CITY OF MERCED
Planning & Permitting Division

STAFF REPORT:	**#16-08**	**AGENDA ITEM:**	**4.3**
FROM:	Kim Espinosa, Planning Manager	**PLANNING COMMISSION** **MEETING DATE:** May 4, 2016	
PREPARED BY:	Bill King, AICP, Principal Planner	**CITY COUNCIL** **MEETING DATE:** June 6, 2016 (Tentative)	

SUBJECT: **General Plan Amendment #16-02** initiated by the City of Merced, to amend the Safety and Conservation Elements of the *Merced Vision 2030 General Plan* to include information, maps, and policies consistent with state mandates related to protection of property and loss of life from future local flood events. *PUBLIC HEARING*

ACTION: PLANNING COMMISSION:

Recommendation to City Council

1) Environmental Review #16-10 (Categorical Exemption)
2) General Plan Amendment #16-02

CITY COUNCIL:

Approve/Disapprove/Modify

1) Environmental Review #16-10 (Categorical Exemption)
2) General Plan Amendment #16-02

SUMMARY

Federal, state, and local flood protection infrastructure is intended to withstand and protect against various amounts of flooding. While these reduce many flood-related impacts, they are not designed to protect communities from larger events, however. After Hurricane Katrina in the State of Louisiana, in recognition that state levees built to protect agricultural lands may be inadequate to protect urban and urbanizing areas (Attachment A), the State of California enacted several laws that require local communities to update their General Plans and municipal codes to require greater flood protection. Additionally, Water Code Section 8307 links flood liability with local planning decisions (Attachment B). Amending the General Plan to be consistent with the State's *2012 Central Valley Flood Protection Plan* (CVFPP) is the first step toward achieving the state-mandated higher flood protection standards.

This Staff Report provides an overview of the state flood laws and relevance to the City of Merced. It then describes how the recommended amendments to the City's General Plan satisfy a variety of state mandates.

RECOMMENDATION

Planning staff recommends that the Planning Commission recommend that the City Council approve General Plan Amendment (GPA) #16-02 (Attachments G, J & K), and adopt Environmental Review #16-10, a Categorical Exemption (Attachment L) in accordance with the draft Planning Commission Resolution (Attachment M).

PROJECT DESCRIPTION

The recommended amendments to the *Merced Vision 2030 General Plan* are crafted to satisfy state mandates that require various categories of information to be including in a local jurisdiction's General Plan, these being:

- Identification of areas that may accommodate floodwater for groundwater recharge and storm-water management;
- data and analysis contained in the *2012 Central Valley Flood Protection Plan;*
- locations of flood hazard zones; and,
- goals, policies, objectives, and measures that reduce flood damage risks.

Per state law, these are proposed to be located in the Safety Element, the Land Use Element, and the Conservation Element of the General Plan. These General Plan Amendments form the foundation upon which new codes (also required by the State of California), will be crafted, and which need to be adopted no later than July 2, 2016. Though important considerations, the code amendments and related land-use entitlement "finding" requirements are not part of GPA#16-02, but will be part of subsequent actions by the City.

BACKGROUND

2007 Flood Laws

In addition to the provision of flood-protection infrastructure, prudent land use planning is also needed to effectively reduce potential adverse consequences of flooding. In 2007, after the Hurricane Katrina flooding calamity in Louisiana, the California Legislature adopted several flood-related laws that affect how cities and counties address flood risk, namely: Senate Bills (SB) 5 and 17, and Assembly Bills (AB) 5, 70, 156 and 162 (Attachment C). From the 2007 flood laws came five flood-related mandates (Attachment D):

- Mandate #1: Annual Review of General Plan Land Use Element (in effect)
- Mandate #2: Amend General Plan Conservation Element (in effect)
- Mandate #3: Amend General Plan Safety Element
- Mandate #4: Code Revisions
- Mandate #5: Project Findings

In October 2010, the Department of Water Resources published a handbook to assist a local community's understanding and implementation of these and other laws related to flooding [AB 2140 (2006), AB 1165 (2009) and SB 1070 (2010)]. The handbook sorts various aspects of the State's flood protection laws into different geographic regions of the state: 1) statewide; 2) Sacramento/San Joaquin Valley (SSJV); and, 3) Sacramento/San Joaquin Drainage District. The City of Merced is located within the "state" and "Sacramento/San Joaquin Valley" regions, but is located outside the "Sacramento/San Joaquin Drainage District," the most regulated region.

Black Rascal Creek/Merced County Stream Project

Descriptions of "State Plan of Flood Control Facilities" are provided in Attachment F, and are excerpted from the *State Plan of Flood Control Descriptive Document*, pages 2-9, 3-46 (Figure 3-13), 3-49, and 5-12. Although all state facilities are located outside the City of Merced and planned future growth areas, they minimize flooding within Merced and its growth area. The most notable facility is the Black Rascal Creek Diversion, which if failed during a 200-year flood event, would flood a large portion of North Merced (Attachment H).

200-Year Floodplain:

Water Code Section 9602 defines the 200-year flood protection as the minimum urban level of flood protection in the Sacramento-San Joaquin Valley. This higher standard is not limited to just those areas protected from State Plan of Flood Control (SPFC) Facilities, such as the Black Rascal Creek Diversion. Neither the State of California nor FEMA has prepared conclusive maps that definitively define these areas, however. Rather, local jurisdictions must establish these boundaries. Information about the 200-Year Floodplain, notably the effort by the California Department of Water Resources (DWR) to provide local jurisdictions with flood information related to the State Plan of Flood Control Facilities, and the City's role with respect to these maps have been provided to the City's Engineering Division. The informational map that was prepared by DWR for the City's use in preparing more definitive maps of the 200-year floodplain along Black Rascal Creek is also presented in Attachment E.

Flood Protection Assessment

By July 2016, and using the foundational information added to the *Merced Vision 2030 General Plan* through GPA #16-02, among other sources, the City will be required by the State to make "findings" before approving a variety of projects susceptible to flooding. While the use of "findings" is not a part of the recommended changes to the General Plan, and their use won't occur until July 2016, how they will be used in the future is informative to the effort to amend the General Plan. The following is an excerpt about these findings from page 63 of the DWR document, "A Handbook for Local Communities – Implementing California Flood Legislation into Local Land Use Planning," October 2010.

> "Government Code Sections 65865.5, 65962, and 66474.5 pertain to areas within the SSJV that are within a flood hazard zone (i.e., a special flood hazard area or an

area of moderate flood hazard). The addition of these Codes mandate that the board of supervisors of a county or the city council of a city cannot:

1. enter into a development agreement for any property (Government Code Section 65865.5); or,

2. approve any discretionary permit or other discretionary entitlement or any ministerial permit that would result in construction of a new residence, for a project (Government Code Section 65962); or,

3. approve any tentative map or a parcel map for which a tentative map was not required for any subdivision that is located within a flood hazard zone (Government Code Section 66474.5);

...unless a city or county finds, based on substantial evidence in the record, <u>one</u> of the following:

- "The facilities of the State Plan of Flood Control or other flood management facilities protect" the property, project, or subdivision "to the urban level of flood protection in urban and urbanizing areas;" or,
- "The city or county has imposed conditions on the" development agreement, permit or discretionary entitlement, or subdivision; whichever is applicable, "that will protect" the property, project, or subdivision "to the urban level of flood protection in urban and urbanizing areas;" or,
- "The local flood management agency has made adequate progress on the construction of a flood protection system which will result in flood protection equal to or greater than the urban level of flood protection in urban or urbanizing areas" for property, project, or subdivision "located within a flood hazard zone, intended to be protected by the system. For urban and urbanizing areas protected by project levees, the urban level of flood protection shall be achieved by 2025."

FINDINGS/CONSIDERATIONS:

The following findings and considerations discuss how the recommended amendments to the City's General Plan satisfy State mandates 1, 2, and 3 below.

Mandate No. 1: Annual Review of the Land Use Element

A. Beginning in January 2008, State Law requires local jurisdictions to annually review the General Plan Land Use Element of those areas subject to flooding identified by flood

plain mapping prepared by FEMA (maps: FIRM, DFIRM) or DWR (maps: Awareness Floodplain Maps; BAM, LFPZ, CVFED and AFFED), assessing floodplain mapping, groundwater recharge, and/or stormwater management information and determining if any of the information is new and/or different from what is included in the existing general plan land use element, and amending General Plan information as appropriate and to assure internal consistency with other General Plan Elements. City Staff does this annual review and no amendments to the General Plan Land Use Element are currently needed.

Mandate No. 2: Update to the Conservation Element

B. The 2007 legislation amended Government Code Section 65302(d) to require local jurisdictions to amend their General Plan Conservation Element to identify rivers, creeks, streams, flood corridors, riparian habitat and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management. The intent is to conserve areas used for groundwater recharge and stormwater management and to minimize urban development in these areas. Identification on maps or graphics is optional.

Therefore, General Plan Amendment #16-02 adds a statement to the Conservation Element (Attachment K) that identifies creeks, streams, flood corridors, or riparian habitat and lands in Merced's growth area that may offer groundwater recharge opportunities. Where appropriate, policies and implementation measures have been updated to reflect these opportunities (Attachment J).

Mandate No. 3: Update to the Safety Element

State Law requires local jurisdictions to amend their General Plan Safety Element as described in Findings C, D, E and F below.

C. Data and analysis contained in the *2012 Central Valley Flood Protection Plan*

From this data source, Levee Flood Projection Zone map and text is proposed to be added to Section 11.2.4 of the *Merced Vision 2030 General Plan*, replacing the current images in Figure 11.4 (Attachment G).

D. Locations (maps) of Flood Hazard Zones

***FEMA-Based*:** The *Special Flood Hazard Area* is an area with a 1% annual chance of a flood, also referred to as a 100-year flood. Moderate flood hazard area is an area with a 0.2% annual chance of a flood, also referred to as a 500-year flood. In Section 11.2.4 and Figure 11.5, the General Plan currently includes map-based data such as floodways, the 100-year floodplain and 500-year floodplain from Flood Insurance Rates Map (FIRM) maps provided by the Federal Emergency Management Agency (FEMA).

***State of California-Based*:** The State of California has superimposed a state standard in addition to those promulgated by FEMA, known as the 200-year floodplain, also called the "Urban Level of Flood Protection." State flood-related infrastructure, has been installed to manage flooding along the Sacramento and San Joaquin Rivers. This infrastructure is known as the "State Plan of Flood Control" (SPFC). Some of this infrastructure is located in the Merced area. (Attachment F). Lands protected by SPFC improvements are subject to the state's "Urban Level of Flood Projection" standard.

The proposed General Plan Amendment includes new map data showing areas within the City's Sphere of Influence/Specific Urban Development Plan boundary affected by the State of California mandated "Urban Level of Flood Projection" (Attachment G). This map will be added as Safety Element, Section 11.2.4, Figure 11.5a. This map will be used in conjunction with the document titled, "Urban Level of Flood Protection, Summary Report, November 2015" prepared by Storm Water Consulting Inc. and Stantec, under contract with the City of Merced specifically for this General Plan Amendment (Attachment I).

E. Goals, Policies, Objectives

Based on the flood hazard information described above, and required by Government Code Section 65302(g)(2) (B) and (C), the Safety Element must establish a set of comprehensive goals, policies, objectives, and feasible implementation measures to protect communities from the "***unreasonable risks***" of flooding. The goals, policies, and objectives of the Safety Element must include, but are not limited to, the five categories described below. To satisfy this requirement, Staff recommends including the goals, policies, and objectives that are presented in Attachment J.

- **Risk Reduction:** Avoiding or minimizing the risks of flooding to new development.
- **Land Use Planning Practices:** 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.
- **Maintenance:** Maintaining the structural and operational integrity of essential public facilities during flooding.
- **Treatment of Essential Public Facilities:** 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 or identifying construction methods or other methods to minimize damage if these facilities are located in flood hazard zones.
- **Coordinating Efforts**: Establishing cooperative working relationships among public agencies with responsibility for flood protection.

With subsequent Housing Element updates, after the above items have been added, the Safety Element must be reviewed and revised, if necessary, to identify new information that was not available during the previous revision of the Safety Element.

F. Feasible Implementation Measures

To satisfy this requirement, Staff recommends including the implementation measures that are presented in Attachment J.

General Plan Amendment Findings

G. Staff has reviewed and considered the amendments to the General Plan, and has found that:

- The proposed amendments are consistent and compatible with the rest of the General Plan.
- The proposed amendments are in the public interest.
- The potential effects of the proposed amendments have been evaluated and have been determined not to be detrimental to the public health, safety, or welfare.

Environmental Review

H. In general, in accordance with CEQA Guideline 15061(b)(3), a project is exempt from CEQA if the activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. GPA #16-02 falls within this general rule in that the primary purpose of the added data and policies is to reduce impacts related to flooding, depletion of water resources and natural habitats. Within these broad parameters, future flood control construction projects may be constructed, but these will be subject to CEQA at which time their type, location, and details are formed. GPA#16-02 does not assess, approve, or assign financial resources to such projects.

In addition to this general exemption, GPA #16-02 is also considered exempt through Categorical Exemption 15306. Categorical Exemption 15306, *Information Collection*, otherwise known as "Class 6," consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. GPA #16-02, notably the collection of data and its future

use for project assessments, is consistent with these criteria and is a "Class 6" Categorical Exemption.

Through Environmental Review #16-10, a Notice of Exemption (Attachment L) citing the aforementioned exemptions was prepared for GPA #16-02.

Attachments:

A. Basis for the Central Valley Flood Protection Act of 2008
B. Water Code Section 8307
C. 2007 California Flood Legislation and Related Land Use Planning Actions (from resource #1, Addendum).
D. State Mandate Overview
E. DWR Informational Map of Black Rascal Creek 200-year floodplain
F. State Plan of Flood Control Facilities
G. Levee Flood Projection Zone map and text (Safety Element)
H. Map depicting Regulatory Requirements for Flood Protection (Safety Element)
I. Urban Level of Flood Protection Summary Report, November 2015
J. Recommended Goals, Policies, and Implementation Measures (Safety Element)
K. Proposed Conservation Element Amendments
L. Env. Rev. #16-10, Notice of Exemption
M. Draft Planning Commission Resolution

Central Valley Flood Protection Act of 2008

Local jurisdictions located within the SSJV are subject to recent additional requirements as a result of the State Legislature passing Senate Bill 5, which includes the Central Valley Flood Protection Act of 2008 (Water Code Section 9600). As part of this Act (Water Code Section 9601), it is recognized by the State Legislature that:

- "The Central Valley of California is experiencing unprecedented development, resulting in the conversion of historically agricultural lands and communities to densely populated residential and urban centers.

- Levees cannot offer complete protection from flooding, but can decrease its frequency.

- The level of flood protection provided by the original flood control system for rural and agricultural lands will not be adequate to protect those lands if they are developed for urban uses.

- Levees built to reclaim and protect agricultural land may be inadequate to protect urban development unless those levees are significantly improved.

- Cities and counties rely upon federal floodplain information when approving developments, but the information available is often out of date and the flood risk may be greater than that indicated using available federal information.

- The current federal flood standard is not sufficient in protecting urban and urbanizing areas within flood prone areas throughout the Central Valley.

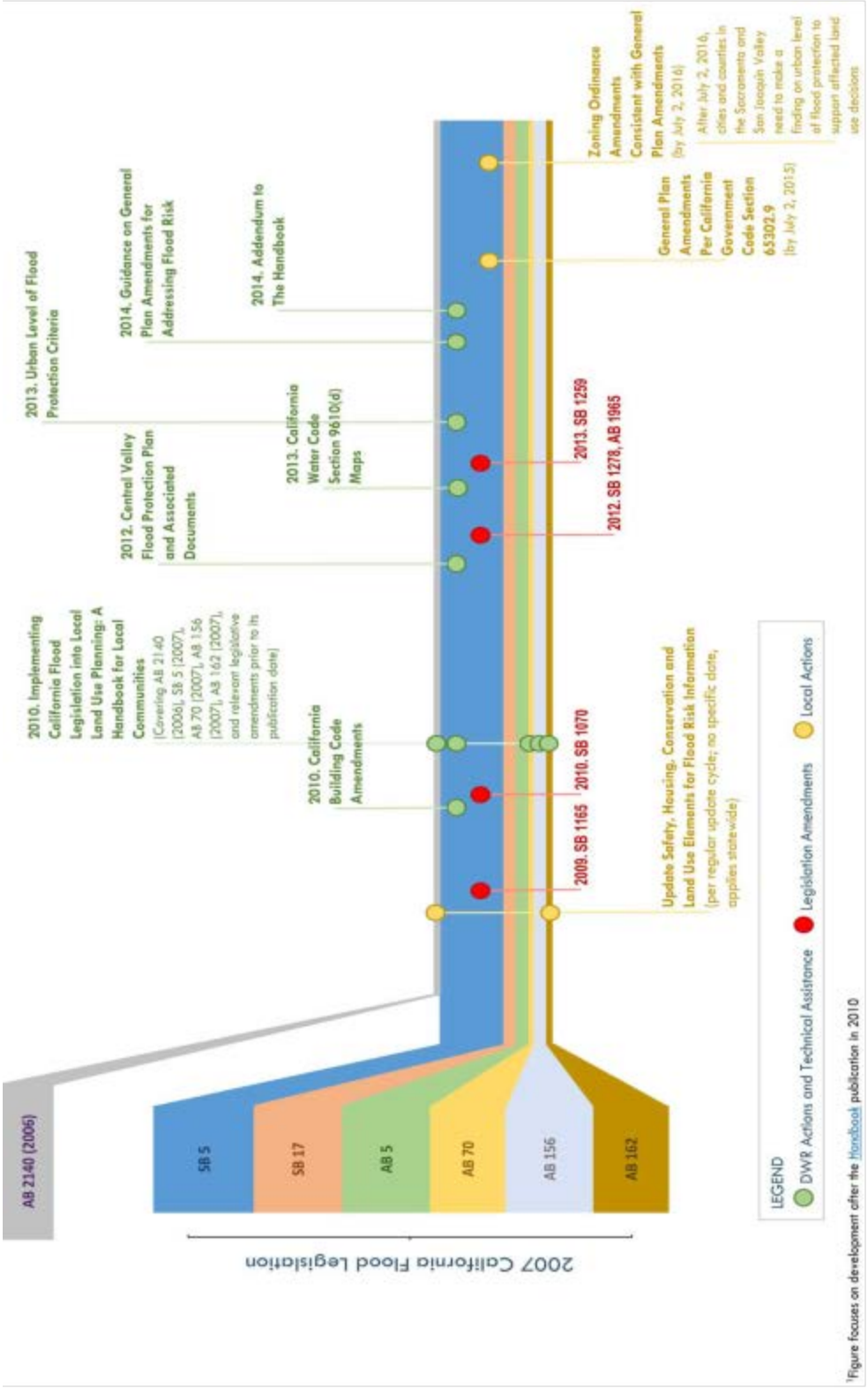
- Linking land use decisions to flood risk and flood protection estimates comprises only one element of improving lives and property in the Central Valley. Federal, State, and local agencies may construct and operate flood protection facilities to reduce flood risks, but flood risks will nevertheless remain for those who choose to reside in Central Valley floodplains. Making those flood risks more apparent will help ensure that Californians make careful choices when deciding whether to build homes or live in Central Valley floodplains, and if so, whether to prepare for flooding or maintain flood insurance."

Water Code Section 8307/Flood Liability

Water Code Section 8307 links flood liability with local planning decisions. As a result, it is highly important that local jurisdictions within the SSJV are aware that as of January 1, 2008, Water Code Section 8307 can require a city or county within the SSJV to: "contribute its fair and reasonable share of the property damage caused by a flood to the extent that the city or county has increased the State's exposure to liability for property damage by unreasonably approving new development in a previously undeveloped area that is protected by a State flood control project."

More simply, cities and counties now share flood liability with the State in the case of litigation over unreasonably approved new development on previously undeveloped areas. However, if a city or county complies with Government Code Sections 65302.9 and 65860.1; and 65865.5, 65962, and 66474.5, which includes amendments to the general plan and municipal code and otherwise makes land use decisions consistent with the CVFPP, then the local jurisdiction will not be required to contribute. Further, "a city or county is not required to contribute unless an action has been filed against the State asserting liability for property damage caused by a flood and the provisions," as described above, "providing for contribution have been satisfied." Furthermore, "a city or county is not required to contribute if the State settles the claims against it without providing the city or county with an opportunity to participate in settlement negotiations." (Water Code Section 8307)

2007 California Flood Legislation and Related Land Use Planning Actions



ATTACHMENT C

State Mandates From Recent Flood Bills
Required Information/Analysis:
Mandate #1: Annual Review of Land Use Element
Assess and ensure consistency between existing language and new flood-related information.
Mandate #2: Conservation Element (Action Linked to Housing Element Update) :
Identify areas that may accommodate floodwater for groundwater recharge and storm-water management
Mandate #3: Amend GP Safety Element to include (by July 2, 2015)
A. Data and analysis contained in the *2012 Central Valley Flood Protection Plan*, such as:
1. locations of the facilities of the State Plan of Flood Control
2. locations of real property protected by those facilities
B. Locations (maps) of flood hazard zones including, but not limited to:
1. locations mapped by the Federal Emergency Management Agency Flood Insurance Rate Map or the Flood Hazard Boundary Map,
2 locations that participate in the National Flood Insurance Program,
3. locations of undetermined risk areas (i.e. 200-yr),
4. locations mapped by a local flood agency or flood district
C. Goals, policies, objectives, and implementation measures based on the data and analysis identified in the Central Valley Flood Protection Plan (CVFPP), for the protection of lives and property that will reduce the risk of flood damage.
D. Feasible implementation measures designed to carry out the goals, policies, and objectives described above.
Mandate #4: Code Revisions (by July 2, 2016) :
Code language to be consistent with GP Content
Mandate #5: Project Findings (by July 2, 2016) :
Staff Report Findings consistent with GP Policies related to an Urban Level of Flood Protection (200-yr event) and FEMA (100-year event)

ATTACHMENT D

State Mandates 1 and 2 - Amend General Plan Elements (Safety, Land Use and Conservation)

Additionally, AB 162 (2007), triggered by the first amendment to the local agency's housing element occurring on or after January 1, 2009 (the City's Housing Element was adopted on 5-6-11), requires every city and county across the State to review and amend, as appropriate, the land use (California Government Code §65302(a)), conservation (California Government Code §65302(d)), and safety (California Government Code §65302(g)) elements of its general plan for the consideration and incorporation of information regarding flood hazards; mapping; and the establishment of flood risk management goals, policies, objectives, and feasible implementation measures to help protect their communities from the effects of flooding.

State Mandate 3 - Amend General Plan Elements (Safety, Land Use and Conservation)

California Government Code §65302.9 require cities and counties within the Sacramento-San Joaquin Valley (this includes the City of Merced) to amend their general plans to include:

- data and analysis contained in the *2012 Central Valley Flood Protection Plan* (e.g., locations of the facilities of the State Plan of Flood Control and locations of property protected by those facilities);
- locations of flood hazard zones; and
- goals, policies, objectives, and feasible mitigation measures based on the data and analysis contained in the *2012 Central Valley Flood Protection Plan*. (CVFPP) for the protection of lives and property to reduce the risk of flood damage.

California Government Code §65302.9 identifies the *2012 Central Valley Flood Protection Plan* (CVFPP) (June 2012) as the source of information Valley jurisdictions should use to amend their general plan. Local governments will decide how best to incorporate data in the plan. The plan provides 50+ individual sources of data and information.

The following provides additional information the CVFPB recommends city and county general plans include, as applicable, for local conditions:

- Evacuation routes in the event of flooding from any source.
- If the city or county is vulnerable to multiple sources of flooding, delineate each flooding source and resulting inundation area.
- A land plan that differentiates the existing and planned development areas.
- Geographic information systems (GIS) electronic mapping that layers, when possible, floodplain mapping information, land use designations, safety evacuation routes, natural features, dam failure inundation, and other applicable flood management information on one figure.

State Mandate 4 - Code Revisions

In compliance with the requirements of California Government Code §65860.1, jurisdictions in the Sacramento-San Joaquin Valley (this includes the City of Merced) will need to amend their municipal codes to be consistent with the newly revised general plan content within one year of adopting general plan amendments.

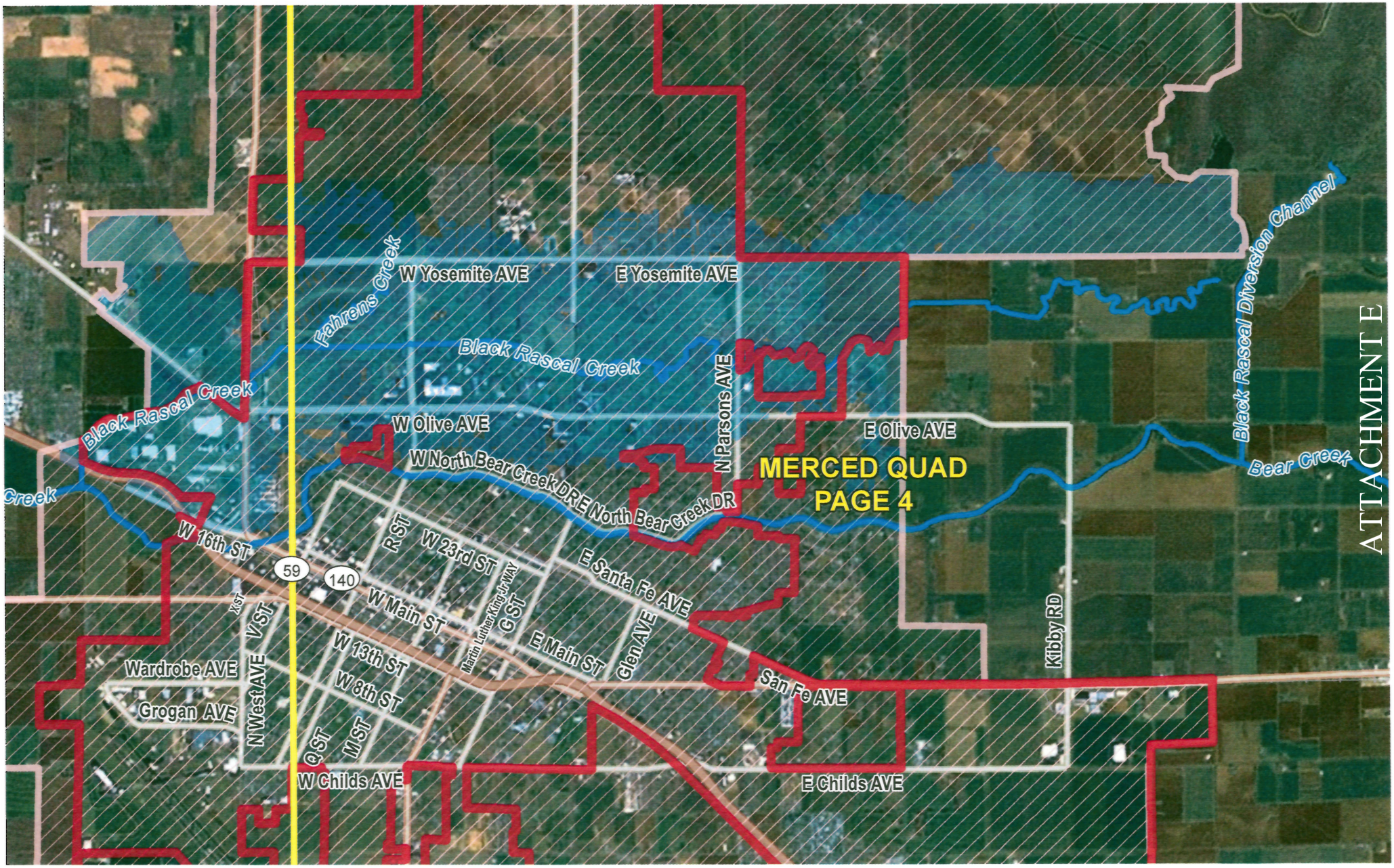
State Mandate 5 - Project Findings

Once code revisions have been completed, other provisions in SB 5 (2007), as amended, become effective. As previously described in the *2010 Handbook*, and amended by SB 1278 (2012) and AB 1259 (2013), California Government Code §65865.5, §65962, and §66474.5 require that all cities and counties within the Sacramento-San Joaquin Valley, as defined in California Government Code §65007(h), make findings related to an Urban Level of Flood Protection (200-year) including reference to undetermined risk areas (as applicable), or the national FEMA standard (100-year) of flood protection for any of the following affected land use decisions:

- Entering into a Development Agreement for all types of property development
- Approving a discretionary permit or other discretionary entitlement for all development projects
- Approving a ministerial permit for all projects that would result in the construction of a new residence
- Approving a tentative map consistent with the Subdivision Map Act for all subdivisions
- Approving a parcel map for which a tentative map is not required consistent with the Subdivision Map Act for all subdivisions

To support this future process and per the requirements of California Government Code Section 65007(n), DWR developed its *Urban Level of Flood Protection Criteria* in November 2013. Cities and counties can use DWR's *Urban Level of Flood Protection Criteria* to make findings related to an urban level of flood protection, or use their own criteria as long as they are consistent with DWR's. An urban level of flood protection can be achieved by either structural or nonstructural means, or a combination of both. [2, page 2-3] DWR's *Urban Levee Design Criteria* is referenced in the *Urban Level of Flood Protection Criteria* to provide engineering criteria and guidance in situations where levees and floodwalls are used as structural means to provide an urban level of flood protection.

An ***"Urban Level of Flood Protection"*** 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 using criteria consistent with, or developed by, the Department of Water Resources. "Urban level of flood projection" 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. (Government Code Section 65007(n)).



ATTACHMENT E

State Plan of Flood Control Facilities

Merced County Streams Project

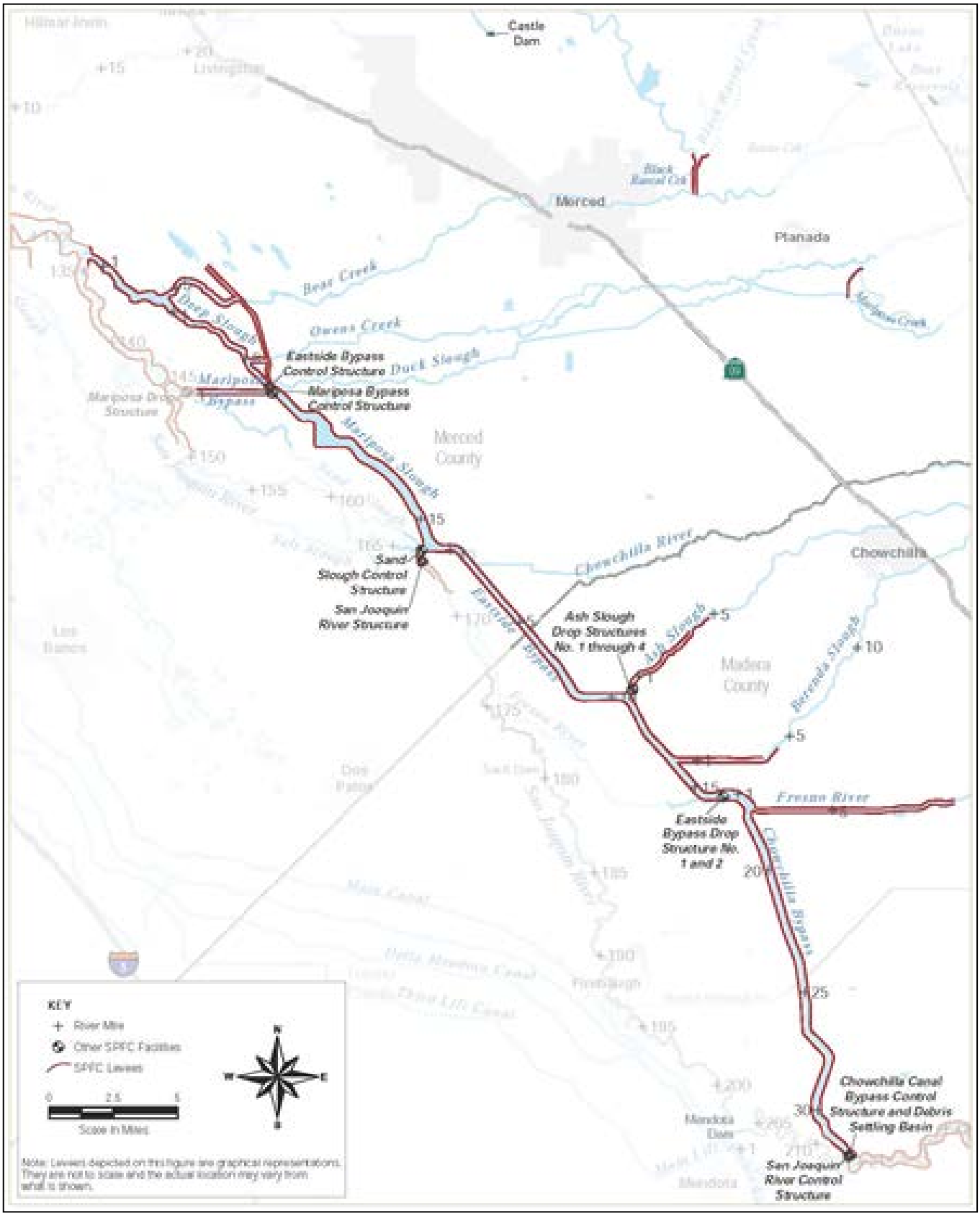
Improvement of the Merced County Streams was authorized by the Flood Control Act of 1944 (Public Law 78-534, 78th Congress). The authorization was based on HD 473 (78th Congress). Section 12650 of the CWC provides the State authorization for the project. The project includes a diversion from Black Rascal Creek to Bear Creek, a diversion between Owens Creek and Mariposa Creek, channel improvements and levees, and one retarding-type reservoir east of the City of Merced. The project reduces flood risk to agricultural areas, the City of Merced, and the towns of Planada and Le Grand and other smaller communities. Of the five authorized and constructed reservoirs, the State provided assurances to the federal government for only one reservoir, Castle Dam, authorized by the Flood Control Act of 1970 (Public Law 91-611, Section 201, Statute 1824).

Merced County Stream Group Project

The Merced County Stream Group project (see O&M Manual SJR607) includes two diversion channels with levees and channel clearing, a dam, and channel enlargements intended to reduce flood risk for the City of Merced and adjacent agricultural. SPFC facilities include a diversion channel from Black Rascal Creek to Bear Creek. The design capacity of the channel is 3,000 cfs based on the O&M manual. The right-bank levee along the channel is about 1.6 miles long and the left-bank levee is about 1.9 miles long. SPFC facilities also include a diversion channel from Owens Creek to Mariposa Creek. The design capacity of the channel is 400 cfs. The right- and left-bank levees along the diversion channel are each about 1.5 miles long. Channel improvements are included along Black Rascal Creek, Bear Creek, Burns Creek, Miles Creek, Owens Creek, and Mariposa Creek. The facilities are maintained by Merced County. Castle Dam (see O&M Manual SJR607A) is located on Canal Creek, a tributary of Black Rascal Creek. Castle Dam (completed in 1992) is located on Canal Creek about 6 miles northeast of Merced. Castle Reservoir has 6,400 acre-feet of flood storage. Castle Dam is owned by DWR and Merced County, and is operated and maintained by the Merced Irrigation District (USACE, 1999).

Table 5-1. Maintaining Agencies for State Plan of Flood Control Facilities (contd.)

- Merced County Stream Group Project (Black Rascal Creek, Bear Creek Burns Creek, Mariposa Creek and Duck Slough, Miles Creek, Owens Creek) channels maintained by Merced County
- Black Rascal Diversion Channel maintained by Merced Irrigation District
- Castle Dam maintained by Merced Irrigation District


Castle Dam
Livingston
Merced
Planada
Bear Creek
Owens Creek
Duck Slough
Deep Slough
Eastside Bypass Control Structure
Mariposa Bypass Control Structure
Mariposa Bypass
Mariposa Drop Structure
Mariposa Slough
Merced County
Sand Slough Control Structure
San Joaquin River Structure
Chowchilla River
Chowchilla
Eastside Bypass
Ash Slough Drop Structures No. 1 through 4
Ash Slough
Madera County
Berenda Slough
Fresno River
Eastside Bypass Drop Structure No. 1 and 2
Chowchilla Bypass
Chowchilla Canal Bypass Control Structure and Debris Settling Basin
San Joaquin River Control Structure
Madera Dam
Madera
KEY
River Mile
Other SPFC Facilities
SPFC Levees
0 2.5 5
Scale in Miles
N
W
E
S
Note: Levees depicted on this figure are graphical representations. They are not to scale and the actual location may vary from what is shown.

Hazard Response -- Dam Failure

The damage control and disaster relief efforts, in the case of inundation from Bear Creek Reservoir, would most likely be required from local governments, private organizations, and from State and Federal governments. This "mutual aid" could consist of mass evacuation of the inundation areas, search and rescue operations, emergency medical care, food distribution, and temporary shelter for injured or displaced persons. State and Federal assistance could be useful to remove debris and clear roadways, assist in re-establishing public services and utilities, and provide continuing care and welfare for the affected population, including temporary housing of displaced persons.

Evacuation Routes and Water Supply

The County Evacuation Plan for both dams shows the Merced County Fairgrounds as the evacuee assembly points and addresses what evacuation routes, priorities, and procedures should be followed. The City's ability to supply the potable water requirements during this time will depend on which dam failed and the height of the inundation wave in relationship to the height of the 100-year and 200-year flood. The current City policy on well facility construction as it relates to inundation is that the well facility entrance be one-foot higher than the 100-year flood elevation, that one facility be placed in each square mile, and that a three-day energy reserve be present at the pump.

There are currently only a few wells in the Lake Yosemite inundation area because the area is mostly undeveloped at this time. Furthermore, those existing wells that would be subject to inundation are in an area of relatively shallow inundation elevations. Bear Lake inundation, however, would be much more serious provided that actions were not taken to protect the wells within the six-plus hours prior to inundation.

11.2.4 Flooding

Flooding continues to be the most widespread weather-related safety hazard in the United States, and accounts for greater average annual property losses than any other single hazard. Flooding can be especially troublesome in the Central Valley because it is a natural event. ~~The valley is a drainage basin for thousands of acres of Sierra and Diablo foothill and mountain land, and the long dry spells lead people to think that flooding cannot occur where they live. In 1911, 1935, and 1955, large floods occurred within those portions of Merced that were developed at the time; in intervening years, flooding occurred every three to five years (information concerning non-developed areas currently in the planning area and floods prior to 1911 is not available). Significant flooding in some parts of the City also occurred in 2006. See *Figure 11.4*.~~

Approximately 25 square miles of land in the Merced area are subject to 100-year or more frequent floods. This is illustrated by ***Figure 11.5.*** The Flood Insurance Rate Maps (F.I.R.M.) identify flood-prone areas which were required to be recognized by the Federal Flood Disaster Protection Act. These maps are the source of more detailed flood information for the planning area, and are periodically updated to reflect new information.

~~The State of California has adopted legislation that requires jurisdictions to prepare floodplain regulations based on the 200-year flood event. New maps identifying~~

~~the 200-year event boundaries were issued in October 2008. The maps do not indicate that there are any areas within the City limits or the proposed SUDP/SOI that are impacted by the 200-year floodplain.~~

Changes in land use from agriculture to urban have profound effects on runoff and erosion of the land surface. The City has teamed up with Merced County, Merced Irrigation District and The City of Atwater to form a Stormwater Group with a Stormwater Management Plan to address erosion, sedimentation and other non-point pollutants of concern in order to protect water ways.

Urbanization is commonly accompanied by paved and other impervious surfaces, and the construction of storm sewers.. Impervious surfaces and storm drains increase the frequency of floods and the size of flood peaks. The volume of runoff from new urban areas is far greater than under pre-existing conditions unless detention basins are constructed, as required in Merced.. Most floods in Merced are produced by extended periods of rainfall during the winter months. Dam failure is another source of flooding which was addressed separately in Section 11.2.3 of this chapter.

Merced County Streams Group Project

The Merced County Streams Group Project was approved by Congress in 1970. The project was re-evaluated by the U.S. Corps of Engineers in 1980 and some construction has been completed, but the entire project currently lacks funding commitments. The project, as laid out in 1980, entailed construction of two new detention dams (Castle on Canal Creek and Haystack Mountain on Black Rascal Creek), the enlargement and modification of the Bear Creek detention dam, and construction and modification of 32 miles of levees and channels on the Bear Creek Stream Group (Fahrens, Black Rascal, Cottonwood, and Bear Creeks, Black Rascal Slough, and El Capitan Canal).

Castle Dam and a diversion structure from MID's main canal has been completed to date. Approximately 24 square miles in the planning area would be removed from the 100-year or more floodplain by this project. ***Figure 11.5*** illustrates the change in area covered by the 100-year floodplain that could be attributed to the construction of the project.

Due to environmental considerations, it is unlikely that Haystack Mountain dam will be constructed. The proposed Haystack Mountain reservoir area has significant vernal pool areas. In 2004, the Army Corps of Engineers began considering as an alternative an East side bypass, extending from the Black Rascal Diversion at Bear Creek south past Hwy 99 to the Miles and Owens Creek drainages. This would divert both Black Rascal and Bear Creek flood flows away from the City of Merced. However, there is insufficient capacity in Miles and Owens Creeks to carry flows down to the San Joaquin River, so that this solution is problematical, without an expensive further extension of a flood bypass.

The text below is proposed to be added to Section 11.2.4 "Flooding" of the *Merced Vision 2030 General Plan.* This new text will replace text that is proposed to be deleted (marked in strikethrough) on page 11-10.

New Text for Section 11.2.4 of the Merced Vision 2030 General Plan:

The State of California has adopted legislation that requires jurisdictions to prepare maps, goals, policies, implementation measures and regulations based on a 200-year flood event. This standard is distinct from federal flood protection efforts. Portions of the City are subject to the 200-year standard. One such area (as shown in Figure 11.4) is the State Levee Flood Projection Zone of Black Rascal Creek located downstream of a state levee. The effect of the state's flood-related legislation on the City of Merced is described in the November 2015 Summary Report on Urban Level of Flood Protection adopted by reference as part of the General Plan. This report includes a map that depicts the state's regulatory requirements for flood protection, and is also presented in Figure 11.5a.

MAIN & N STREET FLOODING

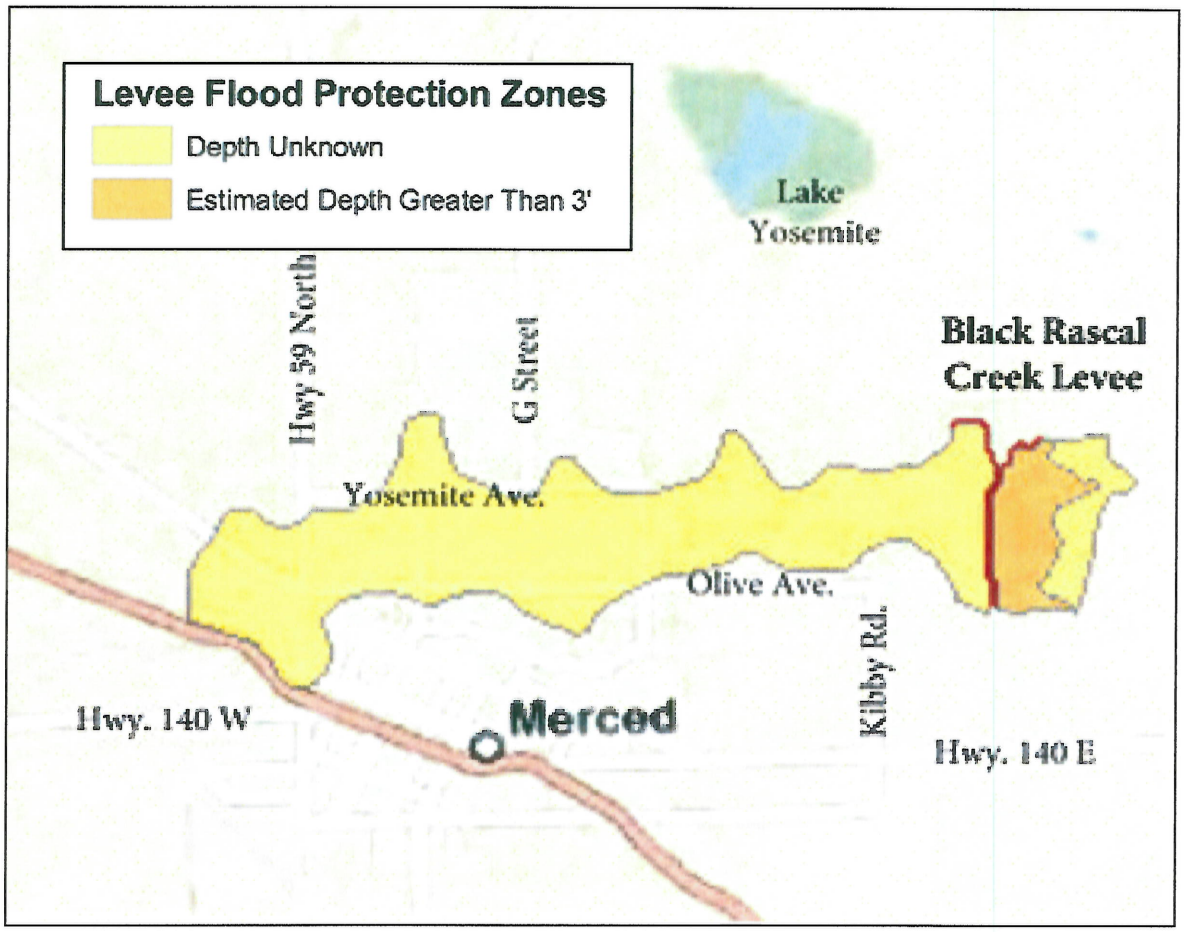
16TH STREET FLOODING

SOURCE: Merced County Historical Society

Text and Images to be Replaced as Shown on next page

THE FLOOD OF 1935

Figure 11.4



Levee Flood Protection Zones estimate the maximum area that may be inundated if a project levee fails when water surface elevation is at the top of a project levee. Zones depicted on this map were created utilizing methods and assumptions described in the accompanying technical manual, and do not necessarily depict areas likely to be protected from flow events for which project levees were designed.

Lands within the Levee Flood Protection Zones may be subject to flooding due to various factors, including the failure or overtopping of project or non-project levees, flows that exceed the design capacity of project or non-project levees, and flows from water sources not specifically protected against by project levees. Lands not mapped within a Levee Flood Protection Zone are not invulnerable to flood risk, and some may also experience flooding from those or other processes.

	CITY OF MERCED STATE LEVEE FLOOD PROTECTION ZONE	Figure 11.4

ATTACHMENT H

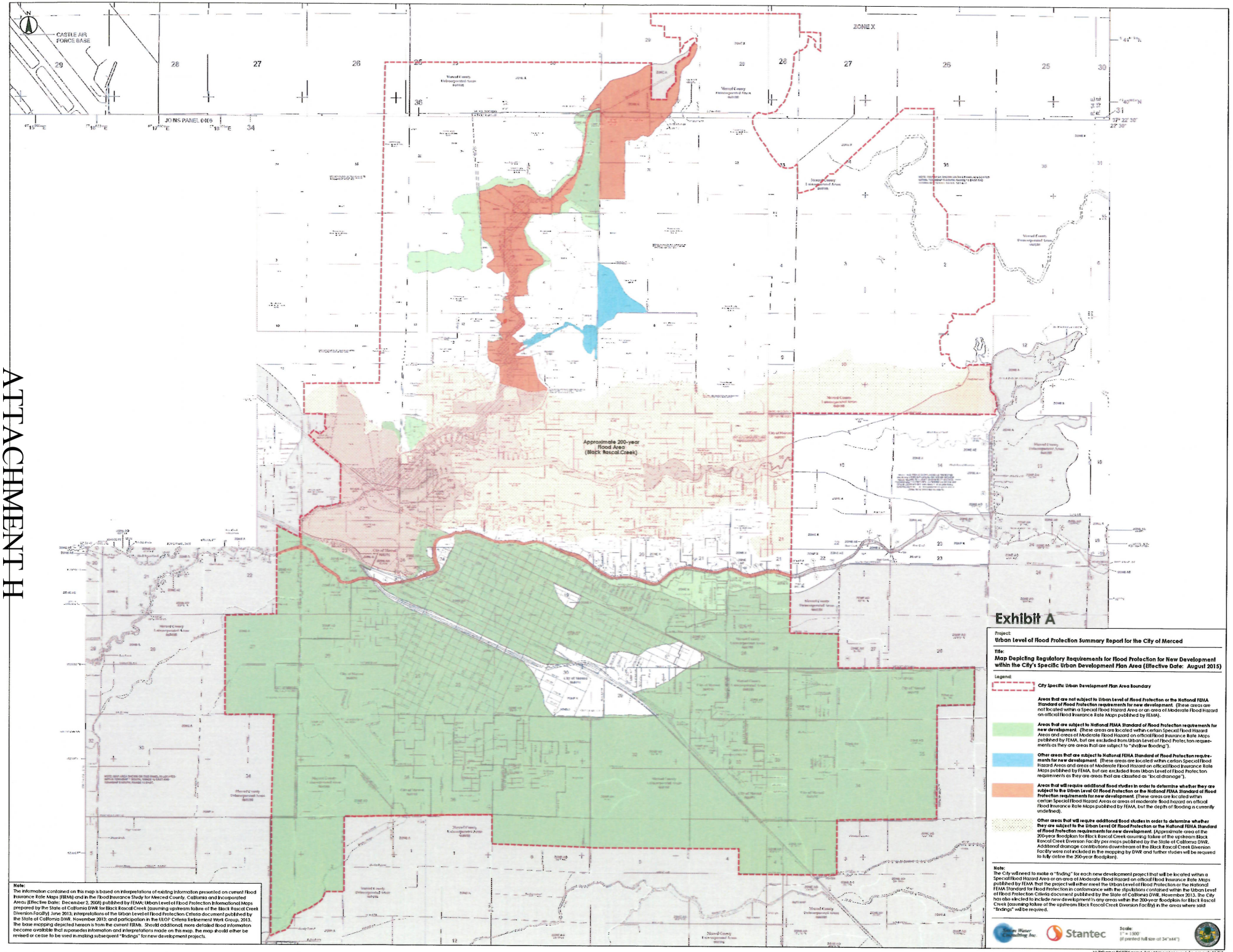


Exhibit A

Project:
Urban Level of Flood Protection Summary Report for the City of Merced

Title:
Map Depicting Regulatory Requirements for Flood Protection for New Development within the City's Specific Urban Development Plan Area (Effective Date: August 2015)

Legend:

City Specific Urban Development Plan Area Boundary

Areas that are not subject to Urban Level of Flood Protection or the National FEMA Standard of Flood Protection requirements for new development. (These areas are not located within a Special Flood Hazard Area or an area of Moderate Flood Hazard on official Flood Insurance Rate Maps published by FEMA).

Areas that are subject to National FEMA Standard of Flood Protection requirements for new development. (These areas are located within certain Special Flood Hazard Areas and areas of Moderate Flood Hazard on official Flood Insurance Rate Maps published by FEMA, but are excluded from Urban Level of Flood Protection requirements as they are areas that are subject to "shallow flooding").

Other areas that are subject to National FEMA Standard of Flood Protection requirements for new development. (These areas are located within certain Special Flood Hazard Areas and areas of Moderate Flood Hazard on official Flood Insurance Rate Maps published by FEMA, but are excluded from Urban Level of Flood Protection requirements as they are areas that are classified as "local drainage").

Areas that will require additional flood studies in order to determine whether they are subject to the Urban Level Of Flood Protection or the National FEMA Standard of Flood Protection requirements for new development. (These areas are located within certain Special Flood Hazard Areas or areas of moderate flood hazard on official Flood Insurance Rate Maps published by FEMA, but the depth of flooding is currently undefined).

Other areas that will require additional flood studies in order to determine whether they are subject to the Urban Level Of Flood Protection or the National FEMA Standard of Flood Protection requirements for new development. (Approximate area of the 200-year floodplain for Black Rascal Creek assuming failure of the upstream Black Rascal Creek Diversion Facility per maps published by the State of California DWR. Additional drainage contributions downstream of the Black Rascal Creek Diversion Facility were not included in the mapping by DWR and further studies will be required to fully define the 200-year floodplain).

Note:
The City will need to make a "finding" for each new development project that will be located within a Special Flood Hazard Area or an area of Moderate Flood Hazard on official Flood Insurance Rate Maps published by FEMA, that the project will either meet the Urban Level of Flood Protection or the National FEMA Standard for Flood Protection in conformance with the stipulations contained within the Urban Level of Flood Protection Criteria document published by the State of California DWR, November 2013. The City has also elected to include new development in any areas within the 200-year floodplain for Black Rascal Creek (assuming failure of the upstream Black Rascal Creek Diversion Facility) in the areas where said "findings" will be required.

Stantec

Scale:
1" = 1500'
(if printed full size at 34"x44")

Note:
The information contained on this map is based on interpretations of existing information presented on current Flood Insurance Rate Maps (FIRMs) and in the Flood Insurance Study for Merced County, California and Incorporated Areas (Effective Date: December 2, 2008) published by FEMA; Urban Level of Flood Protection Informational Maps prepared by the State of California DWR for Black Rascal Creek (assuming upstream failure of the Black Rascal Creek Diversion Facility) June 2013; interpretations of the Urban Level of Flood Protection Criteria document published by the State of California DWR, November 2013; and participation in the ULOP Criteria Refinement Work Group, 2013. The base mapping depicted hereon is from the current FIRMs. Should additional, more detailed flood information become available that supersedes information and interpretations made on this map, the map should either be revised or cease to be used in making subsequent "findings" for new development projects.

URBAN LEVEL OF FLOOD PROTECTION SUMMARY REPORT

City of Merced

MERCED

November, 2015

Storm Water Consulting Inc.

Stantec

ATTACHMENT I

URBAN LEVEL OF FLOOD PROTECTION - SUMMARY REPORT

(Revised Draft)

CITY OF MERCED, CALIFORNIA

November, 2015

Storm Water Consulting Inc.

Stantec

REGISTERED PROFESSIONAL ENGINEER
JAMES H. NELSON
C 049474
EXP. 9-30-16
CIVIL
STATE OF CALIFORNIA

SWC File No. 2015-101

URBAN LEVEL OF FLOOD PROTECTION
SUMMARY REPORT
CITY OF MERCED, CALIFORNIA

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EXHIBIT A – Map Depicting Regulatory Requirements for Flood Protection for New Development within the City's Specific Urban Development Plan Area (Effective Date: November, 2015)

1.0 Purpose of Report

This summary report has been prepared to assist the City of Merced in making "findings" for new development projects proposed within Special Flood Hazard Areas and Areas of Moderate Flood Hazard depicted on Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Agency (FEMA) and for new development projects proposed within the 200-year floodplain for Black Rascal Creek that said projects will withstand flooding from a 100-year return period flood event (the National FEMA Standard of Flood Protection) or a 200-year flood event (the Urban Level of Flood Protection). The 200-year floodplain for Black Rascal Creek has been roughly delineated on Informational Maps published recently by the State of California Department of Water Resources (DWR), but additional flood studies or interpretations of these maps will need to be made as they do not account for local drainage contributions below the Black Rascal Diversion or the downstream contribution of runoff from Fahrens Creek.

For new development within many of these flood hazard areas, the City of Merced will continue to make interpretations of information presented on FIRMs, establish requirements for new development projects in consideration of Title 17, Chapter 17.48 of the City's Municipal Code (entitled "Flood Damage Prevention") and review project design plans and other information as they have in the past. Flood hazard areas meeting this criterion are identified in this summary report.

The making of "findings" is a requirement prompted by the State of California's adoption of the 2007 California Flood Legislation, which is anchored by Senate Bill (SB) 5, and must be included with City approvals of any new development project located within a Special Flood Hazard Area (Zones AE, A, AO, and AH) or an area of Moderate Flood Hazard (shaded Zone X) on FIRMs published by FEMA. In keeping with the intent of SB 5, the City will also make "findings" for new development that is located within the 200-year floodplain for Black Rascal Creek. "Findings" will not be required for new development projects located within unshaded Zone X on FIRMs published by FEMA unless they are located within the 200-year floodplain for Black Rascal Creek. The area evaluated in this report is the City's Specific Urban Development Plan Area.

New development in portions of the City's Specific Urban Development Plan Area may be required to withstand flooding from a 200-year flood event, which is the Urban Level of Flood Protection established by SB 5. These areas have been identified herein, and a separate flood study will or may be required in the future to define the 200-year floodplain, flood depths, and water surface elevations in order for appropriate design provisions to be made for the project to meet the Urban Level of Flood Protection or for a determination to be made that the project will only need to meet the National FEMA Standard of Flood Protection (100-year flood event).

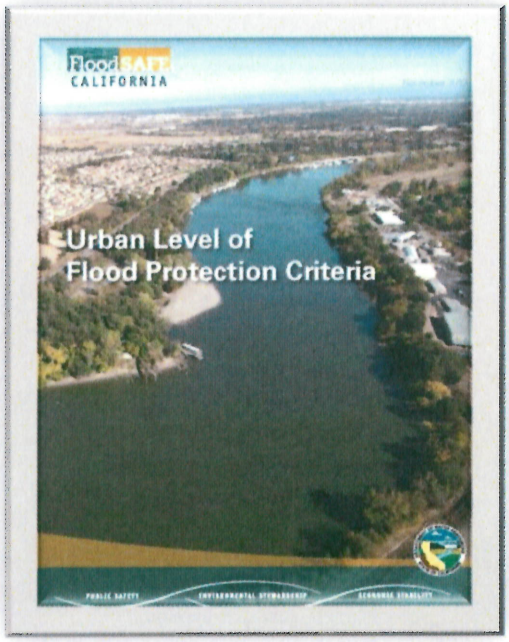
This summary report also identifies areas where new development proposed in Special Flood Hazard Areas and areas of Moderate Flood Hazard would continue to be governed by the National FEMA Standard of Flood Protection and not the Urban Level of Flood Protection. The premise for making these designations is that several areas within the City's Specific Urban Development Plan Area are only subject to "shallow flooding" or flooding from "local drainage", which are exempted from requirements to attain the Urban Level of Flood Protection.

This report may be referenced whenever it is appropriate that a "finding" may be made that a new development project will withstand flooding from a 100-year flood event in conformance with the National FEMA Standard of Flood Protection and the City's Municipal Code per the information provided herein and will not need to achieve the Urban Level of Flood Protection (200-year flood event). The information provided in this report has been based on a review and interpretation of available information (See References cited in Section 5 of this summary report) and does not include any new flood studies or analyses.

2.0 Urban Level of Flood Protection

2.1 URBAN LEVEL OF FLOOD PROTECTION CRITERIA

The California Department of Water Resources (DWR) developed and published a document entitled *Urban Level of Flood Protection Criteria* in November 2013 that provides a systematic approach to assist cities and counties within the Sacramento-San Joaquin Valley in making "findings" related to the Urban Level of Flood Protection before approving certain land use decisions. This document may be downloaded from DWR's website at the following web address: http://www.water.ca.gov/floodsafe/urbancriteria/. DWR developed the *Urban Level of Flood Protection Criteria* document to fulfill the requirements outlined in the 2007 California Flood Legislation (that includes SB 5) and associated amendments by subsequent legislation. The definition of the Urban Level of Flood Protection as provided therein is as follows:



Urban Level of Flood Protection 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 FEMA Standard of Flood Protection.

The *Urban Level of Flood Protection Criteria* document states that cities and counties shall make a "finding" related to an Urban Level of Flood Protection or the National FEMA Level of Flood Protection for any of the following pending land-use decisions when properties involved meet the location criteria that are listed in Section 2.2 that follows:

- Entering into a Development Agreement for all types of property development.
- Approving a discretionary permit or other discretionary entitlement for all development projects.
- Approving a ministerial permit for all projects that would result in the construction of a new residence.
- Approving a tentative map consistent with the Subdivision Map Act for all subdivisions.
- Approving a Parcel Map for which a tentative map is not required consistent with the Subdivision Map Act for all subdivisions.

With one exception, this summary report does not supersede any information or requirements contained within the *Urban Level of Flood Protection Criteria* document, and said document should be utilized by the City for making procedural decisions that are outside of the scope of this summary report. The exception is that this summary report includes the 200-year floodplain for Black Rascal Creek in the areas for which "findings" will also need to be made for new development projects.

2.2 LOCATION CRITERIA

Per the Urban Level of Flood Protection Criteria document, new development is subject to the requirement of making a "finding" related to the Urban Level of Flood Protection or the National FEMA Standard of Flood Protection when all of the following conditions apply:

- It is located within an urban area that is a developed area, as defined by Code of Federal Regulations Title 44, Section 59.1, with 10,000 residents or more, or an urbanizing area that is 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.
- It is located within a flood hazard zone that is mapped as either a Special Flood Hazard Area or an area of Moderate Flood Hazard on FEMA's effective FIRMs.
- It is located within the Sacramento-San Joaquin Valley.

All of these conditions apply to all properties within the City of Merced's Specific Urban Development Plan Area that are located within a Special Flood Hazard Area (Zones AE, A, AO, and AH) or an area of Moderate Flood Hazard (shaded Zone X) on effective FEMA FIRMs.

The FEMA FIRMs only reflect 100-year flood mapping for Black Rascal Creek downstream of the Black Rascal Diversion (to Bear Creek) to its confluence with Fahrens Creek, and the extent and severity of flooding shown on the FEMA FIRMs is limited. DWR has since prepared informational 200-year floodplain maps for Black Rascal Creek under the assumption that the Black Rascal Diversion would fail during a 200-year storm. The Black Rascal Diversion is a State Plan of Flood Control (SPFC) facility. The informational 200-year floodplain maps were prepared and published by DWR for several urban areas, including the City of Merced, to help the applicable communities make determinations relating to the Urban Level of Flood Protection. The 200-year floodplain for Black Rascal Creek is included in the areas for which "findings" will need to be made for new development, and the informational 200-year floodplain maps are available for viewing at the City. **Please note that further study and/or interpretations of these informational maps will be required in order to make findings with regard to the 200-year floodplain and flood elevations. This is due to the fact that the informational maps only depict water surface elevations resulting from failure of the SPFC urban levees at the Black Rascal Diversion and to not include other potential flooding sources, such as downstream drainage contributions from local areas and from Fahrens Creek.**

On a project-by-project basis, or as a comprehensive approach, a separate flood study will or may be required by the City to define the 200-year floodplain, flood depths, and water surface elevations in applicable areas in order for appropriate design requirements and provisions to be made by new development to meet the Urban Level of Flood Protection or to make a determination that only the National FEMA Standard of Flood protection will need to be achieved.

2.3 SHALLOW FLOODING AND LOCAL DRAINAGE

If the location criteria are met per Section 2.2, but the new development would only experience shallow flooding or flooding from local drainage, a "finding" will still need to be made, but the standard that will apply is the National FEMA Standard of Flood Protection (100-year flood event) and not the Urban Level of Flood Protection (200-year flood event). These types of flooding are defined below:

Shallow Flooding – Flooding that is 3.0 feet or less in depth from sources of flooding other than local drainage.

Local Drainage – Flooding caused by a contributing watershed area of less than 10 square miles, measured upstream from a given project.

2.4 EXCLUDED AREAS

For new development of properties within the City of Merced's Specific Urban Development Plan Area that are entirely contained within unshaded Zone X (not located in a Special Flood Hazard Area or an area of Moderate Flood Hazard) on effective FEMA FIRMs and that are not a part of the 200-year floodplain for Black Rascal Creek, the City is not required to make a "finding" with regard to the Urban Level of Flood Protection or the National FEMA Standard of Flood Protection.

3.0 Flood Zones and Conditions Applicable to Merced

3.1 FLOOD ZONES

The following Special Flood Hazard Areas and areas of Moderate Flood Hazard are currently depicted on FEMA FIRMs (Effective Date: December 2, 2008) covering the City of Merced's Specific Urban Development Plan Area and are shown on Exhibit A:

Zone AE – The flood insurance rate zone that corresponds to the 1-percent annual chance floodplains (100-year return period) that are determined by detailed methods. In most instances, whole-foot base flood elevations (BFEs) derived from detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH – The flood insurance risk zone that corresponds to the areas of 1-percent annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole foot BFEs derived from detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO – The flood insurance risk zone that corresponds to the areas of 1-percent annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot base flood depths derived from detailed hydraulic analyses are shown within this zone.

Zone X (shaded) – The flood insurance rate zone that corresponds to areas within the 0.2-percent annual chance (500-year return period) floodplain, areas of 1-percent annual chance flooding where average depths are less than 1 foot, areas of 1-percent annual chance flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1-percent annual chance flood by levees. No BFEs or depths are shown within this zone.

Zone A – The flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that have been estimated by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs or depths are shown within this zone.

Zones AO and Zone AH account for a significant amount of the Special Flood Hazard Areas mapped by FEMA within the City's Specific Urban Development Plan Area, and many of these zone designations are associated with overflow to the south from the Bear Creek channel during the 100-year flood event. Zone AE designations are provided in the Bear Creek channel and the 100-year floodplains for Fahrens Creek and Cottonwood Creek. Zone X (shaded) extends along segments of Fahrens Creek, Bear Creek, and Black Rascal Creek, sometimes representing the 500-year floodplain and sometimes representing areas of shallow flooding with average depths of less than 1 foot during a 100-year flood event. Zone A is designated along areas subject to shallow flooding (primarily from Bear Creek overflow) along the west boundary of the south portion of the City's Specific Urban Development Plan Area, certain reaches of Black Rascal Creek, and in areas within the floodplain for Fahrens Creek north of Bellevue Road.

The 200-year floodplain for Black Rascal Creek shown on informational maps published by DWR is a separate delineation from the FEMA FIRM information and does not relate to FEMA flood zones. The DWR informational maps also have no impact on Federal Flood Insurance requirements. There are underlying areas within the 200-year floodplain mapped by DWR that are within Zone A and Zone X (shaded) on the FEMA FIRMs.

There are also large areas designated as Zone X (unshaded) within the Specific Urban Development Plan Area on the FEMA FIRMs. These represent areas of minimal flood potential, except when they overlap with the 200-year floodplain for Black Rascal Creek on the informational maps published by DWR.

3.2 SOURCES OF FLOODING

The Special Flood Hazard Areas and areas of Moderate Flood Hazard mapped by FEMA within the City of Merced's Specific Urban Development Plan Area are associated with flooding derived from Bear Creek, Black Rascal Creek, Fahrens Creek, and Cottonwood Creek. The southeast portion of the City's Specific Urban Development Plan Area contains Zone AO and Zone AH designations that may also be influenced to some degree by Miles Creek to the south.

3.2.1 Bear Creek

Bear Creek has a contributing watershed area of 202 square miles measured upstream from its crossing of McKee Road, and will produce peak discharges of 14,000 cfs and 23,500 cfs during the 100-year and 500-year flood events, respectively, according to the FEMA FIS. The FEMA FIS states that:

> "Historically, flood flows in excess of the Bear Creek channel capacity spill over the left bank of Bear Creek approximately 6 miles east of Merced. Due to topography and embankments, overflow from Bear Creek does not return to the channel. The natural slope is southwest from Bear Creek, but some of the overflow moves westward and northwestward into Merced along the Atchison, Topeka, and Santa Fe (AT&SF) Railway embankment. There are some flood relief structures along the embankment that allow part of the overflow to proceed southwestward, but much of the floodwater flows into Merced, where it ponds and eventually overtops the AT&SF Railway embankment between R and V Streets. The floodwater then flows as shallow flooding southwestward through downtown Merced, ponds behind the Southern Pacific Railroad embankment, eventually overtops the railroad embankment, and finally continues as shallow flooding through southwest Merced."

A significant portion of the City's Specific Urban Development Plan Area is shown to be subject to shallow flooding (Zones AO, AH, and shaded X) to the south of Bear Creek. The FEMA FIS also states that, "Most of the overflow (from Bear Creek) eventually crosses the railroad tracks and Highway 99 and combines with floodwater from the other creeks in the basin . . ." In the FEMA FIS, Bear Creek was studied using a variety of levee (bank) failure scenarios as the levees along Bear Creek do not meet FEMA's freeboard criteria.

3.2.2 Black Rascal Creek

According to a Feasibility Study performed by URS for the Black Rascal Creek Flood Control Project (see Reference cited in Section 5 of this summary report), Black Rascal Creek has a contributing watershed of 33.13 Square Miles at the Black Rascal Diversion under the assumption that flows from Parkinson Creek and Fahrens Creek will not contribute to this location via diversions to Yosemite Lake and the Fairfield Canal. Said study estimates a 100-year discharge for Black Rascal Creek of about 4,300 cfs and a 200-year discharge of about 5,000 cfs at this location. Black Rascal Creek is essentially assumed to have its 100-year discharge diverted to Bear Creek at the Black Rascal Diversion just upstream of the City's Specific Urban Development Plan boundary in the FEMA FIS. Downstream of the Black Rascal Diversion to the confluence with Fahrens Creek the FEMA FIS only studied the 100-year floodplain for Black Rascal Creek using approximate methods. The FEMA FIRMs only depict a minimal amount of flooding using Zone X (shaded) and Zone A designations downstream of the Black Rascal Diversion until Black Rascal Creek joins Fahrens Creek further downstream. The informational 200-year floodplain maps published by DWR assume that the Black Rascal Diversion has failed and produces significant flooding downstream over an area that is much more extensive than the 100-year flood zones shown on the FEMA FIRMs.

3.2.3 Fahrens Creek

Fahrens Creek has a contributing watershed of 38.5 square miles measured upstream from its confluence with Black Rascal Creek, and will produce a peak discharge of 5,400 cfs during the 100-year flood event according to the FEMA FIS. From the confluence with Black Rascal Creek upstream to the confluence with Cottonwood Creek, only the 100-year flood was evaluated for Fahrens Creek by FEMA. From the confluence with Cottonwood Creek to about 1 mile north of Bellevue Road, other flood events were also studied by FEMA, including the 500-year flood event.

3.2.4 Cottonwood Creek

Cottonwood Creek has a contributing watershed of 8.0 square miles measured upstream from its confluence with Fahrens Creek and produces peak discharges of 800 cfs and 1,500 cfs during the 100-year and 500-year flood events, respectively, according to the FEMA FIS.

3.3 SHALLOW FLOODING AND LOCAL DRAINAGE EXCLUSIONS FROM THE URBAN LEVEL OF FLOOD PROTECTION

3.3.1 Overview

As stated previously in this summary report, *Urban Level of Flood Protection shall not mean shallow flooding or flooding from local drainage that meets the criteria of the National FEMA Standard of Flood Protection.*

"Shallow flooding" is defined as flooding that is 3.0 feet or less in depth. The *Urban Level of Flood Protection Criteria* document allows cities and counties to choose either a 100-year or 200-year return period event as the reference flood event upon which a shallow flooding

decision is made. This allows cities and counties to avoid an extensive and costly remapping of flood hazard areas already mapped and given shallow flooding designations by FEMA. Also, shallow flooding areas designated on FEMA FIRMs are typically large sheet flow areas or ponding areas of significant width, and the incremental change in flood depth between a 100-year and a 200-year return period storm would be minimal as the increase in flood discharge may be allocated across a wide area. This is true for the shallow flooding areas designated by FEMA in the City's Specific Urban Development Plan Area.

This summary report concludes that all areas within the City's Specific Urban Development Plan Area designated as Zone AH, Zone AO, and Zone X (shaded), plus the Zone A designated area near the west edge of the southern portion of the City's Specific Urban Development Plan Area on FEMA FIRMs, with the exception of any such areas within the 200-year floodplain for Black Rascal Creek, are areas of shallow flooding. Thus, new development within these areas will not be required to meet the Urban Level of Flood Protection (200-year flood event). However, they will continue to be required to achieve the National FEMA Standard of Flood Protection (100-year flood event) and conform to Title 17, Chapter 17.48 of the City's Municipal Code (entitled "Flood Damage Prevention").

"Local drainage" is defined as flooding caused by a contributing watershed area of less than 10 square miles, measured upstream from a given project (or location). The watershed area contributing to Cottonwood Creek measured upstream from its confluence with Fahrens Creek is less than 10 square miles; and thus, Cottonwood Creek is considered to be local drainage and not subject to the Urban Level of Flood Protection. New development in FEMA designated Special Flood Hazard Areas for Cottonwood Creek will still need to achieve the National FEMA Standard of Flood Protection.

3.3.2 FEMA Zone AH

Zone AH is a shallow flooding zone designation (usually representing areas of ponding) where average depths are between 1 and 3 feet. In the City's Specific Urban Development Plan Area, Zone AH has been designated for shallow ponding areas within the floodplain for Bear Creek, generally on the upstream side of railroad and canal embankments and in the Black Rascal Creek flood area downstream of the confluence with Fahrens Creek.

3.3.3 FEMA Zone AO

Zone AO is a shallow flooding zone designation (usually representing sheet flow on sloping terrain) where average depths are between 1 and 3 feet. In the City's Specific Urban Development Plan Area, the majority of Zone AO designated areas have an estimated average depth of 1 foot. There are also limited Zone AO designated areas that have an estimated average depth of 2 feet (along the upstream side of the AT&SF Railway embankment). There are no Zone AO designated areas having an estimated average depth of 3 feet.

3.3.4 FEMA Zone X (shaded)

Zone X (shaded) can mean many things, but generally represents areas of Moderate Flood Hazard that is less severe than for Special Flood Hazard Area designations (such as Zones AE, AH, AO, etc.). Zone X (shaded) may represent areas outside of the 100-year floodplain but within the 500-year floodplain, areas in the 100-year floodplain having average depths of flooding of less than 1 foot, areas in the 100-year floodplain with a contributing drainage area of

less than 1 square mile, or areas protected from the 100-year flood by levees. In the City's Specific Urban Development Plan Area, the Zone X (shaded) areas along Fahrens Creek upstream of its confluence with Cottonwood Creek are areas within the 500-year floodplain, the Zone X (shaded) areas along Fahrens Creek below its confluence with Cottonwood Creek represent shallow flooding (less than 1 foot) in the 100-year floodplain, and the Zone X (shaded) areas along Bear Creek are either areas within the 500-year floodplain or areas having shallow flooding depths of less than 1 foot in the 100-year floodplain. In all cases, these areas have depths of less than 3 feet as the difference between the 100-year flood elevations and the 500-year flood elevations (where applicable) is consistently less than 3 feet.

The Zone X (shaded) areas within the Black Rascal Peak floodplain between the Black Rascal Diversion and the confluence with Fahrens Creek are irrelevant with regard to Urban Level of Flood Protection interpretations made in this summary report as they are superseded by the 200-year floodplain, which is roughly delineated on the DWR informational maps.

3.3.5 FEMA Zone A

Zone A is a flood zone designation that refers to an area in the 100-year floodplain that has been estimated using approximate methods. The degree of flooding can range from severe to mild. In the City's Specific Urban Development Plan Area, Zone A designations are depicted on the FEMA FIRMs at the upstream limit of study for Fahrens Creek and along the southern portion of the west boundary of the City's Specific Urban Development Plan Area (with flooding being derived from Bear Creek overflow). The Fahrens Creek Zone A designation will require further study that is outside of the scope of this summary report in order to determine if it should be designated as a shallow flooding area. However, this summary report has concluded that the Zone A flood area associated with Bear Creek is overflow flooding that is emanating from a Zone AO (Depth 1) designation area that is diminishing in severity in the downstream direction; and thus, is a shallow flooding area.

The Zone A area within the Black Rascal Peak floodplain between the Black Rascal Diversion and the confluence with Fahrens Creek is irrelevant with regard to Urban Level of Flood Protection interpretations made in this summary report as it is superseded by the 200-year floodplain, which is roughly delineated on the DWR informational maps.

The Zone A area at the upstream limit of study for Cottonwood Creek is considered to be local drainage.

4.0 Conclusions

4.1 FINDINGS

In consideration of the *Urban Level of Flood Protection Criteria* document published by DWR, review and interpretation of the FEMA FIS and FIRMs, and review and interpretation of 200-year floodplain informational mapping for Black Rascal Creek prepared by DWR, this summary report includes a reference map (Exhibit A) that identifies the following areas within the City's Specific Urban Development Plan Area:

- Areas that are not subject to Urban Level of Flood Protection or National FEMA Standard of Flood Protection requirements for new development.
- Areas that are subject to National FEMA Standard of Flood Protection requirements for new development due to "shallow flooding".
- Areas that are subject to National FEMA Standard of Flood Protection requirements for new development due to "local drainage".
- Areas that will require additional flood studies to be performed in order to determine whether they are subject to the Urban Level of Flood Protection or the National FEMA Standard of Flood Protection requirements for new development.

The City will be required to make a "finding" that new development in any Special Flood Hazard Area (FEMA Zones AE, AH, AO, and A), any area of Moderate Flood Hazard (FEMA Zone X, shaded), or any area within the 200-year floodplain area for Black Rascal Creek will meet the Urban Level of Flood Protection or the National FEMA Standard of Flood Protection.

This summary report has concluded that new development in the following areas within the City's Specific Urban Development Plan area only needs to meet the National FEMA Standard of Flood Protection:

- FEMA Zones AH, AO, and X (shaded) that are not within the 200-year floodplain for Black Rascal Creek ("shallow flooding").
- FEMA Zone A areas along the west boundary of the south portion of the City's Specific Urban Development Plan Area ("shallow flooding").
- All FEMA zones associated with flooding derived from Cottonwood Creek ("local drainage").

The City will be required to make "findings" for new development in the above areas but may reference this summary report as the basis for determining that meeting the National FEMA Standard of Flood Protection is all that is required, where applicable. The "findings" should also state the manner in which said flood protection will be accomplished. The City may continue to use the effective FEMA FIRMs and the City's Municipal Code as the basis for interpretation of specific requirements for elevating structures above the base flood (100-year) elevation for new development in these areas.

4.2 FREEBOARD

The *Urban Level of Flood Protection Criteria* document published by DWR does not mandate, but recommends that cities and counties consider providing freeboard in the elevating of building finished floors for the following listed reasons:

- Significant flood damage occurs to buildings before the flood elevation reaches the elevation of the finished floor.
- Wind and wakes will create waves that exceed the average flood elevation, causing damage.
- Engineers cannot know the exact elevation of the water surface. It is a calculated estimate that may be too low.
- Any flow obstruction in the nearby vicinity could increase the flood elevation.
- Upstream development and climate change may increase future flood elevations during the building's useful life.

As of the date of preparation of this summary report, Title 17, Chapter 17.48 of the City's Municipal Code (entitled "Flood Damage Prevention") required elevating finished floors for new buildings at or above FEMA designated 100-year flood elevations or depths and does not mandate the incorporation of freeboard.

4.3 EFFECTIVE PERIOD FOR THIS REPORT

The effective period for conclusions drawn in this summary report shall be limited to 20 years in conformance with the *Urban Level of Flood Protection Criteria* document published by DWR. If any changes in conditions, regulations, standards, or available flood mapping occur during this time period that should supersede the information provided herein, this report should either be revised or cease to be used as an aid in making "findings" for new development projects.

5.0 References

City of Merced, *Merced Vision 2030 General Plan,* 2012.

City of Merced, *Title 17 of the City's Municipal Code, Chapter 17.48 Flood Damage Prevention,* 2015.

Federal Emergency Management Agency, *Flood Insurance Study, Merced County, California, and Incorporated Areas,* December 2, 2008.

Federal Emergency Management Agency, *Flood Insurance Rate Maps, Merced County, California and Incorporated Areas, Panels 225, 240, 250, 407, 409, 420, 426, 427, 428, 429, 435, 440, and 445,* December 2, 2008.

State of California, Department of Water Resources, *Urban Level of Flood Protection Criteria,* November 2013.

State of California, *Senate Bill 5 (Central Valley Flood Protection Act),* October 2007.

State of California, *Senate Bill 1278/Assembly Bill 1965 Urban Level of Flood Protection Informational Mapbook, San Joaquin River Basin – Merced Study Area,* June 2013.

URS/Merced County, *Feasibility Study, Black Rascal Creek Flood Control Project,* June 2008 *and Addendum 1,* February 2009.

U.S. Geological Survey, *7.5 Minute Series Quadrangle Maps (Photorevised) - Arena, Atwater and Merced,* 1987.

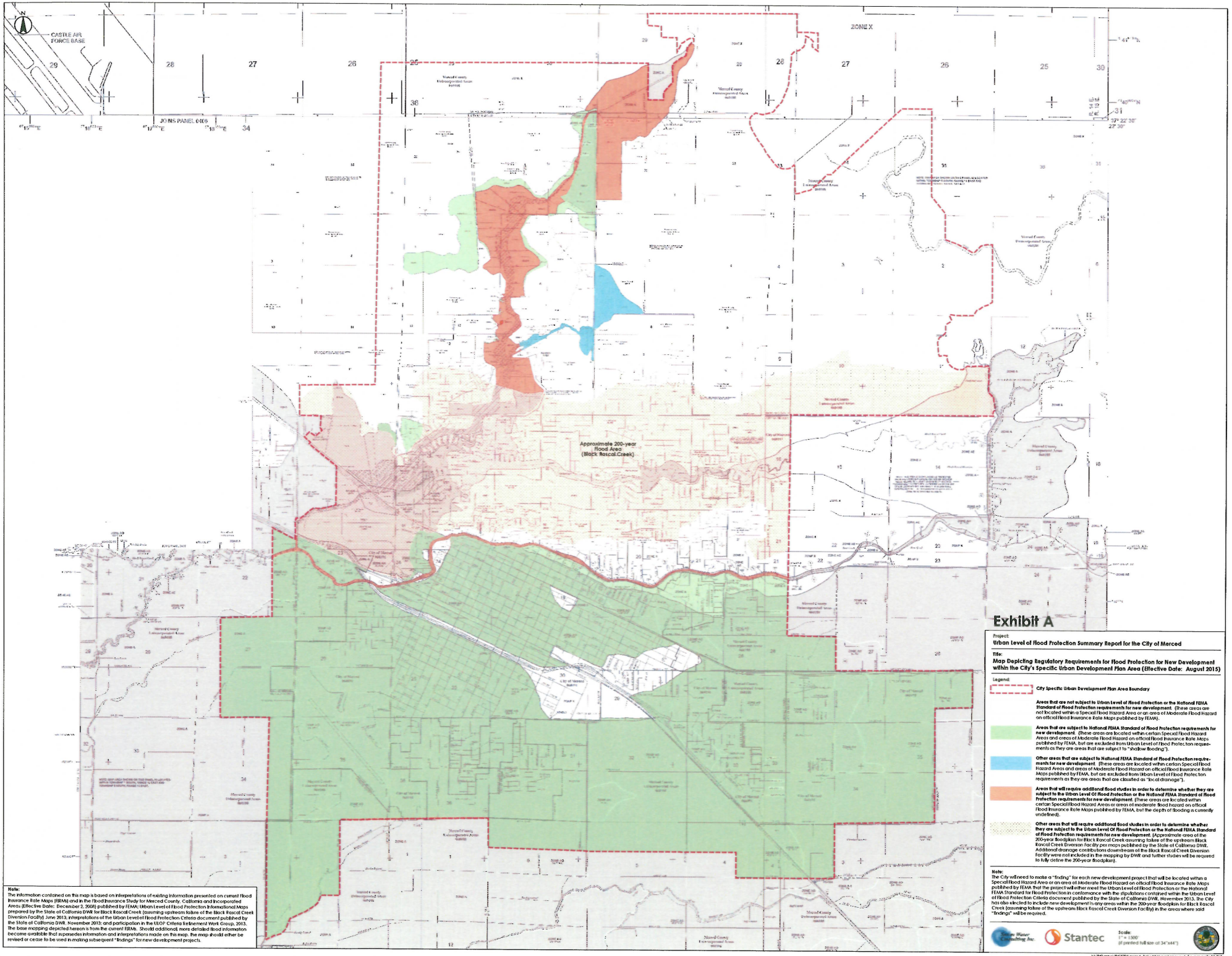


Exhibit A

Project:
Urban Level of Flood Protection Summary Report for the City of Merced

Title:
Map Depicting Regulatory Requirements for Flood Protection for New Development within the City's Specific Urban Development Plan Area (Effective Date: August 2015)

Legend:

City Specific Urban Development Plan Area Boundary

Areas that are not subject to Urban Level of Flood Protection or the National FEMA Standard of Flood Protection requirements for new development. (These areas are not located within a Special Flood Hazard Area or an area of Moderate Flood Hazard on official Flood Insurance Rate Maps published by FEMA).

Areas that are subject to National FEMA Standard of Flood Protection requirements for new development. (These areas are located within certain Special Flood Hazard Areas and areas of Moderate Flood Hazard on official Flood Insurance Rate Maps published by FEMA, but are excluded from Urban Level of Flood Protection requirements as they are areas that are subject to "shallow flooding").

Other areas that are subject to National FEMA Standard of Flood Protection requirements for new development. (These areas are located within certain Special Flood Hazard Areas and areas of Moderate Flood Hazard on official Flood Insurance Rate Maps published by FEMA, but are excluded from Urban Level of Flood Protection requirements as they are areas that are classified as "local drainage").

Areas that will require additional flood studies in order to determine whether they are subject to the Urban Level Of Flood Protection or the National FEMA Standard of Flood Protection requirements for new development. (These areas are located within certain Special Flood Hazard Areas or areas of moderate flood hazard on official Flood Insurance Rate Maps published by FEMA, but the depth of flooding is currently undefined).

Other areas that will require additional flood studies in order to determine whether they are subject to the Urban Level Of Flood Protection or the National FEMA Standard of Flood Protection requirements for new development. (Approximate area of the 200-year floodplain for Black Rascal Creek assuming failure of the upstream Black Rascal Creek Diversion Facility per maps published by the State of California DWR. Additional drainage contributions downstream of the Black Rascal Creek Diversion Facility were not included in the mapping by DWR and further studies will be required to fully define the 200-year floodplain).

Note:
The City will need to make a "finding" for each new development project that will be located within a Special Flood Hazard Area or an area of Moderate Flood Hazard on official Flood Insurance Rate Maps published by FEMA that the project will either meet the Urban Level of Flood Protection or the National FEMA Standard for Flood Protection in conformance with the stipulations contained within the Urban Level of Flood Protection Criteria document published by the State of California DWR, November 2013. The City has also elected to include new development in any areas within the 200-year floodplain for Black Rascal Creek (assuming failure of the upstream Black Rascal Creek Diversion Facility) in the areas where said "findings" will be required.

Stantec

Scale:
1" = 1500'
(if printed full size at 34"x44")

Note:
The information contained on this map is based on interpretations of existing information presented on current Flood Insurance Rate Maps (FIRMs) and in the Flood Insurance Study for Merced County, California and Incorporated Areas (Effective Date: December 2, 2008) published by FEMA; Urban Level of Flood Protection Informational Maps prepared by the State of California DWR for Black Rascal Creek (assuming upstream failure of the Black Rascal Creek Diversion Facility) June 2013; interpretations of the Urban Level of Flood Protection Criteria document published by the State of California DWR, November 2013; and participation in the ULOP Criteria Refinement Work Group, 2013. The base mapping depicted hereon is from the current FIRMs. Should additional, more detailed flood information become available that supersedes information and interpretations made on this map, the map should either be revised or cease to be used in making subsequent "findings" for new development projects.

Recommended Revised Safety Element Goals, Policies and Implementation Measures

Goal Area S-3: Flooding

GOAL

- **A ~~City Free From Other Than Street Flooding~~** Protect people and property from flood risk.

POLICIES

S-3.1 Avoid or Minimize the Risks of Flooding to New Development.

S-3.~~1~~2 ~~Implement Protective Measures for Areas in the City and the SUDP/SOI, Within the 200-Year Floodplain~~. Implement appropriate land use planning practices to improve flood risk management and reduce the consequence of flooding.

S-3.~~2~~3 Maintain essential City services in the event of flooding or dam failure.

S-3.4 Locate and Design Essential Facilities to Minimize Flood Risk

S-3.5 Coordinate with other local, regional, State, and federal agencies to improve flood risk management.

Policy S-3.1
Avoid or Minimize the Risks of Flooding to New Development.

Implementing Actions:

3.1.a Limit future development in areas with high flooding risk to the extent feasible to open space, green belts, and other natural areas, recreational use or agricultural use. Maintain public safety and sustainable development in areas prone to risk of flooding.

3.1.b Require that roadway systems for areas protected by levees and dams be designed to provide multiple escape routes for residents and access for emergency services in the event of a levee or dam failure.

3.1.c Encourage multi-purpose flood management projects that incorporate recreation, resource conservation, preservation of natural riparian habitat, and scenic values of the community's watercourses, creeks, and streams.

The City will continue to review its own infrastructure facilities to make sure that they are protected from flooding so they will continue to function and provide service to City residents in the event of a flood. The City will also work with other jurisdictions to address flood issues and

to limit development to the extent feasible in flood hazard areas.

Policy S-3.~~1~~2

I~~mplement Protective Measures for Areas in the City and the SUDP/SOI Within the 100-Year and 200-Year Floodplains~~. Implement Appropriate ~~l~~Land Use Planning Practices to Improve Flood Risk Management and Reduce the Consequence of Flooding.

Implementing Action:

3.~~1~~2.a ~~**Continue to implement the City's Flood Damage Prevention Ordinance and other measures as needed to protect areas within the City and the SUDP/SOI that are within the 100-year and 200-year floodplains as applicable.**~~

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 the State of California Department of Water Resources' (DWR) *Urban Level of Flood Protection Criteria* for an urban level of flood protection standard (200-year) in urban and urbanizing areas. The City will not approve new development or a subdivision or enter into a development agreement for any property within a flood hazard zone, unless the adequacy of flood protection specific to the area has been demonstrated.

~~3~~.~~1~~2.b ~~**The City shall evaluate areas within its SUDP/SOI to identify areas of potential localized flood hazards using an official flood insurance rate map issued by the Federal Emergency Management Agency (FEMA), the National Flood Insurance Program maps published by FEMA, information about flood hazards available from the U.S. Army Corps of Engineers, dam failure inundation maps available from the Office of Emergency Services, Awareness Floodplain Maps and 200-year flood plain maps available from the Department of Water Resources, historical data available from the City, County of Merced, and any other sources as appropriate during the preparation of a Hazard Mitigation Plan.**~~

Require that new development and substantial improvements or upgrades in identified FEMA flood hazard zones (i.e., 100- and 500-year floodplains) be constructed in accordance with applicable city, State, and federal regulations, including compliance with the minimum standards of the Federal Emergency Management Agency and the National Flood Improvement Program to avoid or minimize the risk of flood damage.

~~3~~.~~1~~2.c ~~**Essential facilities (i.e., hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities), when feasible, shall be located outside of flood hazard zones, or construction methods and other methods to minimize damage from flood hazards identified, so that structural and operational integrity is maintained during flooding.**~~

Require new development in dam or levee inundation areas to consider risk from failure of these facilities and to include mitigations to bring this risk to a reasonable level.

3.~~1~~2.d ~~**The City shall develop a program with criteria to determine when construction of essential public facilities and other critical facilities will be permitted in flood hazard zones or areas with other geologic hazards."**~~ **Review annually and update, as necessary, appropriate General Plan elements to reflect current floodplain mapping data available from local, regional, State, and federal agencies to ensure the best available flood risk mapping information is contained in the general plan.**

~~In 2008, the State of California adopted new legislation that requires jurisdictions to prepare~~

~~certain floodplain regulations based on the 200-year flood event, instead of the previously used 100-year flood event. New maps identifying the new areas have been issued, and no additional areas within the SUDP/SOI have been identified as being impacted by the 200-year floodplain. The City's Flood Damage Prevention Ordinance is the implementing tool that the City uses to address flood issues. The City uses the FEMA maps and other sources to identify flood hazard areas, which will be addressed in a future Hazard Mitigation Plan currently being prepared by the City. The City will also identify "essential facilities" per Government Code 65302(g)(A)(iv) and to the extent feasible, make sure they are located outside flood hazard areas or constructed to withstand flood damage.~~

3.2.e Amend the Merced Municipal Code (Flood Damage Prevention Cordinance) pursuant to state law to provide consistency with amendments made to the General Plan pursuant to flood risk management.

Policy S-3.~~2~~3
Maintain Essential City Services in the Event of Flooding or Dam Failure.

Implementing Actions:

3.~~2~~3.a Continue to build all pump stations (both sewer and water) entryways at one (1) foot above the 200-year flood elevation~~ (when it has been determined and mapped)~~, and continue to implement additional standards to address flooding due to dam failure.

3.~~2~~3.b Continue the "flood-proofing" of high-value or important City infrastructure, such as lift stations and signal control functions, as required by the City's Flood Damage Prevention Ordinance.

~~3.2~~3.c ~~The City shall develop and maintain relationships with local jurisdictions, water districts, state agencies, and federal agencies for the purposes of: 1) providing information for the public; 2) utilizing current data (e.g., National Flood Insurance Program maps); and, 3) determining appropriate regulatory requirements for development in high hazard areas.~~

~~3.2~~3.d ~~Limit future development in areas with high flooding risk to the extent feasible to open space, green belts, and other natural areas, recreational use or agricultural use. Maintain public safety and sustainable development in areas prone to risk of flooding.~~ Maintain and update emergency response plans, including evacuation routes, that address potential flooding in flood hazard zones, in areas protected by levees and dam inundation areas. Maintain, update, and make available to the public, as appropriate, community flood evacuation and rescue maps.

~~The City will continue to review its own infrastructure facilities to make sure that they are protected from flooding so they will continue to function and provide service to City residents in the event of a flood. The City will also work with other jurisdictions to address flood issues and to limit development to the extent feasible in flood hazard areas.~~ In times of flooding, when evacuation routes will be essential, the availability of a popular road may be submerged, while the availability of another lesser known road may become the viable evacuation route. Preparation and dissemination of emergency response plans and evacuation routes will benefit individuals and the community.

Policy S-3.4
Locate and Design Essential Facilities to Minimize Flood Risk

Implementing Actions:

3.4.a Essential facilities (i.e., hospitals and health care facilities, emergency shelters, fire stations and police stations, emergency command centers, and emergency communications facilities), when feasible, shall be located outside of 100- and 200-year floodplains, or implement design and construction methods to minimize damage from flood hazards identified, so that structural and operational integrity is maintained during flooding.

Protection of the City's essential services will be key to provision of services during times of emergency. As described below, the City will evaluate and deploy a variety of means to accomplish this implementing action (see below).

3.4.b The City shall develop a program with criteria to determine when construction of essential public facilities and other critical facilities will be permitted in flood hazard zones or areas with other geologic hazards.

This program will be developed in conjunction with the Engineering Division's effort to craft a policy reflective set of codes (see below).

3.4.c Review the municipal code and amend as necessary to require the location of new critical facilities (e.g., hospitals, emergency command centers, communication facilities, fire stations, and police stations) outside of 100- and 200-year floodplains. Where such location is not feasible, include exceptions through appropriate mitigation methods to minimize the potential flood damage to the facility.

Following adoption of the City's General Plan Amendment, the City's Engineering Division will develop and process an applicable code amendment.

Policy S-3.5
Coordinate with other Local, Regional, State, and Federal Agencies to Improve Flood Risk Management.

Implementing Actions:

3.5.a The City shall develop and maintain relationships with local jurisdictions, water districts, state agencies, and federal agencies for the purposes of: 1) providing information for the public; 2) utilizing current data (e.g., National Flood Insurance Program maps); and, 3) determining appropriate regulatory requirements for development in high hazard areas.

Establishment and development of partnerships, collaborative efforts and communication are important elements of a successful program and safe community.

3.5.b Cooperate with local, regional, State, and federal agencies in securing funding to obtain the maximum level of flood protection that is practical, with a minimum goal of achieving at least 200-year flood protection for urban and urbanizing areas.

Working with its local partners and being aware of state and federal funding opportunities, the City will seek grant funds to improve its flood-related infrastructure.

3.5.c Work with responsible parties to ensure flood management facilities and structures (e.g., pump stations, levees, canals, channels, and dams) in the community are properly maintained and/or improved.

The Merced Irrigation District maintains and improves these features within the planning area.

3.5.d Annually maintain and implement the community's Federal Emergency Management Agency (FEMA)-approved local hazard mitigation plan in order to apply for and/or receive project grants under FEMA's hazard mitigation assistance programs (e.g., Hazard Mitigation Grant Program, Pre-Disaster Mitigation, Flood Mitigation Assistance, or Severe Repetitive Loss).

The 2015 Local Hazard Mitigation Plan has a life of 5-years and includes nine projects that are eligible for grant funds. Annual updates and maintenance of the plan are part of the duties of the City's Disaster Council.

extensive sports fields for soccer and youth baseball/softball, very high quality and interesting children's play areas, basketball courts, and pathways. It is also recommended that a new indoor recreation center be sited in this park to accommodate the indoor recreation needs of the area. A master plan will guide the development of this park.

7.6.4 Park & Open Space Resources

Acquisition, development, maintenance and operation resources for the City's park and open space system must compete with many other vital City services. Historically, the system's expansion and development has been driven largely by new development.

Growth and development has resulted in a well developed park and open space system in the newer sections of the community; however, in the older portions of the City, resources have been scarce.

Long-term maintenance and operation resources are extremely vulnerable to the limited City budget resources. A long-term strategy needs to be developed to assure continued development and adequate maintenance of the system in future years.

Potential future park sites have been designated on the Land Use Diagram. The sites are given a "general" designation to identify areas of potential future needs. Service area criteria has been provided in the Park and Open Space Master Plan. Specific site locations, however, will require more specific planning.

7.6.5 Highway 59 Landfill Site

The County's main landfill facility is located along Highway 59. Present plans and policies are adequate to assure the long-term viability of this site; however, continued monitoring of growth and development trends in the region will be necessary.

Planning efforts for the years 2030 and beyond must contemplate the maintenance of adequate open space buffers around this important public facility.

7.6.6 Ground Water Recharge

It has been determined that ground water is the most practical long-term source of water for meeting the future water needs of the City of Merced. Groundwater recharge is, therefore, critical to supporting the City's future growth. Agricultural water demands are expected to continue to utilize surface water supplies.

In order to maintain adequate municipal water needs into the future, programs have been established that encourage development of ground water recharge basins within the vicinity of the Merced urban area and utilized surface water supplies and recycled water for landscape irrigation. Some of the recharge basins may be developed in conjunction with the City's storm water retention pond system and included in the City's open space resources. Additional acres of recharge basins are expected to be required, however, and these basins will most likely need to be developed outside the City's SUDP/SOI.

In the design and development of this system of recharge basins, care must be taken to minimize the loss of agricultural land in the region as well as minimizing the impact of storm water contaminants on ground water resources. Planning should contemplate integration of this system into the regional open space network.

Existing creeks (Bear Creek, Fahrens Creek, Cottonwood Creek, and Black Rascal Creek) and associated floodways and floodplains may accommodate multiple uses including the provision of riparian habitat, stormwater management and groundwater recharge.

7.7 IMPLEMENTATION

Numerous Open Space, Conservation, and Recreation implementation measures have been detailed in the Goals, Policies and Actions section of this Chapter (Section 7.5). These implementing actions make up the "Action Program" required by Government Code Section 65564. Implementation is also achieved through the Open Space designations on the Land Use Diagram.

The acquisition of additional park land and open space will continue as development occurs through use of the City's Park Dedication Ordinance, the required dedication of creekside open space, the payment of Park In-Lieu fees, and the Public Facilities Financing Plan.

By means of establishing development standards for lands designated as "Open Space," the objectives of this chapter can be obtained. Through policies and standards for identifying new open space areas through the development review process, provisions have been made for the preservation of open space resource lands which may be needed at some future point in time.

7.8 CONCLUSION

The open space, conservation and recreation resources of Merced have played an important part in the quality of life for which the City is known. The City has chartered a solid course for the preservation and enhancement of those resources.

It is expected that, as a result of past and present efforts, decision makers contemplating the City's future beyond the year 2030 will continue to have a broad array of open space resources with which to enrich the lives of the City's residents.

NOTICE OF EXEMPTION

To: ____ Office of Planning and Research
P.O. Box 3044
Sacramento, CA 95812-3044

_X_ County Clerk
County of Merced
2222 M Street
Merced, CA 95340

From: **(Public Agency)**
City of Merced
678 West 18th St.
Merced, CA 95340

Project Title: 200-Year Floodplain (General Plan Amendment 16-02 & Env.Rev. #16-10)

Project Applicant: City of Merced

Project Location (Specific): Generally, citywide but specific to lands affected by the State's 200-year floodplain boundary.

Project Location - City: Merced **Project Location - County:** Merced

Description of Nature, Purpose, and Beneficiaries of Project: The project is an amendment to the Safety and Conservation Elements of the *Merced Vision 2030 General Plan* to include information, maps and policies consistent with state mandates related to protection of property and loss of life from future local flood events.

Name of Public Agency Approving Project: City of Merced

Name of Person or Agency Carrying Out Project: City of Merced

Exempt Status: (check one)

___ Ministerial (Sec. 21080(b)(1); 15268);
___ Declared Emergency (Sec. 21080(b)(3); 15269(a));
___ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
_X_ Categorical Exemption. State Type and Section Number: 15306
____ Statutory Exemptions.
_X_ General Rule [Sec. 15061 (b)(3)]

Reasons why Project is Exempt: Section 15061 Review for Exemption; (b) (3) indicates that CEQA applies only to projects which have the potential for causing a significant effect on the environment. It is determined that this amendment to the City's General Plan does not constitute or involve a significant effect. Additionally, GPA #16-02, notably the collection of data and its future use for project assessments, is consistent with the "Class 6" Categorical Exemption (Section 15306). NOTE: Such exemption does not preclude subsequent project level environmental review to occur, where appropriate.

Lead Agency: City of Merced

Contact Person: Bill King, Principal Planner **Area Code/Telephone:** (209) 385-6858

Signature: Bill King **Date:** 4/11/16 **Title:** Principal Planner

_X_ Signed by Lead Agency

Date Received for Filing at OPR: (Not Applicable)
(If applicable)

ATTACHMENT L

CITY OF MERCED
Planning Commission

Resolution #_____

WHEREAS, the Merced City Planning Commission at its regular meeting of May 4, 2016, held a public hearing and considered **General Plan Amendment #16-02,** initiated by the City of Merced, to amend the Safety and Conservation Elements of the *Merced Vision 2030 General Plan* to include information, maps, and policies consistent with state mandates related to protection of property and loss of life from future local flood events; and,

WHEREAS, the Merced City Planning Commission concurs with Findings A through H of Staff Report #16-08; and,

NOW THEREFORE, after reviewing the City's Initial Study and Draft Environmental Determination, and fully discussing all the issues, the Merced City Planning Commission does resolve to hereby recommend to City Council adoption of a Categorical Exemption regarding Environmental Review #16-10, and approval of General Plan Amendment #16-02.

Upon motion by Commissioner _____, seconded by Commissioner _____, and carried by the following vote:

AYES: Commissioner(s)

NOES: Commissioner(s)

ABSENT: Commissioner(s)
ABSTAIN: Commissioner(s)

ATTACHMENT M

Adopted this 4th day of May 2016

_____
Chairperson, Planning Commission of
the City of Merced, California

ATTEST:

_____
Secretary

n:shared:planning:PC Resolutions:GPA#14-06-ZC#421 Merced Holdings-Yosemite & McKee