3 of the LSJR/D Regional Flood Atlas (DWR 2013) and online at http://gis.lfpz.water.ca.gov/lfpz/. As noted by DWR, the LPFZ maps are not regulatory tools and may not describe all potential flooding hazards.

3.5 AREAS SUBJECT TO INUNDATION IN THE EVENT OF THE FAILURE OF PROJECT OR NON- PROJECT LEVEES OR FLOODWALLS.

As discussed in the previous section, maximum potential flooding from failure of project levees is described by Levee Flood Protection Zones (LFPZs). Areas subject to potential inundation as a result of levee failure of project levees are also described by the FEMA Flood Insurance Rate Maps (Zone X protected by Levee) and floodplain mapping in the USACE Sacramento-San Joaquin Rivers Comprehensive Study.

3.6 AWARENESS FLOODPLAIN MAPPING PROGRAM

DWR established the Awareness Floodplain Mapping project to identify flood hazard areas that may not otherwise be mapped, e.g. under the FEMA National Flood Insurance Program (NFIP), and to provide communities with an additional tool for understanding potential flood hazards. The DWR Awareness Floodplain Maps (DWR, 2015) do not identify any areas in or near the City of Manteca that are potentially subject to flooding, and that are not already shown on the FEMA FIRMs or other Federal or State floodplain maps.

3.7 RD 17 DETAILED 200-YEAR FLOODPLAIN MAPPING

The City of Manteca, in conjunction with the adjacent City of Lathrop, the reclamation districts and other flood protection and funding agencies are taking action toward providing an Urban Level of Flood

Protection (ULOP), including protection from the 200-year flood, in potentially-inundated portions of both cities. As a part of this effort, the cities jointly funded an initial contract with consultants Peterson Brustad Inc. (PBI) to produce the *200-year Freeboard Analysis & Floodplain Mapping within RD 17*. As discusses previously, this analysis produced a refined version of available Federal and State hydraulic modeling, 200-year water surface profiles in the San Joaquin River, and mapping of the 200-year floodplain area (and depth) for all areas protected by RD 17 levees.

This initial effort was completed in May 2014. Mapping results are shown on Figure 10, which shows areas of 200-year flood inundation by depth. The cities have also developed a reconnaissance-level assessment of ULDC "deficiencies" based on existing information produced by RD 17 and DWR, and a programmatic cost estimate for the levee rehabilitation needed to meet ULDC. The assessment indicates that the existing levees are generally consistent with geometric criteria and other ULDC. The cost of correcting deficiencies is estimated at approximately $150 million.

The cities' consultants are currently collecting more detailed geotechnical design information, in order to produce improvement plans and develop a more refined rehabilitation cost estimate so that financing can be secured and the necessary improvements permitted and constructed. This analysis will be documented in a Preliminary Design Report, which will be subject to review by an Independent Panel of Experts, as a part of providing substantial evidence of documenting ULOP "adequate progress" requirements.

3.8 DAM FAILURE INUNDATION MAPS

The San Joaquin River watershed includes numerous dams ranging from small stock ponds to Federal project reservoirs capable of storing more than 2 million acre-feet of water. These facilities, distributed throughout the San Joaquin River drainage, provide storage for agricultural and urban water supply, power generation and in some cases flood control.

State law requires that dams be evaluated regularly to verify their structural integrity, including resistance to earthquake damage. However unlikely, failure of a dam would release stored water that could inundate downstream areas and result in loss of life, damage to property, displacement of residents and damage to water resource and other infrastructure. Of the 15 major dams identified in the San Joaquin County General Plan, five have the potential to inundate all or portions of Manteca in the event of a dam failure. Maps estimating potential areas of inundation from failure of each of these dams are shown on Figure 12.

As shown on Figure 12, failure of the largest reservoir, New Melones has the potential to inundate the entire Manteca community and surrounding areas. Failure of the San Luis Reservoir has the potential to inundate roughly half of Manteca in the western portions of the City. Failure of Tulloch Reservoir, Lake McClure Reservoir, and Pine Flat Dam could also inundate areas located within south and southwestern portions of the community the majority of which is currently occupied by agricultural lands.

4.0 FLOODING EMERGENCY RESPONSE AND EXPOSURE REDUCTION

4.1 EMERGENCY RESPONSE

Emergency response to flooding and flooding threats is primarily the responsibility of local agencies including the City of Manteca, the reclamation districts, the Manteca Fire Department and the Manteca Police Protection Department, as well as the San Joaquin County Office of Emergency Services. The State of California and the Federal government serve a larger coordinating role in emergency response

planning, financing and logistical support. These agencies have established uniform Incident Command Systems, which are the basis for County, City and other agency emergency action plans. In the event of a flooding incident or threatened incident, the City of Manteca plays a key role in response together with the Manteca Fire and Police Departments. Emergency response efforts are organized in accordance with California Incident Command System (ICS), which is in turn based on the National Incident Management System (NIMS). The purpose of both is to provide uniform incident management organization and procedures that can be used effectively and simultaneously by public safety agencies at all levels of government, including local agencies in San Joaquin County.

In the event of a flood or impending flood, an Incident Command is established, typically by the City, although this role can be assumed by other agencies. The Incident Command is responsible for integrating planning, logistics, finance and coordination of all local activities including flood fight, public communication and evacuation operations. The Incident Command is typically directed by the City Manager or Mayor but may also be headed by the Fire or Police Chief.

Additional emergency response support is developed during pre-event planning at all levels of government. At the local level, this may include further definition of organization and procedure, training exercises and identification of supply facilities, evacuation routes and rally points. In emergency situations that involve larger geographic areas, an Incident Command, together with Incident Commands established by other jurisdictions, may also be supported by Area Commands and/or Emergency Operations Centers. These organizations, often established by the San Joaquin County Office of Emergency Services, exist for the purpose to supporting the local Incident Commands with liaison to government officials, finance, and purchasing. These temporary teams are also organized in accordance with the California ICS and NIMS procedures and may draw resources and other support from allied State and Federal agencies.

The San Joaquin County OES has the responsibility for coordinating multi-agency emergency response events within the San Joaquin Operational Area, including Manteca. Flooding along the San Joaquin River would likely be a multi-agency event involving the surrounding Cities, City and County police services, fire protection agencies, medical and other emergency responders and the affected reclamation districts. Within the San Joaquin Operational Area, flood fight responsibilities are divided into four “Flood Fight Command” areas. The RD 17 portion of the City is located in the Metro Flood Fight Command based at the County OES offices on Amelia Earhart Way in Stockton.

The County’s Multi-Agency Coordination System (MACS) provides overall guidance to the various emergency response agencies identifying agency-specific responsibilities for community warning, action, communication, mutual aid and other coordination with the responsible agencies. MACS is based on the Federal NIMS command system and State SEMS system, which is tiered from NIMS. The County’s efforts are centered at the San Joaquin Operational Area Emergency Operations Center. A uniform command structure is defined in the SEMS Incident Command System (ICS).

The Cities, police and fire agencies, emergency response providers, and reclamation districts have each prepared and adopted Emergency Operations Plans, which define agency responsibilities based on the NIMS, SEMS and MACS.

The reclamation districts have direct responsibility for the levees, pumps and other systems that protect district lands in the event of flooding. Emergency-related responsibilities include water level observation, levee and equipment inspection and physical work needed to prevent levee damage, overtopping or failure. RD board members, executives and employees must be properly trained in the

physical aspects of flood protection systems as well as in coordination with other agencies through the County OES. The Districts' Flood Safety Plans must be approved by the City Public Works Director, County OES and DWR. The State DWR is the lead State agency for responding to flood emergencies, coordinating response.

The DWR is also responsible for development and funding of enhanced levee operation and maintenance programs, including after-event identification of erosion or other levee damage, information collection and sharing, local emergency response planning, additional forecasting and notification, improvements to County Alert System and levee improvements, including the provision of all-weather roads on levee crowns to facilitate monitoring.

4.2 NON-STRUCTURAL FLOOD MANAGEMENT STRATEGIES

In addition to the provision of flood protection structures and emergency response planning, "flood management" includes other means for prevention of and preparation for flood events, such as development of flood-related information, mapping and plans, establishment of standards and criteria, inspection, maintenance and improvement of existing facilities and planning to minimize flood exposure. These responsibilities are shared among agencies at all levels of government.

Despite improvements to levees and installation of other flood protection structures, the risk of flooding and the need for flood management cannot be eliminated. Inadequate maintenance of flood protection structures like levees can lead to facility failures, or the capacity of these structures may be exceeded by extreme flood events. Land use planning that is not mindful of flooding risk can place more people and improvements in harm's way, and absent or ineffective flood emergency planning and response can result in unnecessary loss of life, injury and property damage. This remaining flood threat is termed "residual risk," which can be addressed by "non-structural" flood management efforts. Non-structural elements of flood management involve efforts to 1) adequately inspect and maintain flood control structures, 2) reduce the risk of exposure of people and improvements to potential flooding, and 3) plan for effective emergency response in the event of flooding. A more detailed discussion is found in the *Lower San Joaquin River and Delta Regional Flood Management Plan* (SJAFCA, 2014)

4.3 LEVEE MAINTENANCE

The reclamation districts as well as supporting State and Federal agencies have opportunities to provide an additional margin of flood protection by providing for the proper maintenance and operation of flood protection facilities. The reclamation districts have primary responsibility for operating, inspecting and correcting problems with levees and other structures, and for providing adequate training for officials and employees in these activities (as well as in emergency response). This can include maintenance and surface improvements to levee roads, burrowing rodent control and vegetation management. The districts have responsibility for day-to-day inspection and correction of problems with their facilities and for coordinating with State and Federal officials in their required periodic levee inspections.

Under AB 156, local reclamation and levee districts are now required to submit levee condition, operation, and maintenance information to DWR by September 30 of each year. DWR is required to summarize the information from all reporting agencies in an annual report to the CVFPB by December 31 of each year. Under this mandate, all agencies that maintain Project levees or Non-Project levees that benefit land within the boundaries of an area benefited by a Project levee are required to submit information. The State DWR and the USACE both have responsibility for periodic inspection of flood protection facilities and for administration of funding programs that support levee maintenance and repair activities by the reclamation districts.

The City has an indirect role in these activities; the City Public Works Director has general oversight and is responsible for the review and approval of the reclamation districts' Flood Safety Plans, which is discussed in more detail in the next section.

4.4 EXPOSURE REDUCTION

Reducing the risk of exposure to flooding is largely through the City's land use planning and zoning authority. The Manteca General Plan includes goals, policies, and implementation measures to discourage urban development in floodplain areas (see section 6.0 for current General Plan policies related to flooding).

The City's floodplain regulations contained in the Manteca Municipal Code (Chapter 8.30 Floodplain Management) require findings to be made before building and construction can be allowed within Flood Hazard Areas. Other regulations contained in the Manteca Municipal Code (Chapter 8.30) establishes procedures for permitting and standards for floor elevation, foundation anchoring and other building requirements meant to reduce flood exposure and flood damage, and development is prohibited within floodways except under certain conditions. The Manteca Municipal Code requires notification of buyers, owners and residents of floodplain areas, prevents floodway encroachment and modification and prohibits dumping in waterways. The City has also adopted and requires compliance with its Stormwater Management Program, which requires new development to limit local contributions to flood flows in the San Joaquin River.

The City makes additional effort toward reducing exposure through its participation in the FEMA National Flood Insurance Program (NFIP). The NFIP promotes more effective floodplain management by offering reduced flood insurance premiums for development that is not located within the 100-year floodplain.

Potential exposure to flooding may also be reduced by ensuring that land use agencies have accurate information as to flooding potential. Among its SB 5 flood management responsibilities, the State DWR has responsibility for coordinating the availability of "best available" floodplain mapping and other flood related information to potentially-affected communities. These are in addition to DWR's other flood management through its FloodSAFE program.

The reclamation districts have direct responsibility for the levees, pumps and other systems that protect district lands in the event of flooding. Emergency-related responsibilities include water level observation, levee and equipment inspection and physical work needed to prevent levee damage, overtopping or failure. Reclamation District Board Members, executives and employees must be properly trained in the physical aspects of flood protection systems as well as in coordination with other agencies through the County OES. The Districts' Flood Safety Plans must be approved by the City Public Works Director, County OES and DWR. The State DWR is the lead State agency for responding to flood emergencies, coordinating response. San Joaquin County and the other local agencies are responsible for maintaining up-to-date emergency action plans and for implementing emergency response system protocols. The DWR is also responsible for development and funding of enhanced levee operation and maintenance programs, including after-event identification of erosion or other levee damage, information collection and sharing, local emergency response planning, additional forecasting and notification, improvements to County Alert System and levee improvements, including the provision of all-weather roads on levee crowns to facilitate monitoring.

5.0 FLOOD AGENCY PROFILE AND ORGANIZATION

5.1 FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

FEMA has a wide range of emergency and disaster assistance responsibilities, including response to flood event emergencies; however, FEMA is the primary Federal agency with respect to floodplain mapping and management. FEMA administers the National Flood Insurance Program (NFIP), which makes federally subsidized flood insurance available to property owners within communities that participate in the NFIP, provided that the community regulates land use and development in accordance with FEMA standards. Standards are defined, in part, in the designation of floodplain areas in FEMA-prepared Flood Insurance Rate Maps (FIRMs). FIRMs are updated periodically to reflect the level of flood protection provided in flood-prone areas as well as changing conditions such as land use, water flow, levee condition, and drainage patterns. The FIRMs are considered the "regulatory floodplain" from a Federal and local perspective, and considered the "base flood plain" by the USACE. FEMA is also involved in emergency response and disaster assistance.

The design and condition of levees are key elements of FIRM mapping. Areas protected by FEMA accredited levees are mapped as being outside the 100-year floodplain; areas protected by sub-standard levees are considered to remain exposed to potential 100-year flooding (Zone A). Levees for the City of Manteca have been accredited by FEMA. The RD 17 levees were accredited for 100-year flooding in 1990.

5.2 UNITED STATES ARMY CORPS OF ENGINEERS (USACE)

The USACE is responsible for analysis of flood risk, for flood protection improvement feasibility analysis, for construction and operation of flood control reservoirs and other facilities, and for analysis, engineering, construction and inspection of levees. The USACE develops and adopts levee and other flood protection standards in cooperation with the State. The USACE is responsible for implementing most federally-authorized flood control projects, in partnership with State and local agencies. These projects are constructed under agreements where the State of California, through DWR and the CVFPB, and with the reclamation districts, assumes liability and principal maintenance responsibility for facilities constructed by the USACE. Nearly all of the levees providing flood protection to the City of Manteca are Federal "project" levees (Figure 5). Any modification of an existing Federal flood management project requires approval from the USACE under 33 USC 408. Major modifications may require a Federal feasibility study, such as the Lower San Joaquin River Feasibility Study, currently in progress and discussed below. USACE conducts routine annual levee inspections and more-detailed periodic 5-year inspections to determine whether Federal maintenance standards are met.

In the Manteca area, USACE is the Federal agency responsible for the Lower San Joaquin River and Tributaries Project levees, which were initially constructed by 1966; these are the "project" and State Plan of Flood Control levees that protect the City of Manteca. The USACE has also participated in levee improvement and repair projects on area levees. The USACE also regulates discharges of dredge and fill material to Waters of the U.S. under Clean Water Act Section 404. In addition to these responsibilities, the USACE is responsible for the maintenance of navigation ways in inland waters and construction and ongoing operation of some of the upstream reservoirs that provide flood protection for the Central Valley.

The USACE is involved in a feasibility study of further improvements to levees in the Manteca area, including improvements needed to provide ULOP to existing and planned urban areas in RD 17. This effort is known as the *Lower San Joaquin River and South Delta Feasibility Study* (LSJRFS). The USACE

released the *Draft LSJRFS* on January 27, 2015. The Study is due to be finalized in 2017. The *LSJRFS* is a multiagency effort to define improvements needed to provide 200-year flood protection along the San Joaquin River that involves the USACE, the CVFPB and San Joaquin Area Flood Control Agency (SJAFCA). Locally, SJAFCA has partnered with the several reclamation districts in the study area, including RD 17, the San Joaquin County Flood Control and Water Conservation District, and incorporated cities. The LSJRFS is an outgrowth of the USACE Sacramento River and San Joaquin River Basins Comprehensive Study discussed above.

5.3 CALIFORNIA DEPARTMENT OF WATER RESOURCES (DWR)

DWR has broad water-related responsibilities including administration of water rights, protection of water quality and dam safety, among others. Historically, DWR has been responsible for State-Federal cooperation with respect to the "project" levees and oversight of the State Plan of Flood Control (SPFC) facilities. DWR oversees and inspects reclamation district activities (Local Maintaining Agencies). DWR also serves as the California NFIP Coordinating Office for FEMA. DWR administers State-funding programs to assist local reclamation districts with levee maintenance and improvements; Delta levees are assisted under other specific programs.

Initial efforts at implementing the State's 200-year strategy were assigned to DWR, the state's principal flood management agency, and the Central Valley Flood Protection Board (CVFPB), which is staffed by DWR. These initial efforts included program development and organization, assembly and publication of floodplain mapping, preparation of the Central Valley Flood Protection Plan and definition of urban flood protection and levee standards.

DWR activities related to flood protection are coordinated through FloodSAFE California, a program launched by DWR in 2006. The FloodSAFE Program is intended to help improve integrated flood management statewide, with an emphasis on the Central Valley and Delta areas where communities and resources face high risk of catastrophic damage. DWR provides technical, financial, and emergency response assistance to local agencies related to flooding. This role was greatly expanded after approval of the SB 5 Bills, which increased the flood protection requirements for urban areas to the new 200-year standard (ULOP). The new requirements triggered the need for substantial additional technical evaluation, public information and planning, engineering and financing for necessary improvements. The DWR efforts under FloodSAFE include the State Plan of Flood Control Administration. Following the passage of SB 5, DWR prepared the first ever inventory of SPFC facilities in its *State Plan of Flood Control Descriptive Document* (CVFMPP, 2010). DWR technical studies and planning are largely oriented to the SPFC facilities, and DWR is responsible for periodic inspection of these facilities. All of the Manteca-area levees adjacent to the San Joaquin River, are SPFC facilities; interior dry land levees are not SPFC facilities.

DWR evaluated 470 miles of urban levees and 1,620 miles of non-urban levees for hidden defects. The ULE and NULE projects considered State- Federal "project" levees, and associated non-project levees, to determine whether they meet levee design and, where needed, to identify remedial measures, including cost estimates, to improve levees to meet the desired criteria. ULE and NULE included aerial surveying, mapping, hydrology, hydraulics and geotechnical studies. Information developed through the ULE and NULE projects informed the Flood Control System Status Report and the CVFPP. ULE and NULE also serve as a resource for more detailed evaluation of local flood protection systems.

Urban Levee Design Criteria (ULDC) was adopted in 2012 by DWR. The ULDC provides criteria and guidance for design, evaluation, operation, and maintenance of levees and floodwalls that provide

protection to urban and urbanizing areas. DWR prepared the ULOP Criteria to help local agencies interpret the requirements of the SB 5 Bills. The ULOP defines the applicability of the SB 5 Bills to pending land-use decisions, where the requirements apply, what findings are required to permit development in floodplain areas, and what constitutes sufficient supporting evidence for findings. Local agencies may define their own criteria, as long as they are consistent with the DWR ULOP.

DWR compiled and made available the "Best Available Mapping" of flood risk and exposure, based on existing information. Mapping products generated included FEMA Digital Flood Insurance Rate Maps (DFIRMs), Levee Flood Protection Zone maps, maps of Federal and non-Federal project levees, USACE floodplain mapping and Awareness Floodplain Maps. These maps were provided to assist initial flood protection planning and are to be replaced by later more-detailed local mapping and information, such as the information being developed for RD 17 levees protecting Manteca.

DWR continues work on the California Levee Database, storing and retrieving statewide levee attribute information and technical resource data for levee evaluation, in coordination with FEMA and the USACE. The purpose of this effort is to provide for information availability, promote compatibility and avoid duplication of the various multi-agency efforts. Regional Flood Management Plans (RFMPs). DWR funded development of six local RFMPs to provide DWR information on the local visions for flood management for use in future DWR studies, such as its San Joaquin River Basin-Wide Feasibility Study (BWFS), and the 2017 CVFPP. RFMPs include flood hazard identification, risk analysis, review of existing protection measures, identification of potential projects and funding, evaluation of system resiliency, and compatibility with State goals and Integrated Regional Water Management Plans (IRWMP). The San Joaquin Area Flood Control Agency (SJAFCA) completed a draft RFMP for the Lower San Joaquin/Delta Region.

5.4 CENTRAL VALLEY FLOOD PROTECTION BOARD (CVFPB)

With the passage of the SB 5 Bills, the State has assumed a more active role in flood management. The facets of the State's involvement now include: collecting and disseminating floodplain mapping and other information; inventory of State Plan of Flood Control facilities; establishment of the 200-year flood protection standard for urban areas (ULOP); establishment of the Urban Levee Design Criteria (ULDC); and requiring local government to provide ULOP, or cease urban development in flood-prone areas, at least until it has made "adequate progress" toward ULOP.

An important element of the new State role was preparation of the Central Valley Flood Protection Plan (CVFPP). The CVFPP includes general information on the State role in flood protection, on SPFC facilities and facility improvement needs. The principal element of the CVFPP is a strategy for prioritization and effective application of government funding to necessary flood protection improvements. The CVFPP's State Systemwide Investment Approach (SSIA) is a coordinated investment strategy for meeting the CVFPP objectives to improve public safety, ecosystem stewardship and economic sustainability, with due consideration to government financial limitations.

The mission of the CVFPB is to control flooding along the Sacramento and San Joaquin Rivers and certain tributaries in cooperation with the USACE; to cooperate with various agencies in establishing, operating, and maintaining flood control infrastructure; and to maintain the integrity of the existing flood control system and designated floodways. This latter objective is accomplished with its encroachment permit authority. The CVFPB delegates most levee maintenance to local levee and reclamation districts, aka Local Maintaining Agencies (LMAs)

The CVFPB oversees the potential flooding effects of development activities by requiring an encroachment permit for activities that have the potential to affect designated waterways, including flooding and flood flow within those waterways. The San Joaquin River is a CVFPB-regulated waterway. The CVFPB is also responsible for designation of "floodways," which receive additional protection from encroachment. However, there are no designated "floodways" in the vicinity of Manteca.

With respect to SB 5, CVFPB was tasked with assessing flooding risk and exposure of people and improvements to flooding, and then to identify a coordinated program of investment that would meet the need on a priority and cost-effectiveness basis. The program was developed and adopted by the CVFPB in 2012 as the *Central Valley Flood Protection Plan* (CVFPP). The CVFPP is identified by the SB 5 Bills as a primary source for related Safety Element amendments such and is the State's comprehensive long-term flood protection planning document. The CVFPP describes a strategy for meeting flood protection challenges while also considering ecosystem, operations and maintenance, and institutional support concerns. The CVFPP is to be updated every 5 years.

The CVFPP is primarily concerned with State Plan of Flood Control (SPFC) facilities (shared Federal/State facilities). The State has developed a State System-wide Investment Approach (SSIA) that is intended to guide federal, State and local agencies in making cost-effective integrated investments in improving the flood protection system. In taking a general approach to statewide planning, the CVFPP recognized that more-detailed analysis and planning would need to happen at a local level. Six regional flood management plans (RFMPs) were to be prepared based on available information. The plans is intended to provide a more-detailed look at existing facilities and improvement needs, as well as "non-structural" flood management. The result is prioritizing actions consistent with the SSIA, thereby facilitating the delivery of available State funding for needed improvements. The RFMPs are also intended to provide local feedback to the CVFPB as it prepares the 2017 CVFPP.

The RFMPs recognize that levels of flood protection will vary between urban and non-urban areas. Not all areas of the regions need, or desire, the same level of protection from the threats of flooding. ULOP would need to be achieved in areas containing existing and planned urban areas; most of the agricultural reclamation districts in the Delta and Lower San Joaquin River area would instead seek PL 84-99 Delta Standard or better as their minimum levee configuration.

5.5 GOVERNOR'S OFFICE OF EMERGENCY SERVICES (STATE OES)

The purpose of the Governor's Office of Emergency Services (State OES) is enhancement of safety and emergency preparedness through leadership and collaboration with other agencies. The agency's goal is to protect lives and property by effectively preparing for, preventing, responding to, and recovering from all threats, crimes, hazards, and emergencies, including flooding. State OES is responsible for development of emergency response plans such as the State Emergency Management System (SEMS) and for coordination with county OESs to be sure that emergency services are delivered in a consistent and coordinated manner. The California Dam Safety Act requires dam owners to submit maps of potential inundation from dam failure to the State OES, which in turn makes these maps available to the county OESs and other local emergency preparedness agencies.

5.6 DELTA PROTECTION COMMISSION

The Delta Protection Commission (DPC) is a regional land use planning agency with regulatory authority over the 450,000-acre Primary Zone of the Sacramento-San Joaquin Delta; its authorizing legislation is the 1992 Delta Protection Act. The mission of the DPC is to protect, maintain, enhance, and where feasible restore the overall quality of the Delta environment including agriculture, wildlife habitat, and

recreation, within the Delta Primary Zone. Land use guidance is provided by the DPC's *Land Use and Resource Management Plan* (LRMP). General plans and projects in the Primary Zone must be consistent with the LRMP, and are subject to review by the Commission. The Commission is also authorized to comment on projects in the Secondary Zone that have the potential to impact the Primary Zone, although the Commission's comments are non-binding. The City of Manteca is located in the Secondary Zone; therefore, this GPA will be circulated to the DPC for comment.

5.7 DELTA STEWARDSHIP COUNCIL

The Delta Stewardship Council (DSC) was created in 2009 by the Delta Reform Act (DRA) and associated bills. The DRA codified the State's Delta policy, which consists of two "co-equal goals:" 1) Providing a more reliable water supply for California, and 2) Protecting, restoring, and enhancing the Delta ecosystem. Both goals are to be accomplished in such a way that the "unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place" are protected and enhanced. The DSC was tasked with overseeing and implementing these goals in part by preparing and adopting the *Delta Plan* in 2013.

The *Delta Plan* is "regulatory" in that "Covered Actions," which include plans and projects within the Legal Delta (Primary Zone + Secondary Zone) must be consistent with the *Delta Plan*. This Safety Element amendment is oriented to maintenance and improvement of the SPFC levees, which are specifically identified in the *Delta Plan.*

The DSC is also leading a multi-agency effort to set new priorities for State investments in Delta levees to reduce the potential for levee failures, while advancing the co-equal goals. This effort is known as the Delta Levees Investment Strategy (DLIS), which is to involve State agencies, reclamation districts, Delta landowners and businesses, and other interested stakeholders. Levees within the Delta that would be considered under the DLIS are also State Plan of Flood Control (SPFC) levees that are addressed in the CVFPP. The CVFPP includes a related investment strategy for SPFC facilities known as the SSIA.

5.8 SAN JOAQUIN COUNTY

As a jurisdiction participating in the NFIP, San Joaquin County is responsible for implementing FEMA floodplain management regulations in the unincorporated area. The Public Works Department is the Floodplain Administrator for the NFIP. The Community Development Department has land use authority over the unincorporated area. Other than as a cooperating agency, San Joaquin County is not involved in Manteca flood protection improvements.

The San Joaquin County Office of Emergency Services (County OES) serves many of the same functions as the California OES but is also responsible for overall coordination of local emergency planning and response, including planning and response for flooding events. The County OES coordinates and administers funding for flood preparedness planning at the reclamation district level. The County OES has prepared and makes available to the public a range of flood protection materials. With respect to a potential dam failure, the County OES has prepared a *Dam Failure Plan* that includes descriptions of the dams, anticipated direction, timing and depths of flood waters, along with responsibilities and actions of various jurisdictions affected. The County OES continues to coordinate with the State OES, dam owners and operators, and work with the planning department, cities and local jurisdictions to maintain and improve the plan.

Coordination between SJC OES, the local agencies, and involved State and Federal agencies within the County is guided by the Multi-Agency Coordination System (MACS). The procedures contained in the

MACS guide jurisdictions on multi-agency coordination, community warning, and mutual aid within San Joaquin County during emergencies through the San Joaquin Operational Area Emergency Operations Center (EOC). The MACS is a component of the California Standardized Emergency Management System (SEMS) and the Federal National Incident Management System (NIMS). Within these systems, the Incident Command System (ICS) provides an organized structure for staff to provide a quick, managed and documented response to emergencies and disasters.

San Joaquin County has also developed a common set of emergency management maps that describe existing dry land levees, low points, and estimated water depths in the event of a flood; and structures, schools, pumping stations, significant levee structures (e.g. drains, flood gates, pipes), access roads, and water access sites (e.g. ferry landings and boat ramps). The mapping includes detailed flood contingency planning for each area, and response plans including evacuation plans are printed directly on the maps. The Flood Contingency Maps are made available on the County website.

5.9 SAN JOAQUIN AREA FLOOD CONTROL AGENCY (SJAFCA)

The San Joaquin Area Flood Control Agency (SJAFCA) is a Joint Powers Authority formed in 1995 to finance and manage flood control projects in the vicinity of the City of Stockton, San Joaquin County, and the San Joaquin County Flood Control and Water Conservation District. The City of Manteca is outside of the SJAFCA boundary and is not a party to the SJAFCA JPA. SJAFCA is, however, responsible for preparation of the DWR-funded and Local Management Agency-authorized *Regional Flood Management Plan for the Lower San Joaquin River/Delta Region* (RFMP), which includes the City of Manteca. The RFMP is a reconnaissance level assessment of flood risks, and a prioritized list of near-term and long-term flood risk reduction projects, which are largely improvements to existing levees in the region. SJAFCA is also a non-Federal sponsor of the USACE *Lower San Joaquin River Feasibility Study*.

The Lower San Joaquin River and Delta RFMP (SJAFCA, 2014) documents evaluation of a wide range of flood protection measures including improvement of existing levees, new levees, setback levees, and increasing channel capacity; improving expanding and re-operating upstream reservoirs; flood flow diversion; limiting development; and improvements in emergency response, operation and maintenance, among others. The RFMP's top priority is levee improvements, new levees and setback levees in selected areas. A series of project cost allocations are described including $186 million for 200-Year ULOP protection in RD 17.

The RFMP also includes a number of recommendations for investment in "non-structural" flood protection for urban and urbanizing areas including organizational improvements, enhanced post-event maintenance, improved emergency response support systems, and better management of flood plain land use, among others. Detailed recommendations are also provided for rural areas.

5.10 SAN JOAQUIN COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

The San Joaquin County Flood Control and Water Conservation District (District) was formed in 1956 to construct, operate, maintain, and plan flood control, water supply, drainage and groundwater recharge projects for the protection of life, property, and health of San Joaquin County residents and to ensure economic, environmental, and social viability of the County. The San Joaquin County Board of Supervisors serves as the governing board for the District, and the District is staffed by the San Joaquin County Department of Public Works. The District is responsible for flood control and water conservation districts in the unincorporated area surrounding Manteca but does not have any substantial involvement in Manteca flood protection concerns.

6.0 REGULATORY FRAMEWORK

The SB 5 Bills consist of interrelated Assembly and Senate bills passed in 2007, and several other related bills passed between 2009 and 2013. Overall, the Bills set in motion the State's plan for improvement of flood protection statewide; they establish the 200-year flood protection standard and ensure that 200-year protection will be provided to all Central Valley urban and urbanizing areas as soon as possible, but no later than 2025 by requiring the amendment of local general plans and zoning to institute the requirements. The Bills provide that adequate flood hazard information be available to all portions of the State, in particular the Central Valley, and especially areas protected by State Plan of Flood Control (SPFC) levees, which includes the City of Manteca.

This group of bills, described in more detail in below, is referred to collectively as "the SB 5 Bills." The SB 5 Bills establish the State standard for flood protection in urban areas as protection from the 200-year frequency flood. Under the SB 5 Bills, urban and urbanizing areas must be provided with 200-year flood protection no later than 2025. Upon the effective date of the zoning amendment, new development in areas potentially exposed to 200-year flooding more than three feet deep will be prohibited unless the local land use agency certifies that 200-year flood protection has been provided, or that "adequate progress" has been made toward provision of 200-year flood protection by 2025. These requirements are to be instituted in local general plans and zoning.

The primary SB 5 Bills consist of SB 5, AB 5 and SB 17, AB 70,AB 162, and SB 1278. The primary bills are summarized below. Some of the 200-year floodplain requirements are applicable to all cities and counties in the State; some are applicable only to agencies within the Sacramento-San Joaquin Valley, and others are applicable only to agencies within the Sacramento-San Joaquin Drainage District. The City of Manteca is located within the Sacramento-San Joaquin Valley, and San Joaquin River Watershed, (see Figure 3).

STATE

6.1 SENATE BILL 5

SB 5 establishes the State flood protection standard for urban areas in Water Code §9602(i) as the Urban Level of Flood Protection (ULOP). ULOP is defined as the "level of protection that is necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year (i.e. 200-year flooding) using criteria consistent with, or developed by, the (Department of Water Resources)." These criteria are described in the Department of Water Resources (DWR) publication Urban Level of Flood Protection Criteria (2013), including by reference DWR's Urban Levee Design Criteria (2012). The 200-year flood protection standard is to be implemented by cities and counties through required amendments of their general plans and zoning codes. The amendments must establish goals, policies and implementation measures consistent with State flood protection standards. Upon the effective date of the zoning amendment, local governments are prohibited from approving urban development projects - including certain development agreements, subdivision maps and other permits as specified in Government Code §65865.5(a)(3), 65962(a) or 66474.5(a) - within defined "flood hazard zones" if ULOP is not in place, or alternatively unless the local government certifies based on substantial evidence that "adequate progress" has been made toward provision of ULOP by 2025. In addition, SB 5 requires revisions to the California Building Standards Code for areas subject to flooding. Each County is required to prepare flooding emergency response plans in collaboration with the incorporated cities within its boundaries.

Legislative Requirements of SB-5

As described in the SB 5 Bills, the Safety Element shall establish goals, policies and objectives "for the protection of lives and property that will reduce the risk of flood damage." As described in more detail in AB 162, the Safety Element shall:

"establish a set of comprehensive goals, policies, and objectives based on the information identified pursuant to subparagraph (A), for the protection of the community from the unreasonable risks of flooding, including, but not limited to:

i. Avoiding or minimizing the risks of flooding to new development.

ii. Evaluating whether new development should be located in flood hazard zones, and identifying construction methods or other methods to minimize damage if new development is located in flood hazard zones.

iii. Maintaining the structural and operational integrity of essential public facilities during flooding.

iv. Locating, when feasible, new essential public facilities outside of flood hazard zones, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities.

v. Establishing cooperative working relationships among public agencies with responsibility for flood protection."

SB 17 and Assembly Bill 162 are companion bills that were signed into law at the same time as SB 5. The contents of these related bills are discussed below.

6.2 SENATE BILL 17 AND ASSEMBLY BILL 5

These bills rename the State Reclamation Board as the Central Valley Flood Protection Board (CVFPB), defines the transfer of responsibilities between the entities and sets the administrative requirements for the CVFPB. The DWR is directed to prepare a preliminary report on the status of the State Plan of Flood Control and to prepare and adopt a "strategic flood protection plan." The status report is the *State Plan of Flood Control Descriptive Document*. Adopted in 2012, the strategic plan is known as the *Central Valley Flood Protection Plan* (CVFPP). The CVFPP is intended to guide more-detailed Regional Flood Management Plans, flooding provisions of local general plans and zoning, and local flood management and facility improvement plans. Likewise, these local plans must be consistent with the CVFPP.

6.3 ASSEMBLY BILL 162

AB 162 requires the general plans land use element to identify and annually review those areas covered by the general plan that are subject to flooding as identified by flood plain mapping prepared by the Federal Emergency Management Agency (FEMA) or the Department of Water Resources (DWR). The bill also requires, upon the next revision of the housing element, on or after January 1, 2009, the conservation element of the general plan to identify rivers, creeks, streams, flood corridors, riparian habitat, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management. By imposing new duties on local public officials, the bill creates a State-mandated local program. This bill also requires, upon the next revision of the housing element, on or after January 1, 2009, the safety element to identify, among other things, information regarding flood hazards and to establish a set of comprehensive goals, policies, and objectives, based on specified

information for the protection of the community from, among other things, the unreasonable risks of flooding.

AB 162 augments the SB 5 requirement that cities and counties amend their general plans to reflect State standards and strategies. AB 162 sets forth more specific requirements for amendment of the Land Use, Conservation, and Safety Elements of the general plan, including required content of the elements. In addition to the Government Code's requirements related to consultation with agencies during preparation and amendment of general plans, AB 162 requires specific consultations and reviews that must take place during the amendment of Safety Elements in response to the SB 5 Bills. These include a required review of the GPA by the CVFPB and a requirement that the local agency consider and document its response to CVFPB comments. AB 162 also contains specifications related to Housing Element updates; no changes to the Manteca Housing Element are proposed at this time however, section 8.0 (Consistence Review) below provides a review of all General Plan elements relating to internal consistency and consistence with SB 5 requirements, and included amendments needed to comply with State law.

6.4 ASSEMBLY BILL 70

This bill provides that a City or County may be required to contribute its fair and reasonable share of the property damage caused by a flood to the extent that it has increased the State's exposure to liability for property damage by unreasonably approving new development in areas protected by SPFC facilities, as defined, new development in a previously undeveloped area, as defined, that is protected by a State flood control project, unless the City or County meets specified requirements.

6.5 SENATE BILL 1278

This bill relates to the timing of when cities and counties are required to have their general plans and zoning ordinances updated. Under SB 5, cities and counties in the Sacramento-San Joaquin Valley were required to amend their general plans within 24 months of the Central Valley Flood Protection Board (Board) adoption of the 2012 Central Valley Flood Protection (2012 CVFPP). Additionally, cities and counties were required to amend their zoning ordinances within 12 months of amending their general plans.

With the passage of SB 1278 and AB 1965, cities and counties in the Sacramento-San Joaquin Valley now have up to 24 months after July 2, 2013 to amend their general plans.

As part of the requirements of SB 1278, amendments to city and county general plans must include data and analysis contained in the 2012 CVFPP, including the location of the facilities of the SPFC and locations of real property protected by those facilities. Additionally, general plans must include the locations of flood hazard zones mapped by the Federal Emergency Management Agency (FEMA) and flood hazard locations mapped by local flood agencies or flood districts. Cities and counties have an additional 12 months after their general plan amendments to update their zoning ordinances to be consistent with the general plan amendments.

After these amendments (to be completed no later than July 2, 2016), cities and counties will be required to make findings related to an urban level of flood protection as stipulated in California Government Code Sections 65865.5, 65962, and 66474.5.

Finally, SB 1278 also limited the type of flooding considered for an urban level of flood protection by excluding shallow flooding and flooding from local drainage if FEMA standards are met.

6.6 FLOODSAFE CALIFORNIA

FloodSAFE is a statewide program launched in 2006 by DWR in order to achieve the following goals: reduce the chance of flooding, reduce the consequences of flooding, sustain economic growth, protect and enhance ecosystems, and promote sustainability. Initial funding was provided by Propositions 1E and 84.

6.7 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The GPA is a "project" as defined in the California Environmental Quality Act (CEQA), and therefore its potential environmental effects of the project must be considered under CEQA before the GPA can be adopted. The anticipated level of environmental review is a Negative Declaration, or Mitigated Negative Declaration.

FEDERAL

6.8 FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

FEMA operates the National Flood Insurance Program (NFIP). Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 has adopted as a desired level of protection, an expectation that developments should be protected from floodwater damage of the Intermediate Regional Flood (IRF). The IRF is defined as a flood that has an average frequency of occurrence on the order of once in 100 years, although such a flood may occur in any given year. Communities are occasionally audited by the Department of Water Resources to insure the proper implementation of FEMA floodplain management regulations.

6.9 RIVERS AND HARBORS APPROPRIATION ACT OF 1899

One of the country's first environmental laws, this Act established a regulatory program to address activities that could affect navigation in Waters of the United States.

6.10 FLOOD CONTROL ACT

The Flood Control Act (1917) established survey and cost estimate requirements for flood hazards in the Sacramento Valley. All levees and structures constructed per the Act were to be maintained locally but controlled federally. All rights of way necessary for the construction of flood control infrastructure were to be provided to the Federal government at no cost.

Federal involvement in the construction of flood control infrastructure, primarily dams and levees, became more pronounced upon passage of the Flood Control Act of 1936.

6.11 NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

Per the National Flood Insurance Act of 1968, the NFIP has three fundamental purposes: 1) *Better indemnify individuals for flood losses through insurance; 2) Reduce future flood damages through State and community floodplain management regulations; and 3) Reduce Federal expenditures for disaster assistance and flood control.*

While the Act provided for subsidized flood insurance for existing structures, the provision of flood insurance by FEMA became contingent on the adoption of floodplain regulations at the local level.

6.12 FLOOD DISASTER PROTECTION ACT (FDPA)

The FDPA of 1973 was a response to the shortcomings of the NFIP, which were experienced during the flood season of 1972. The FDPA prohibited Federal assistance, including acquisition, construction and financial assistance, within delineated floodplains in non-participating NFIP communities. Furthermore, all Federal agencies and/or federally insured and federally regulated lenders must require flood insurance for all acquisitions or developments in designated Special Flood Hazard Areas (SFHAs) in communities that participate in the NFIP.

Improvements, construction and developments within SFHAs are generally subject to the following standards:

- *All new construction and substantial improvements of residential buildings must have the lowest floor (including basement) elevated to or above the base flood elevation (BFE).*
- *All new construction and substantial improvements of non-residential buildings must either have the lowest floor (including basement) elevated to or above the BFE or dry-floodproofed to the BFE.*
- *Buildings can be elevated to or above the BFE using fill, or they can be elevated on extended foundation walls or other enclosure walls, on piles, or on columns.*
- *Extended foundation or other enclosure walls must be designed and constructed to withstand hydrostatic pressure and be constructed with flood-resistant materials and contain openings that will permit the automatic entry and exit of floodwaters. Any enclosed area below the BFE can only be used for the parking of vehicles, building access, or storage.*

LOCAL

6.13 CITY OF MANTECA GENERAL PLAN

The existing City of Manteca General Plan identifies the following goals, policies, and implementation measures related to flooding and emergency response:

Section 7 Safety Element (Amended December 17, 2013) Subsection 7.2 Flood Hazards:

Goals:

Goal S-3. Prevent loss of lives, injury, and property damage due to flooding.

Goal S-4. Pursue flood control solutions that minimize environmental impacts.

Goal S-5. Participate in a Regional Flood Management Plan.

Policies: Flood Safety

S-P-7. Regulate all uses and development in areas subject to potential flooding through zoning and other land use regulations**.**

S-P-8. Cooperate with other agencies in the pursuit of a regional approach to flood issues.

S-P-9. Combine flood control, recreation, water quality, and open space functions where feasible.

S-P-10. Ensure that any existing structures subject to the 200-year flood provide adequate

protection from flood hazards.

S-P-11. Ensure that the impacts of potential flooding are adequately analyzed when considering areas for future urban expansion.

S-P-12. New residential development, including mobilehomes, shall be constructed so that the lowest floor is at least one foot above the 200-year flood level.

S-P-13. Non-residential development shall be anchored and floodproofed in accord with Federal Emergency Management Agency (FEMA) standards to prevent damage or causing damage due to a 200-year flood or, alternatively, elevated to at least one foot above the 200-year flood level.

S-P-14. When improvements to existing developments are made costing at least 50 percent of the current market value of the structure before improvements, the structure shall be brought into compliance with FEMA standards.

S-P-15. Ensure the City is in compliance with the Central Valley Flood Protect Plan.

Implementation: Flood Safety

S-I-4. The City shall continue to participate in the National Flood Insurance Program. To this end, the City shall ensure that local regulations are in full compliance with standards adopted by the Federal Emergency Management Agency (FEMA). The City shall adopt and implement local flood management development standards.

S-I-5. Provide flood warning and forecasting information to City residents.

S-I-6. Discourage large continuous paved areas unless provided with engineered drainage facilities.

S-I-7. Where feasible, require the use of pervious paving materials, such as brick or stepping stones with sand joints.

S-I-8. New development shall be required to maintain natural stream courses and adjacent habitat and combine flood control, recreation, water quality, and open space functions.

S-I-9. Participate in the development of a collaborative local flood plan for San Joaquin County.

Section 7 Safety Element (Amended December 17, 2013) Subsection 7.4 Emergency Procedures:

Goal S-7. Ensure that City emergency procedures are adequate in the event of potential natural or man-made disasters.

Policies: Emergency Procedures

S-P-19. The City shall maintain and periodically update the City's Emergency Plan.

Implementation Policies: Emergency Procedures

S-I-15. The City shall conduct periodic emergency response exercises to test the effectiveness of City emergency response procedures.

S-I-16. The City shall review County and State emergency response procedures that must be coordinated with City procedures.

Section 6 Public Facilities and Services Element Subsection 6.7 Major Drainage

Goals:

Goal PF-9. Maintain an adequate level of service in the City's drainage system to accommodate runoff from existing and projected development and to prevent property damage due to flooding.

Policies: Major Drainage

PF-P-26. The City shall continue to complete gaps in the drainage system in areas of existing development.

PF-P-27. The City shall require the dedication and improvement of drainage detention basins as a condition of development approval according to the standards of the Drainage Master Plan. The responsibility for the dedication and improvement of detention basins shall be based on the prorated share of stormwater runoff resulting from each development.

PF-P-28. Storm drainage systems within new development areas shall include open drainage corridors where feasible to supplement or replace an underground piped drainage system. The drainage systems would provide for short-term storm water detention, storm water conveyance for storm waters exceeding a 10-year event, storm water quality treatment, bike and pedestrian paths, and visual open space within neighborhoods. The width and length of the corridors would be determined by the stormwater management requirements. The drainage systems would provide a pedestrian connection between parks and access to open space from residential neighborhoods. The neighborhoods would be designed with homes oriented to, rather than backing on the open space corridor.

Implementation: Major Drainage

PF-I-13. The City shall update the Storm Drainage Master Plan and Public Facilities Implementation Plan, regarding water supply and distribution, every five years. The update shall be reviewed annually for adequacy and consistency with the General Plan.

7.0 PROPOSED GENERAL PLAN SAFETY ELEMENT AMENDMENT

The following information is specifically an amendment to Section 7.2 Flood Hazards from the General Plan.

Section 7.2 Flood Hazards

Flood hazards in the Planning Area are the result of the 100 and 200 year flood, localized drainage problems, levee breaches, and dam failure. The effects of flooding include the initial force of floodwaters that can damage structures, vehicles, and overwhelm people within the floodway. Floodwaters can carry large objects downstream, which have the force to remove stationary structures and may cause loss of life and injury to people. Saturation of materials and earth can cause instability, collapse, and damage, and objects can be buried through sediment deposition. Floods can cause drowning or isolation of persons and animals, break utility lines, interrupting services and potentially affecting public health and safety. The secondary effects of flooding are due to standing water, which can result in the loss of crops, septic tank failure, water well contamination and illness. Standing water can also damage road, foundations, and electrical circuits.

Impervious Surfaces and Stormwater Runoff

Development and redevelopment activities allowed under the General Plan will result in the introduction of additional impervious surfaces in the planning area and diminish the amount of pervious areas where rain waters can permeate. Based on the higher urbanized nature of the planning area, the extent of additional site coverage and the additional storm flows resulting therefrom will be minimal. Storm water pollution can result from the contamination of runoff from urban areas as it drains from streets or property through the municipal storm water drainage system and into waterways (rivers, sloughs, creeks etc.) The contaminated storm water may affect commercial fisheries, restrict swimming areas or affect the navigability of the regional waters.

100 and 200-Year Flood Areas

The primary flood hazard in the study area is the San Joaquin River and its tributaries. The hydrology of the region consists of this established river system and can be directly affected by several external factors. Meteorological events such as intense precipitation may adversely affect the natural drainage of the region. In addition, seasonal snowmelt will significantly contribute to the volume of water in the local hydrologic system. Urbanization contributes to an increased volume in the hydrologic system by maintaining a high percentage of impervious surface, which does not allow for infiltration of water into the soil and thus results in increased velocities and volumes of runoff. All of these factors can lead to exceeding the natural carrying capacity of the existing hydrology, which results in flooding of low-lying areas.

Dam Failure Inundation

The City, or portions of the City, would be subject to inundation in the event of dam failure. The City is subject to inundation from five upstream dams including: New Melones Dam (Calaveras County), San Luis Reservoir (Merced County), Tulloch Reservoir (Calaveras County), Lake McClure Reservoir (Mariposa County), and the Pine Flat Dam (Fresno County). Although the likelihood of dam failure is remote, failure of a dam would release stored water that could inundate areas within the City and result in loss of life, damage to property, displacement of residents and damage to water resources and other infrastructure.

Goals: Flood Safety

Goal S-3. Protect life and property from flood events.

Goal S-4. Provide a planning framework suitable for flood protection and risk management consistent with Federal and State law.

Goal S-5. Pursue flood control solutions that minimize environmental impacts.

Policies: Flood Safety

Policy S-P-7. Periodically review and update when necessary, the General Plan Safety Element goals, policies, and implementation measures in order to maintain compliance with applicable Federal and State requirements.

Policy S-P-8. Maintain and periodically update, City flood safety plans, floodplain management ordinances, zoning ordinance, building codes and other related sections of the Manteca Municipal Code to reflect Safety Element goals, policies and standards, applicable Federal and State law, and National Flood Insurance Program requirement.

Policy S-P-9. The City shall require evaluation of potential flood hazards prior to approval of development projects to determine whether the proposed development is reasonably safe from flooding and consistent with California Department of Water Resources (DWR) Urban Level of Flood Protection Criteria. The City shall not approve the execution of a development agreement, a tentative map, or a parcel map for which a tentative map is not required, or a discretionary permit or other discretionary entitlement that would result in the construction of a new building, or construction that would result in an increase in allowed occupancy for an existing building, or issuance of a ministerial permit that would result in the construction of a new residence for property that is located within a 200-year flood hazard zone, unless the adequacy of flood protection as described in Government Code §65865.5(a), 65962(a), or 66474.5(a), has been demonstrated.

Policy S-P-10. The City may permit new development in areas not identified as "urban" or "urbanizing" provided that they are protected from 100-year flooding by FEMA-accredited levees or equivalent flood protection as shown on an adopted FEMA FIRM, a FEMA-approved Letter of Map Revision (LOMR) or a Conditional Letter of Map Revision (CLOMR), subject to conditions specified in the CLOMR.

Policy S-P-11. The City may permit new development in areas not protected by FEMA-accredited 100-year levees subject to all applicable requirements of Manteca Municipal Code Chapter 8.30 (Floodplain Management), the California Building Standards Code as adopted by the City, and the latest promulgated FEMA standards for development in the 100-year floodplain, provided that new development approval will not cause the project site or area to be defined as "urban" or "urbanizing."

Policy S-P-12. Work closely with the City of Lathrop, and the local reclamation districts to improve levee systems as required to provide ULOP for urban and urbanizing areas in Manteca by 2025, and to provide the basis for findings of "adequate

progress" toward that objective based on substantial evidence as soon as possible.

Policy S-P-13. The City shall continue to cooperate with local, regional, State, and Federal agencies in securing funding to obtain the maximum level of flood protection that is practical, with a goal of achieving 200-year flood protection for all areas of the City.

Policy S-P-14. Maintain active participation in the National Flood Insurance Program (NFIP).

Policy S-P-15. The City shall maintain eligibility in the Federal Emergency Management Agency's (FEMA's) Community Rating System (CRS) program, which gives property owners discounts on flood insurance.

Policy S-P-16. Provide technical assistance and encourage landowners within the FEMA Special Flood Hazard Area (100-year floodplain) to purchase and maintain flood insurance.

Policy S-P-17. Ensure that the impacts of potential flooding are adequately analyzed when considering areas for future urban expansion.

Policy S-P-18. Provide opportunities for review of and comment by the reclamation districts, Manteca Police Services, Manteca Fire Department, the Lathrop Manteca Fire District for comment during new development project review.

Policy S-P-19. Consider the risks of catastrophic dam failure in the planning and environmental review of new development projects.

Policy S-P-20. Incorporate riparian habitat protection, mitigation or enhancement into flood protection improvements to maintain existing floodwater capacity where feasible.

Policy S-P-21. Combine flood control, recreation, water quality, and open space functions where feasible.

Policy S-P-22. Discourage large continuous paved areas unless provided with engineered drainage facilities, and where feasible, require the use of pervious paving materials.

Policy S-P-23. When improvements to existing developments are made costing at least 50 percent of the current market value of the structure before improvements, structures shall be brought into compliance with relevant FEMA standards.

Policy S-P-24. The City shall require, for areas protected by levees, all new developments to include a notice within the deed that the property is protected from flooding by a levee and that the property can be subject to flooding if the levee fails or is overwhelmed by floodwater flow.

Policy S-P-25. The City shall update flood hazard maps as necessary to reflect impacts from climate change in terms of long-term flood safety and long-term flood event probabilities.

Implementation: Flood Safety

S-I-4. The City will amend Title 17 (Zoning) of the Manteca Municipal Code so as to

require that ULOP or "adequate progress" findings specified in the Safety Element, and in Government Code Sections 65007, 65865.5, 65962 and 66474.5, be made prior to approving a development project located within RD 17 with predicted 200-year flood depths of more than three feet according to the official map approved by the City of Manteca or Floodplain Administrator. Title 17 amendments shall also implement all Safety Element policies related to development permitting in potentially flooded areas.

S-I-5. The City will evaluate the consistency of the Safety Element with applicable laws, regulations and plans in conjunction with its annual review of the General Plan. The City shall determine whether and when an amendment of the Safety Element is required.

S-I-6. The City will continue to participate in the FEMA CRS program, including dissemination of information to the public and annual reviews of its participation in the FEMA CRS program and improve the program as feasible to maintain or improve effects on flood insurance costs.

S-I-7. The City will consider, in the review of plans for new development, the need for levee setbacks, dam failure risks and the views of the local flood protection and emergency response agencies.

S-I-8. Applications for development in areas subject to 200-year flooding shall indicate the depth of predicted 200-year flooding on the basis of official maps approved by the City of Manteca or Floodplain Administrator.

S-I-9. The City will monitor changes in Federal and State laws and regulations related to local flood protection, including the National Flood Insurance Program (NFIP) and incorporate necessary changes into Section 15.56, Title 17 of the Manteca Municipal Code, the City's Emergency Operations Plan and building codes as required.

S-I-10. The City will prepare an official 200-year Floodplain Map for the City of Manteca identifying predicted flood depths for reference when making land use determinations.

S-I-11. The City will amend Chapter 8.30 (Floodplain Management) of the Manteca Municipal Code to reflect flood protection requirements specified in the Safety Element as well as any relevant updates to Federal or State requirements.

S-I-12. The City will consider potential effects of climate change in planning, design and maintenance of levee improvements and other flood control facilities.

S-I-13. City will coordinate with RD 17 and RD 2094 as required for the purpose of ensuring that ULOP is available as soon as possible and that "adequate progress" findings can be made.

S-I-14. The City will encourage the reclamation districts to incorporate riparian habitat protection and/or enhancement in levee improvement plans where feasible.

8.0 CONSISTENCY REVIEW

The Manteca General Plan, including the required elements of the Plan, was reviewed during the preparation of this Safety Element Amendment. The General Plan was reviewed for any information or policy statements that might render the General Plan internally inconsistent. In addition, modifications to the other General Plan elements required by the SB 5 Bills were identified. General Plan revisions addressing both purposes are described below by General Plan Element:

LAND USE

The Land Use Element of the Manteca General Plan contains no references to flooding and no policies or other statements that would conflict with the GPA.

However, AB 162 sets forth more specific requirements for amendment of the Land Use Element of the General Plan, including required content of the elements. Areas subject to flooding must be identified as part of the Land Use Element. Additionally, AB162 requires the land use element to identify and annually review those areas covered by the General Plan that are subject to flooding as identified by flood plain mapping prepared by the Federal Emergency Management Agency (FEMA), the Department of Water Resources (DWR), or refined City flood mapping.

Therefore, this GPA includes the flowing implementation measure to be added to the Manteca General Plan Land Use Element upon adoption of this General Plan Amendment.

LU-I-8. Annually review areas covered by the General Plan that are subject to flooding as identified by flood plain mapping prepared by the Federal Emergency Management Agency (FEMA), the Department of Water Resources (DWR), or refined City flood mapping as identified in the City's Safety Element and Safety Element background report.

COMMUNITY DESIGN

The Community Design Element of the Manteca General Plan contains no references to floods or flooding and no policies or other statements that would conflict with the GPA.

CIRCULATION

The Circulation Element of the Manteca General Plan contains no references to floods or flooding and no policies or other statements that would conflict with the GPA.

ECONOMIC DEVELOPMENT

The Economic Development Element of the Manteca General Plan contains no references to floods or flooding and no policies or other statements that would conflict with the GPA.

HOUSING

The Housing Element of the Manteca General Plan was adopted June 15, 2010 and is a 209-page standalone document. References to floods or flooding contained in the Housing Element are listed below:

The Housing Element (Policy Document) of the Manteca General Plan contains no references to floods or flooding and no policies or other statements that would conflict with the GPA.

The Housing Element (Background Report) of the Manteca General Plan contains two references to floods or flooding as listed below:

> ***Page 2-65****: "All parcels (or portions of parcels) that met the criteria above were reviewed by City staff to confirm vacancy status, ownership, adequacy of public utilities and services, possible environmental constraints such as flood zones and steep slopes, and other possible constraints to development feasibility."*
>
> ***Page 2-66:*** *"Environmental Constraints. The Consultants reviewed all parcels (or portions of parcels) that met the criteria above for any possible environmental constraints such as flood zones, steep slopes, and other possible constraints to development feasibility. None of the sites included in the inventory have any known environmental constraints that would limit or prohibit development of the site."*

No statements contained in the Manteca Housing Element Background Report would conflict with the GPA.

PUBLIC FACILITIES AND SERVICES

The Public Facilities and Services Element of the Manteca General Plan contains references and policy statements related to floods or flooding, as listed below:

> ***Page 6-10:*** *"The City of Manteca's target level of service is to provide 10-year storm drainage protection for all development and to provide 100-year storm drainage protection for all structures."*
>
> ***Page 6-11*** *through* ***6-12****:*
>
> ***Goal PF-9.*** *Maintain an adequate level of service in the City's drainage system to accommodate runoff from existing and projected development and to prevent property damage due to flooding.*
>
> ***Policies: Major Drainage***
>
> ***PF-P-26.*** *The City shall continue to complete gaps in the drainage system in areas of existing development.*
>
> ***PF-P-27.*** *The City shall require the dedication and improvement of drainage detention basins as a condition of development approval according to the standards of the Drainage Master Plan. The responsibility for the dedication and improvement of detention basins shall be based on the prorated share of stormwater runoff resulting from each development.*
>
> ***PF-P-28.*** *Storm drainage systems within new development areas shall include open drainage corridors where feasible to supplement or replace an underground piped drainage system. The drainage systems would provide for short-term storm water detention, storm water conveyance for storm waters exceeding a 10-year event, storm water quality treatment, bike and pedestrian paths, and visual open space within neighborhoods. The width and length of the corridors would be determined by the stormwater management requirements. The drainage systems would provide a pedestrian connection between parks and access to open space from residential neighborhoods. The neighborhoods would be designed with homes oriented to, rather than backing on the open space corridor.*
>
> ***Implementation: Major Drainage***
>
> ***PF-I-13.*** *The City shall update the Storm Drainage Master Plan and Public Facilities Implementation Plan, regarding water supply and distribution, every five years. The update shall be reviewed annually for adequacy and consistency with the General Plan.*

No Public Facilities and Services Element policies or other statements would conflict with the GPA.

SAFETY

Section 7.2 Flood Hazards

Upon Amendment to Section 7.2 "Flood Hazards" of the Manteca General Plan Safety Element any and all existing goals policies and implementation measures of the Manteca General Plan Safety Element Section 7.2 are deleted and replaced by this Amendment upon the adoption of this document. Therefore, there will be no policy conflicts between existing and post-adoption versions of the Safety Element as it pertains to Section 7.2 (Flood Hazards).

Section 7.3 Hazardous Materials

The Manteca General Plan Safety Element Section 7.3 (Hazardous Materials) contains no references to floods or flooding and no policies or other statements that would conflict with the GPA.

However, due to additional policy statements and implementation measures contained in the Safety Element Section 7.2 (Flood Hazards), re-numbering of policies and implementation measures will be required throughout this section. These numbering revisions include:

Policies: Hazardous Materials Safety

S-P-16. Re-number to **S-P-26.**

S-P-17. Re-number to **S-P-27.**

S-P-18. Re-number to **S-P-28.**

Implementation: Hazardous Materials Safety

S-I-10. Re-number to S-I-15

S-I-11. Re-number to S-I-16

S-I-12. Re-number to S-I-17

S-I-13. Re-number to S-I-18

S-I-14. Re-number to S-I-19

Section 7.4 Emergency Procedures

The Emergency Procedures section of the Manteca General Plan Safety Element contains references and policy statements related to floods or flooding in terms Emergency Procedures as listed below:

Goal S-7. *Ensure that City emergency procedures are adequate in the event of potential natural or man-made disasters.*

Policies: Emergency Procedures

S-P-19. *The City shall maintain and periodically update the City's Emergency Plan.*

Implementation Policies: Emergency Procedures

S-I-15. *The City shall conduct periodic emergency response exercises to test the effectiveness of City emergency response procedures.*

S-I-16. *The City shall review County and State emergency response procedures that must be coordinated with City procedures.*

No Public Safety Element policies or other statements Contained within Section 7.4 (Emergency Procedures) would conflict with the GPA.

However, due to additional policy statements and implementation measures contained in the Safety Element Section 7.2 (Flood Hazards), re-numbering of policies and implementation measures will be required throughout this section. These numbering revisions include:

Policies: Emergency Procedures

S-P-19. Re-numbered to **S-P-29.**

Implementation Policies: Emergency Procedures

S-I-15. Re-number to S-I-20

S-I-16. Re-number to S-I-21

Additionally, as described in the SB 5 Bills, and as described in more detail in AB 162, the Safety Element shall establish a set of comprehensive goals, policies, and objectives based on the information identified pursuant to subparagraph (A), for the protection of the community from the unreasonable risks of flooding, including:

iii. Maintaining the structural and operational integrity of essential public facilities during flooding.

iv. Locating, when feasible, new essential public facilities outside of flood hazard zones, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities.

vi. Establishing cooperative working relationships among public agencies with responsibility for flood protection.

Therefore, this GPA includes the flowing policies and implementation measures to be added to the Manteca General Plan Safety Element Section 7.4 (Emergency Procedures) upon adoption of this General Plan Amendment.

Policies: Emergency Procedures

S-P-30. The City shall provide for the availability and functionality of critical facilities during flooding events.

S-P-31. Locate new critical City facilities, and promote the location of non-City critical facilities, including hospitals, emergency shelters, fire stations, emergency response centers and emergency communications facilities outside of flood hazard zones where feasible. Essential facilities that are, or must be located within flood hazard zones should incorporate feasible site design or building construction features to mitigate potential flood risk to ensure operation during a flood event.

Implementation Policies: Emergency Procedures

S-I-22. Cooperate with San Joaquin County OES, Manteca Fire Department, Lathrop Manteca Fire District, Manteca Police Services, the reclamation districts and other agencies with responsibility for emergency management in emergency response planning, training and provision of logistical support.

S-I-23. Support participation by City staff, the Police Services, Manteca Fire Department, and Lathrop Manteca Fire District in emergency response demonstrations and training where feasible.

S-I-24. The City will periodically coordinate local flood protection agencies, including the reclamation districts, to discuss the status of flood protection facilities and improvements, strategize future improvements, consider potential climate change effects, financing for improvements, emergency response plans, and worker training for emergency response situations.

S-I-25. The City will consider options for location of essential facilities outside flood-prone areas where feasible, and if essential facilities they must be located in areas of potential flooding how to mitigate the effects of flooding on the availability and use of those facilities.

RESOURCE CONSERVATION

The Resource Conservation Element of the Manteca General Plan contains no references to floods or flooding and no policies or other statements that would conflict with the GPA.

AB 162 sets forth specific requirements for amendment of the Conservation Element of the General Plan. The bill requires, upon the next revision of the housing element, on or after January 1, 2009, the conservation element of the General Plan to identify rivers, creeks, streams, flood corridors, riparian habitat, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management *(California Government Code Section 65302(d)(3) as amended by AB 162).*

In addition to the Safety Element Section 7.2 (Flood Hazards), which contains policies and implementation measures to increase permeable surfaces throughout the City that limit flood flows, and increase groundwater recharge capabilities; the City of Manteca Resource Conservation Element currently addresses lands that may accommodate floodwater for purposes of groundwater recharge and stormwater management through the following goals policies and implementation measures.

Section 8.6 Water Quality

Goal RC-7. *To protect water quality in the San Joaquin River and in the area's groundwater basin.*

8.6.1 Policies: Water Quality

RC-P-13. *Protect the quality of Manteca's groundwater.*

RC-P-14. *Encourage participation by the County and surrounding communities in a basin-wide groundwater management study.*

8.6.2 Implementation: Water Quality

RC-I-19. *The City shall work with the County and surrounding communities to develop an action plan and/or to create an agency to manage and protect local and regional groundwater resources.*

RC-I-22. *Maintain a buffer area between waterways and urban development to protect water quality and riparian areas.*

RC-I-23. *Utilize cost-effective urban runoff controls, including Best Management Practices (BMPs), to limit urban pollutants from entering the water courses.*

RC-I-24. *Comply with the Regional Water Quality Control Board's regulations and standards to maintain and improve groundwater quality in Manteca.*

Section 8.7 Open Space

8.7.2 Implementation: Open Space

RC-I-28. *Monitor groundwater resources and consider locating required detention basins where recharge potential is determined to be high.*

No Resources Conservation Element policies or other statements Contained within Section 8.6 (Water Quality) or 8.7 (Open Space) would conflict with the GPA.

NOISE

The Noise Element of the Manteca General Plan contains no references to floods or flooding and no policies or other statements that would conflict with the GPA.

AIR QUALITY

The Air Quality Element of the Manteca General Plan contains no references to floods or flooding and no policies or other statements that would conflict with the GPA.

ADMINISTRATION

The Administration Element of the Manteca General Plan contains no references to floods or flooding and no policies or other statements that would conflict with the GPA.

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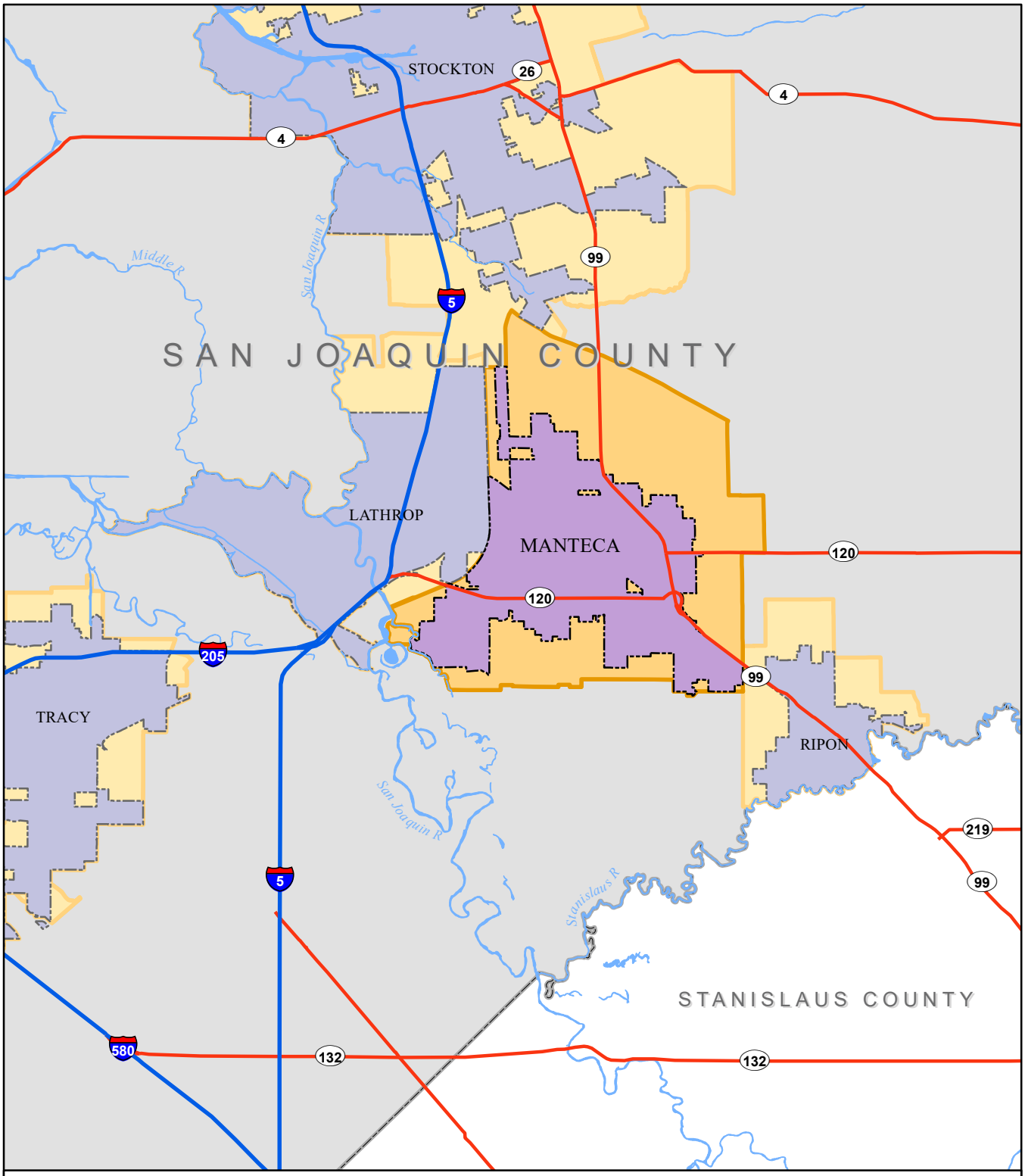

Legend

City Limits

- City of Manteca
- Other City

Spheres Of Influence

- Manteca SOI
- Other SOI

- Interstate
- State Highway

N

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MANTECA SB 5 SAFETY ELEMENT AMENDMENT

Figure 1: Regional Location Map

Sources: San Joaquin County, California Spatial Information Library.
Map date: May 16, 2016.

De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm

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STOCKTON

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General Plan Designations

- AG:
- NC: NEIGHBORHOOD COMMERCIAL
- CMU: CMU; CMU: COMMERCIAL MIXED USE
- GC: GENERAL COMMERCIAL
- VLDR: VERY LOW DENSITY RES. (0.5 TO 2 DU/AC)
- LDR: LOW DENSITY RES. (2.1 TO 8 DU/AC)
- MDR: MEDIUM DENSITY RES. (8.1 TO 15 DU/AC)
- HDR: HIGH DENSITY RES. (15.1 TO 20 DU/AC)
- BIP: BUSINESS INDUSTRIAL PARK
- BP: BUSINESS PROFESSIONAL
- LI: LIGHT INDUSTRIAL
- HI: HEAVY INDUSTRIAL
- OS: OPEN SPACE
- P: PARK
- PQP: PUBLIC/QUASI-PUBLIC
- UR: URBAN RESERVE
- UR-AG: URBAN RESERVE (AGRICULTURE)
- UR-CMU: URBAN RESERVE (COMMMERCIAL MIXED USE)
- UR-GC: URBAN RESERVE (GENERAL COMMERCIAL)
- UR-VLDR: URBAN RESERVE (VERY LOW DENSITY RESIDENTIAL)
- UR-LDR: URBAN RESERVE (LOW DENSITY RESIDENTIAL)
- UR-MDR: URBAN RESERVE (MEDIUM DENSITY RESIDENTIAL)
- UR-BIP: URBAN RESERVE (BUSINESS INDUSTRIAL PARK)
- UR-LI: URBAN RESERVE (LIGHT INDUSTRIAL)
- UR-P: URBAN RESERVE (PARK)
- UR-PQP: URBAN RESERVE (PUBLIC/QUASI-PUBLIC)

Planning Areas

- CITY OF MANTECA
- SURROUNDING CITIES
- MANTECA SPHERE OF INFLUENCE

Sources: City of Manteca; San Joaquin County. Map date: April 11, 2016.

MANTECA SB 5 SAFETY ELEMENT AMENDMENT

Figure 2: General Plan Land Use Map

N

0 0.5 1

Miles

1:52,000

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MANTECA SB 5 SAFETY ELEMENT AMENDMENT

Figure 3: San Joaquin River Watershed

Legend

San Joaquin River Watershed

N

0 10 20

Miles

1:1,700,000

Sources: Department of Water Resrouces, San Joaquin County, California Spatial Information Library. Map date: February 1, 2016.

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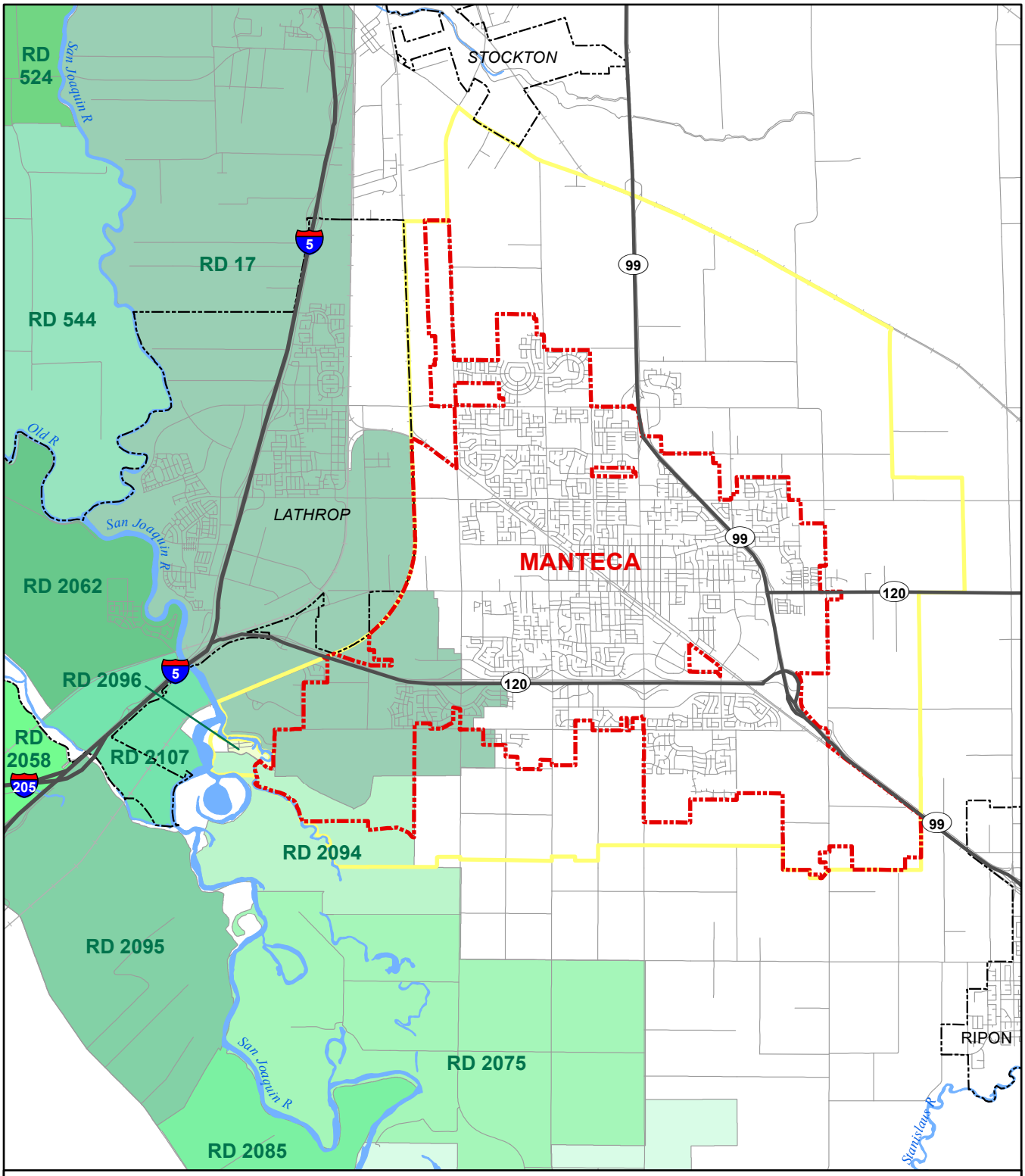

MANTECA SB 5 SAFETY ELEMENT AMENDMENT

Figure 4: Reclamation District Boundaries

Legend

- City of Manteca
- Other Cities
- City of Manteca Sphere of Influence
- Reclamation Districts

N

0 0.5 1

Miles

1:100,000

Sources: San Joaquin County, California Spatial Information Library.
Map date: April 11, 2016.

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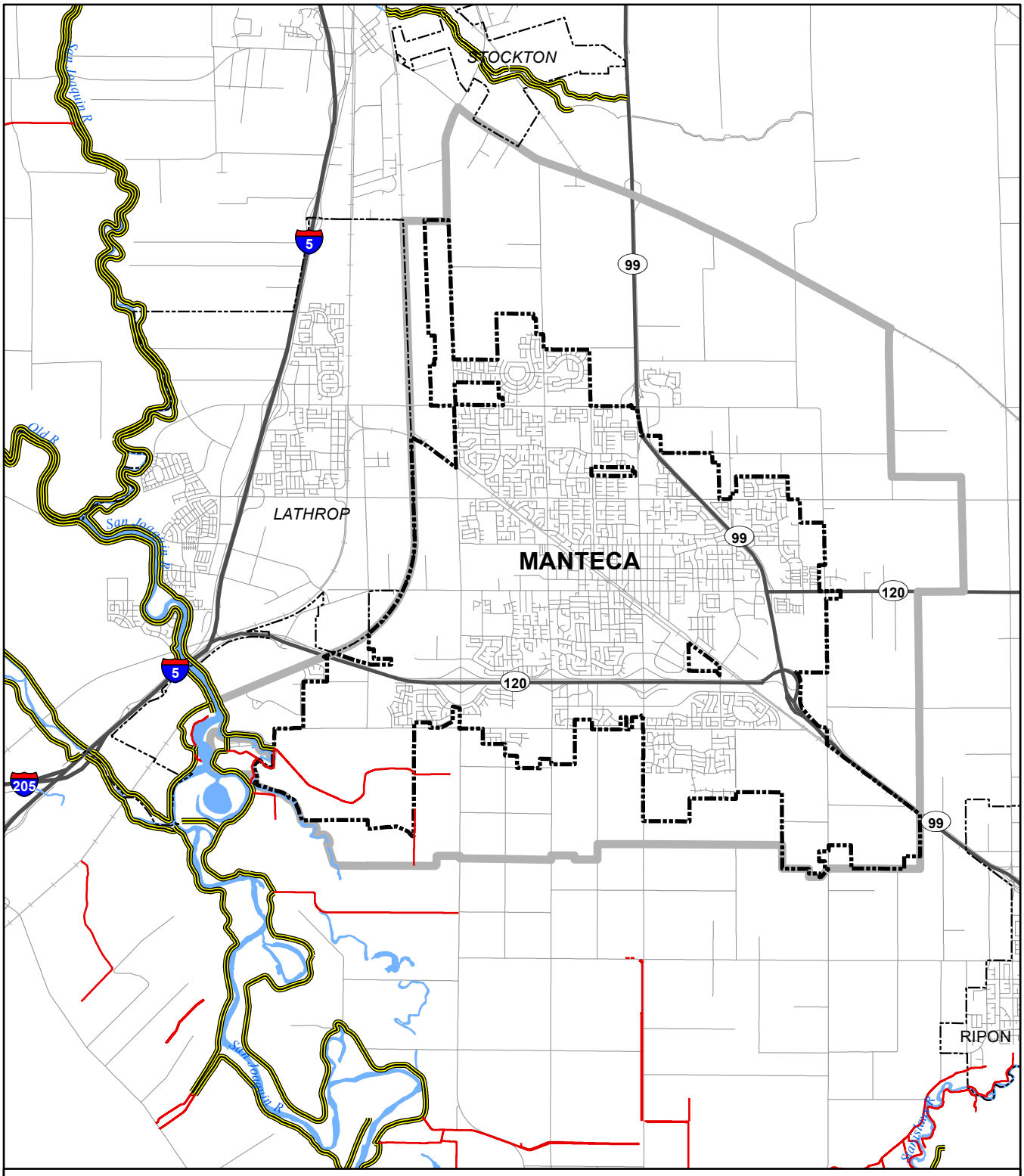

MANTECA SB 5 SAFETY ELEMENT AMENDMENT

Figure 5: Levee System

Legend

- City of Manteca
- Other Cities
- City of Manteca Sphere of Influence
- State-Federal SPFC Levee
- Non-SPFC Levee

N

0 0.5 1

Miles

1:100,000

Sources: California Department of Water Resources; San Joaquin County, CalAtlas. Map date: April 11, 2016.

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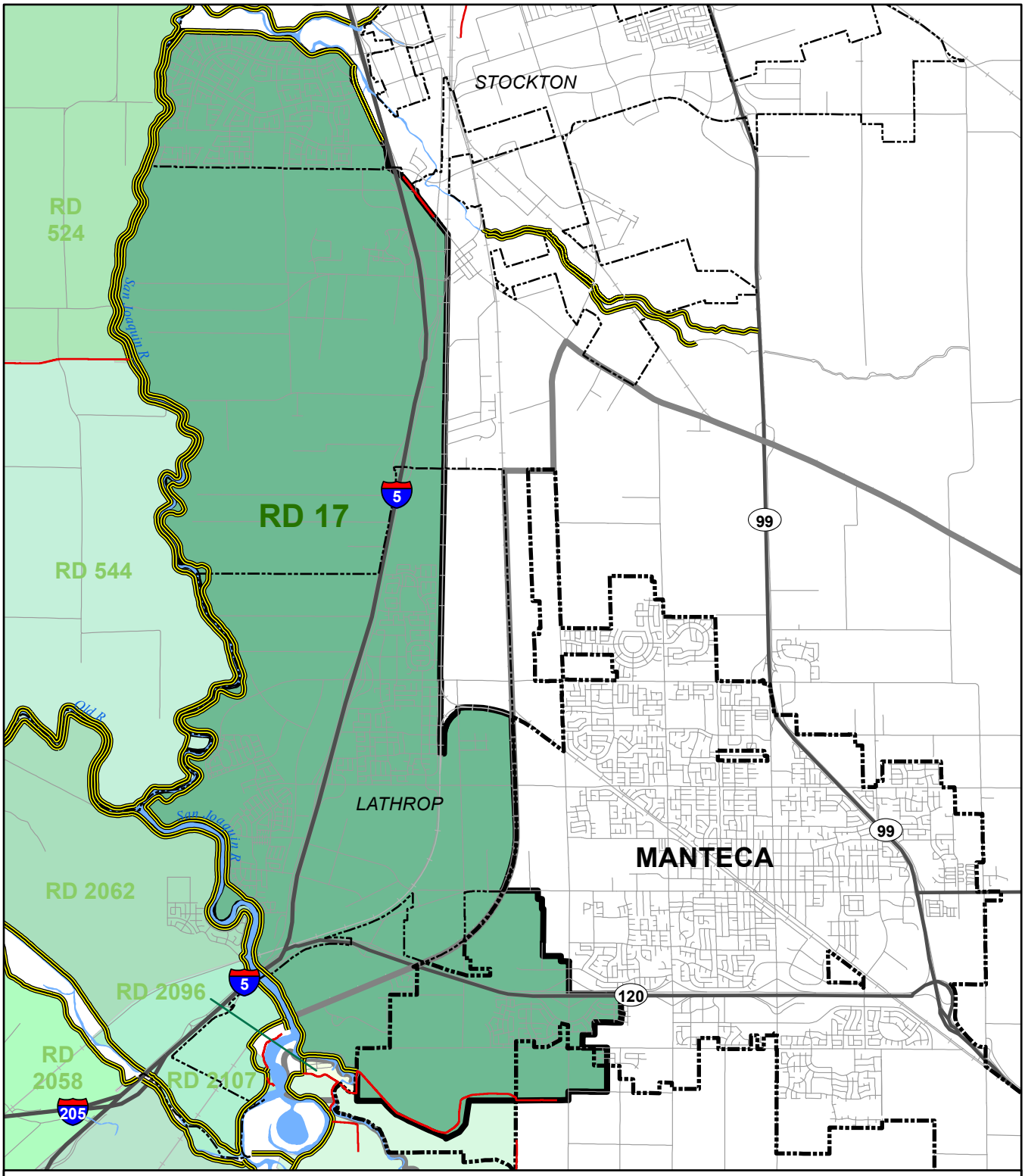

Legend

- Reclamation District 17
- City of Manteca
- Other Cities
- City of Manteca Sphere of Influence
- State-Federal SPFC Levee
- Non-SPFC Levee

N

0 0.5 1

Miles

1:88,000

Sources: California Department of Water Resources; San Joaquin County, CalAtlas. Map date: April 11, 2016.

MANTECA SB 5 SAFETY ELEMENT AMENDMENT

Figure 6: Reclamation District 17 and Levee System

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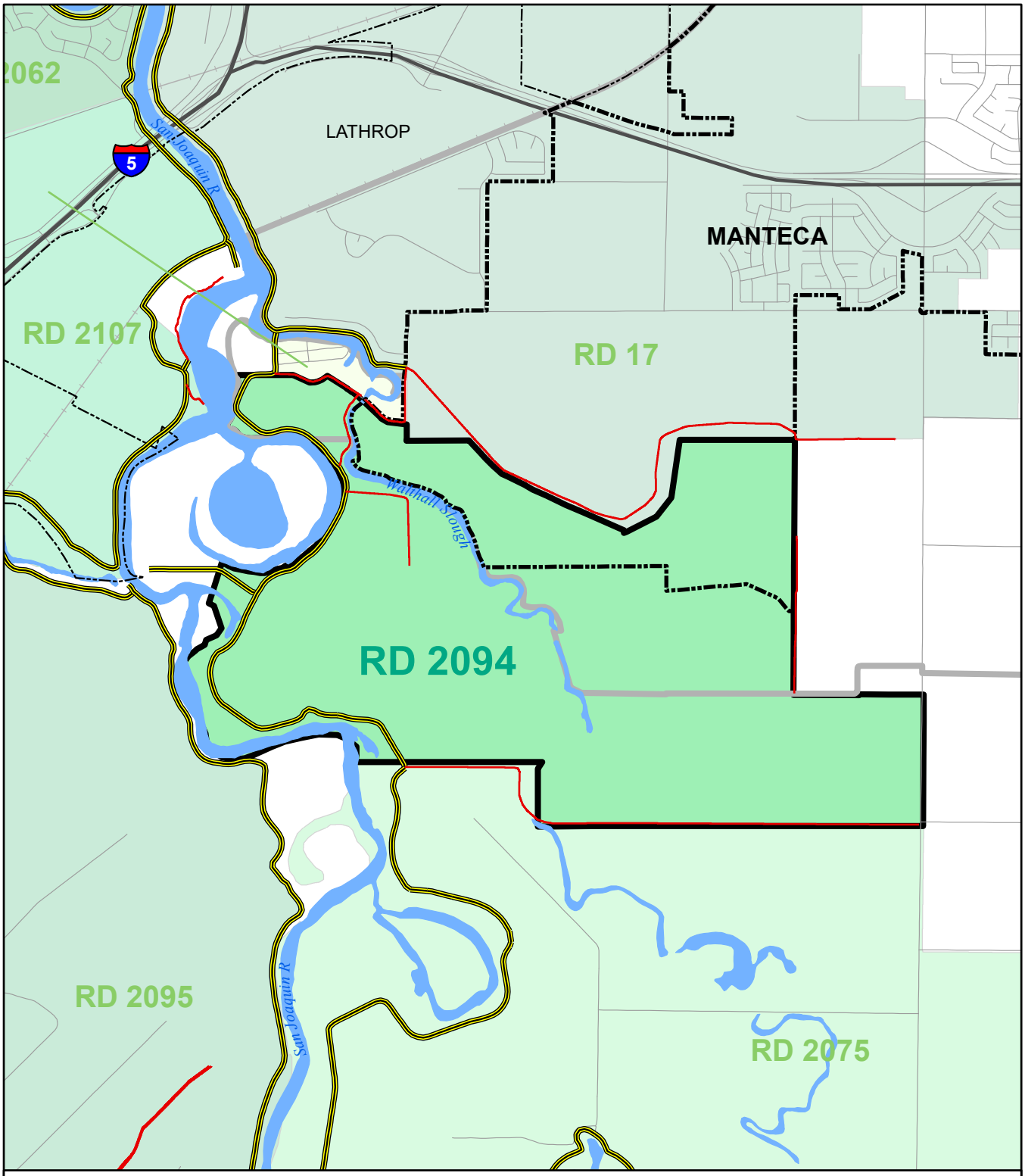

Legend

- Reclamation District 2094
- City of Manteca
- Other Cities
- City of Manteca Sphere of Influence
- State-Federal SPFC Levee
- Non-SPFC Levee

N

0 1,500 3,000

Feet

1:36,000

Sources: California Department of Water Resources; San Joaquin County, CalAtlas. Map date: April 11, 2016.

MANTECA SB 5 SAFETY ELEMENT AMENDMENT

Figure 7: Reclamation District 2094 and Levee System

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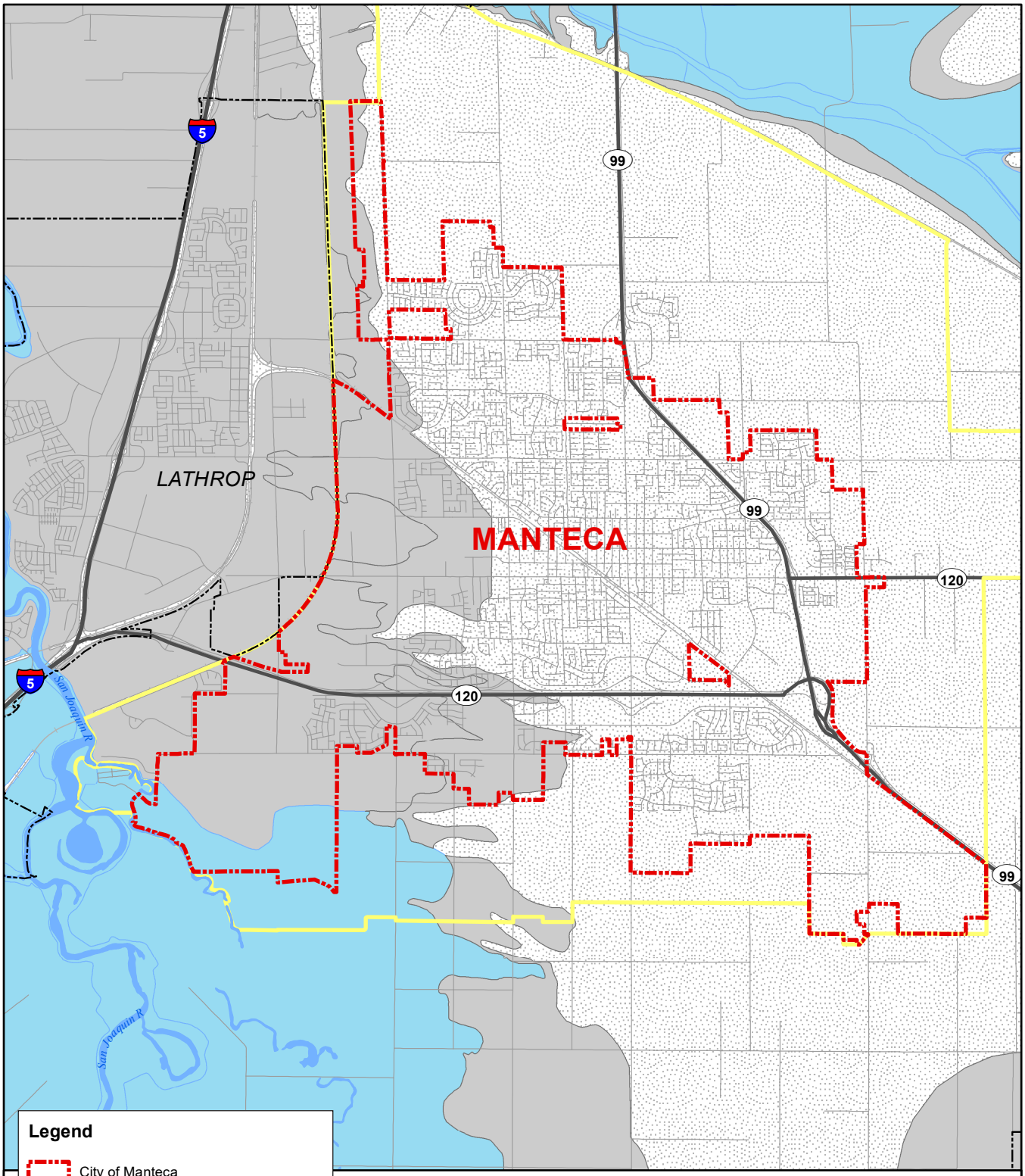

Legend

- City of Manteca
- City of Lathrop
- City of Manteca Sphere of Influence

FEMA Flood Zone Designation

- Zone A: 100-yr Flood Zone
- Zone X (shaded): 500-yr Flood Zone
- Zone X (unshaded): Areas determined to be outside the 0.2% annual chance floodplain

N

0 0.5 1

Miles

1:78,000

MANTECA SB 5 SAFETY ELEMENT AMENDMENT

Figure 8: FEMA Flood Map

Sources: Federal Emergency Management Agency (FEMA) FIRM panels 06077C06-10F, 30F, 35F, 20F, 40F, and 45F, effective 10/16/2009.; San Joaquin County; CalAtlas. Map date: April 11, 2016.

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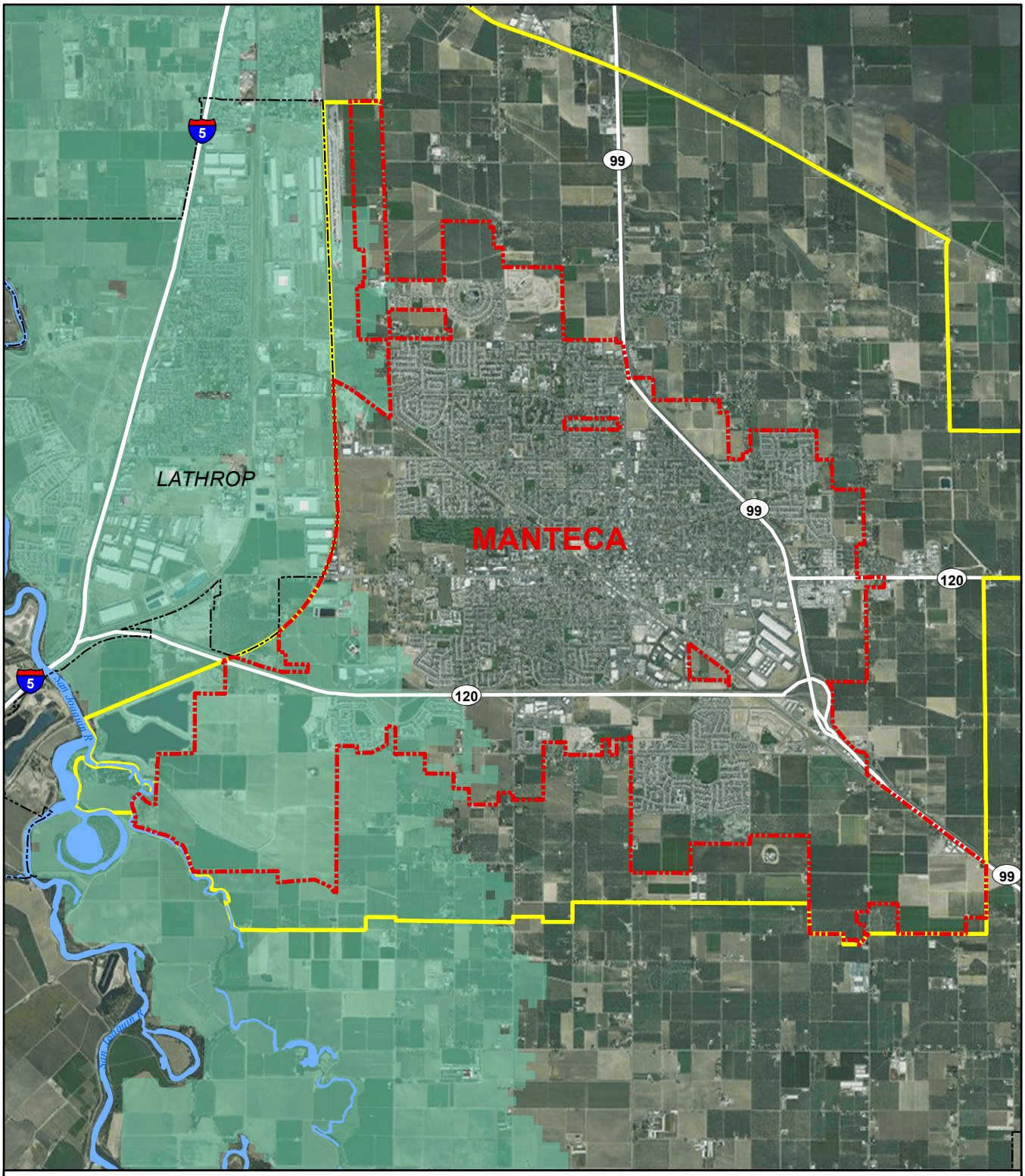

MANTECA SB 5 SAFETY ELEMENT AMENDMENT

Figure 9: 200-Year Floodplain

Legend

- City of Manteca
- City of Lathrop
- City of Manteca Sphere of Influence
- 200-Year Floodplain

N

0 0.5 1

Miles

1:78,000

Sources: City of Manteca; San Joaquin County; CalAtlas. Map date: April 11, 2016.

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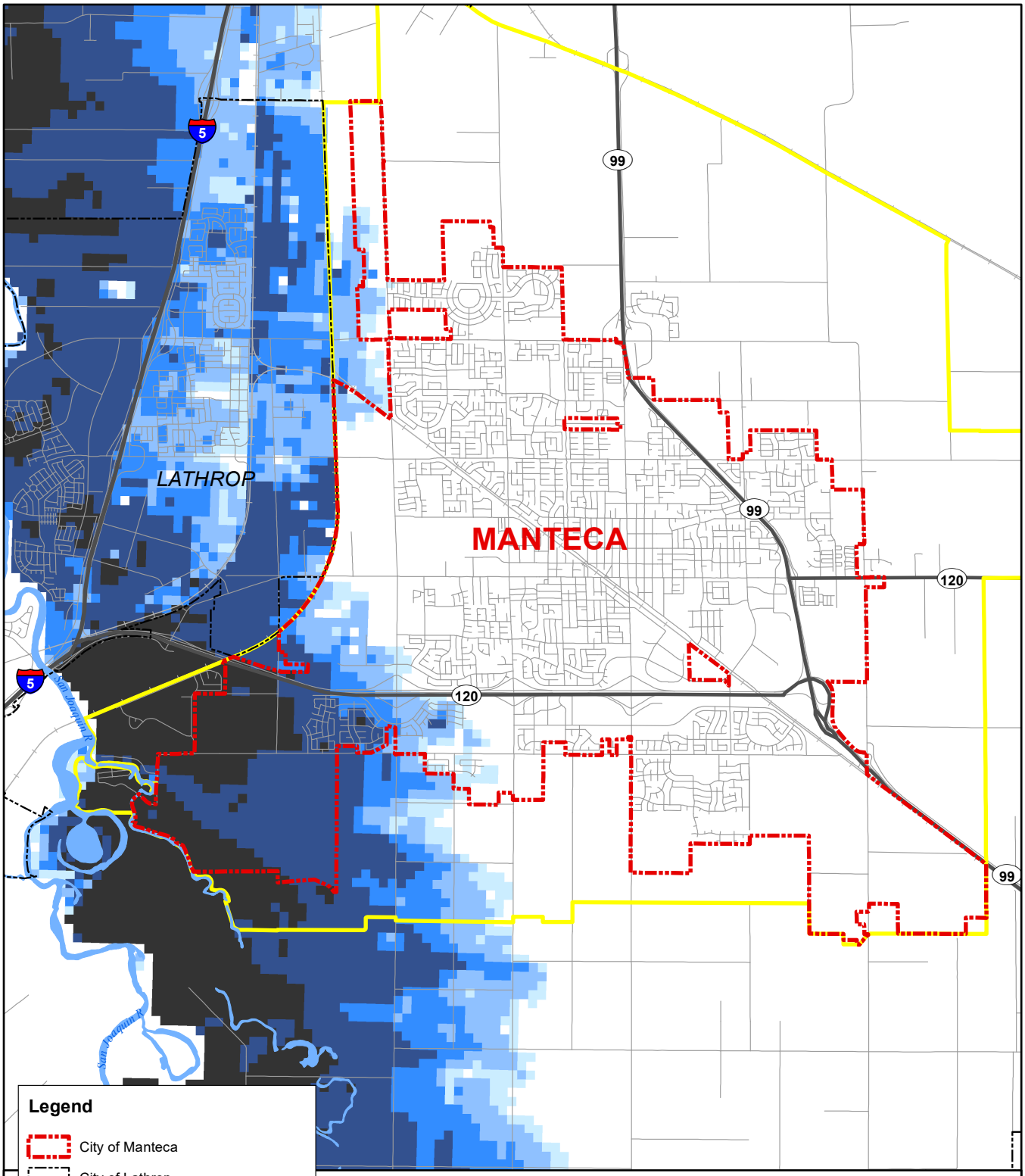

MANTECA SB 5 SAFETY ELEMENT AMENDMENT

Figure10: 200-Year Floodplain by Depth
East of the San Joaquin River

Sources: City of Manteca; San Joaquin County; CalAtlas. Map date: April 11, 2016.

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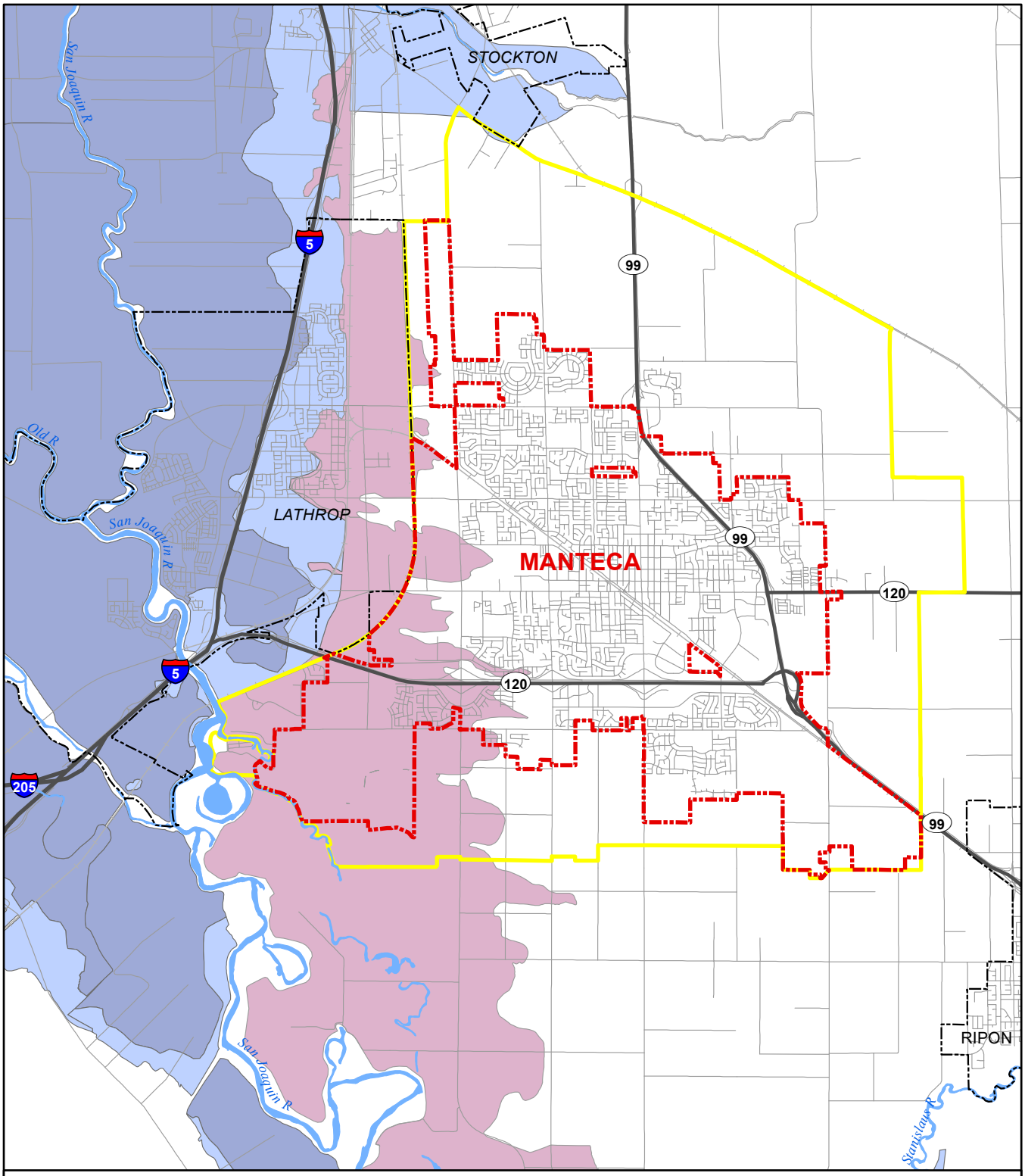

Legend

- City of Manteca
- Other Cities
- City of Manteca Sphere of Influence

Levee Flood Protection Zone

- Shallow
- Deep
- Depth Unknown

N

0 0.5 1

Miles

1:100,000

Sources: California Department of Water Resources; San Joaquin County; CalAtlas. Map date: April 11, 2016.

MANTECA SB 5 SAFETY ELEMENT AMENDMENT

Figure 11: DWR Levee Flood Protection Zones

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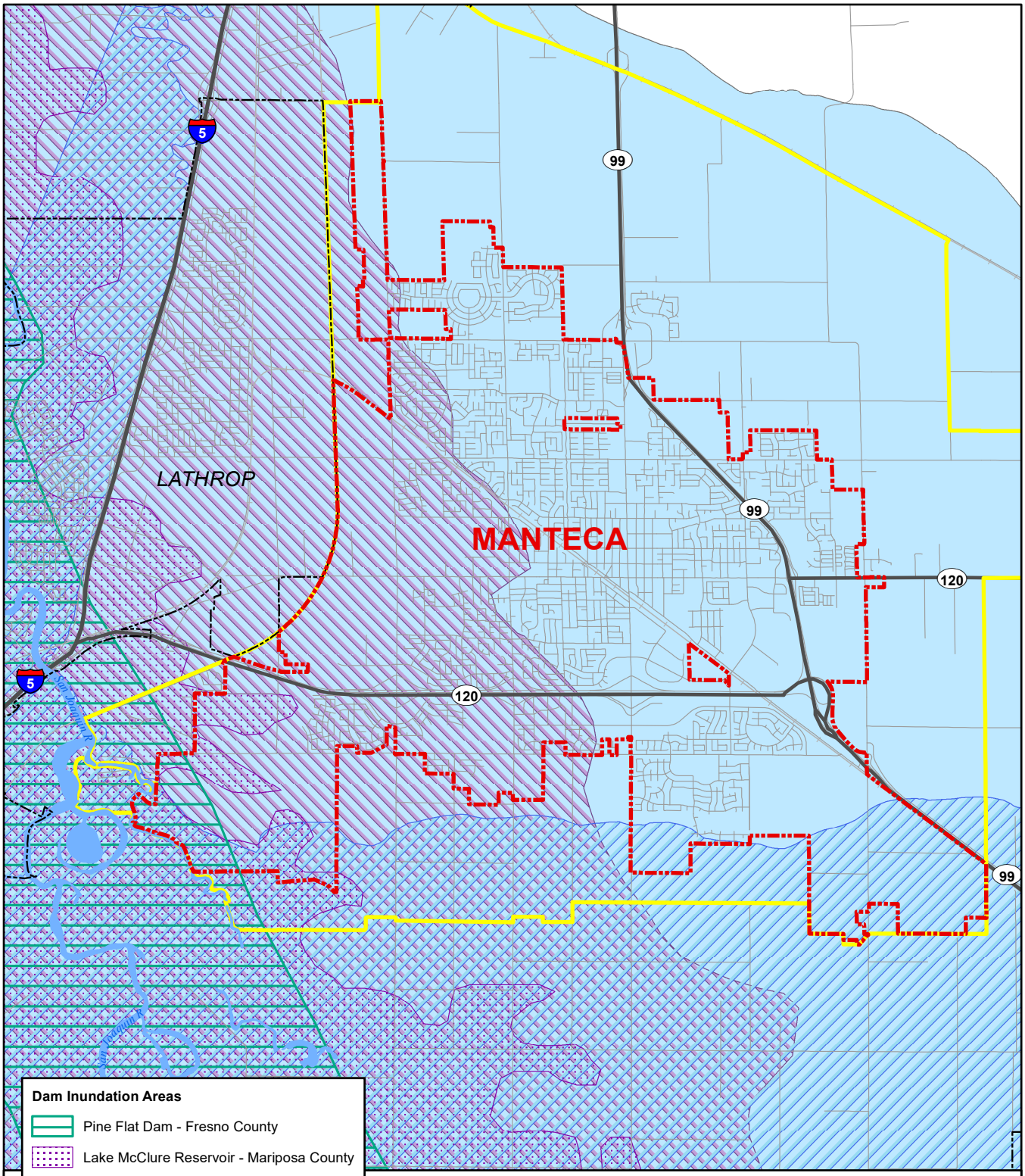

MANTECA SB 5 SAFETY ELEMENT AMENDMENT

Figure 12: Dam Inundation Map

Sources: California Emergency Management Agency, April 2009; San Joaquin County; CalAtlas. Map date: April 11, 2016.

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