

EXECUTIVE SUMMARY

PURPOSE OF STUDY AND EIS/EIR

The Lower Cache Creek, Yolo County, California City of Woodland and Vicinity Draft Feasibility Report for Potential Flood Damage Reduction Project (Feasibility Report) addresses flooding problems in the lower reach of Cache Creek. This project is being prepared jointly by the Federal sponsor, the U.S. Army Corps of Engineers, Sacramento District (Corps), and the non-Federal sponsors, the Reclamation Board of the State of California (Board) and the City of Woodland. A cost-share agreement between the Corps and the Board has resulted in a joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR). This Draft EIS/EIR summarizes the existing resources in the study area, evaluates the potential effects of alternative plans on these resources, and describes mitigation measures that could be used to minimize or offset adverse effects.

STUDY AREA

The study area addressed in this report includes the entire Cache Creek watershed from the eastern foothills of the Coast Range Mountains to the western levees of the Yolo Bypass. The area includes parts of Yolo, Colusa, and Lake Counties. The focus of the report is flood damage reduction opportunities specific to the project area, which is the lower reach of Cache Creek, the city of Woodland, and adjacent unincorporated areas of Yolo County. The project area is the area confined by Cache Creek to the north and west, the Cache Creek Settling Basin (settling basin) to the east, and Woodland city limits to the south.

NEED FOR ACTION

Lower Cache Creek has a history of flooding. Although flooding has not occurred within the city of Woodland, a flood threat exists. Twenty severe floods have occurred since 1900 in the Cache Creek basin. The most severe floods of recent years downstream from Clear Lake occurred in 1955, 1956, 1958, 1964, 1965, 1970, 1983, 1995, and 1997. In 1983, a levee failure near County Road (CR) 102 caused flooding in the area, which is now Woodland's industrial area.

According to the April 2001 FEMA Flood Insurance Study, the city of Woodland has no recorded history of flooding. However, in 1958, 1983, and 1995, Cache Creek rose to the top of both levees and overflowed its banks toward Woodland. In 1995, the overland flow came within 1 block of Woodland. In 1983, overland flow flooded areas in the easterly part of what is now in the city limits of Woodland. According to the USGS, the peak flow in January 1983 at the Rumsey gage was estimated to be 53,000 cfs, which is a 1 in 50 chance event at this location. There was a levee break downstream from County Road CR 102 during this flood. Federal, State, and local agencies patched levee

boils at that time to prevent additional levee breaks along both sides of the Cache Creek levee system.

The peak flow at CR 94B in January 1995 was approximately 48,000 cfs. An estimated 3,800 cfs overflowed the south bank and almost nothing overflowed the north bank upstream of the levee system. The total flow (approximately 48,000 cfs, peak) represents a 1 in 40 chance event. The volume of the flood hydrograph was approximately a 1 in 20 chance event. The City of Woodland observed and prepared a sketch of high-water marks in the vicinity of the city of Woodland for the March 1995 event. These observations do not define the full extent of the flood boundary.

Without a flood damage reduction project, damages to real property from overflows from Cache Creek could be expected to be about \$12 million averaged annually. Other losses or adverse effects could include the potential for flood-related loss of life, contamination from sanitary sewage and hazardous materials, and the extended closure of the section of I-5 east of the city of Woodland.

Draft Flood Insurance Rate Maps (FIRM's) were first issued by FEMA in September 1998 show a significant increase in the areas of Yolo County and the city of Woodland that are subject to floods that have a 1 in 100 chance of occurring in any given year. (The town of Yolo and areas to the north of Cache Creek were not included in the FEMA analysis.) The city of Woodland and surrounding local areas seek to reduce pending flood hazards. The purpose of the Lower Cache Creek Potential Flood Damage Reduction Project is to provide an economically feasible and environmentally sensitive method to alleviate flood-related damages.

SIGNIFICANT ISSUES

Significant issues for the purpose of this Draft EIS/EIR are defined as topics that were taken into account during the development and refinement of the alternative plans. Hydrology, land use, transportation, environmental constraints, and public support are factors that influenced the project feasibility.

Currently, the creek channel and existing levee system do not provide a sufficient conveyance capacity to provide protection from floods that have a 1 in 100 chance of occurring in any given year for the city of Woodland. Without this protection, citizens within the 1 in 100 chance flood plain (as mapped by FEMA) would be required to obtain flood insurance. If the existing levee system fails or overtops, the elevated grades of I-5 and the California Northern Railroad, in addition to the west levee of the Cache Creek settling basin would direct the escaped floodwaters toward the city of Woodland, threatening life safety, and causing further financial burdens associated with the lack of flood protection.

The primary objective of this project is to improve flood protection to the city of Woodland. This city is the most highly populated, urban, commercial, and industrial development in the study area. The population of Woodland is projected to continue growing at approximately 1.7 percent per year. However, the recent designation of the

city within the FEMA 100-year flood plain now requires new developments to be in accordance with the National Flood Insurance Program. This significantly increases development costs.

Unincorporated private agricultural lands comprise approximately 60 percent of the project area. Construction of a new flood protection system would require takings of some private agricultural land. Furthermore, the placement of this system would also influence the location and amount of land provided with flood protection; some areas would be removed from the FEMA 1 in 100 chance flood plain. Modifications and/or relocation of buildings may be required for structures within the unprotected flood plain.

Other constraints include the bridges in the project area. The current levee system, which is adjacent to the terminus of the bridges, prevents flooding along the roadways for equal or lesser flows than for the flow that has a 1 in 10 chance of occurring in any given year¹. A new flood protection system offering a higher degree of protection by containing the flow in the creek would have to comply with the current dimensions of the bridges for this flood protection to continue and the existing bridge to be maintained. The relatively narrow openings of these bridges constrict the flood plain within the proximity of the bridges, resulting in relatively high flow velocities through these narrow sections during flooding. Consequently, if the roadways and bridges are to be protected, bank protection is required for these narrow openings.

Bank protection (riprap) in addition to other alterations near the bank of the creek would require environmental mitigation. The shaded riverine aquatic habitat (SRA) along the creek and the abundant number of elderberry bushes along the creek bank (the habitat of the endangered valley elderberry longhorn beetle), increase the sensitivity of this area. Other environmental considerations include the presence of habitat within the project area for the following potentially affected species: giant garter snake, Swainson's hawk, bank swallow, northwestern pond turtle, Central Valley Steelhead, and chinook salmon.

Public opinions and concerns were identified during two public workshops held on May 30, 2000 and May 31, 2001. Since that point, the alternative plans have been modified in order to address public comment as well as comply with the above-mentioned significant issues.

FLOOD DAMAGE REDUCTION MEASURES AND PRELIMINARY PLANS

Based on the objectives and constraints, previous studies, local interest, and public comments, a variety of flood damage reduction measures were identified, screened, and either not considered further or developed/combined into several preliminary plans to reduce flood damages in the project area. Both nonstructural and structural measures were considered and evaluated based on their costs, environmental and socioeconomic effects, and potential for combining with other measures. Nonstructural measures included raising/flood proofing structures, relocating structures, and a flood warning

¹ Although designed for a flow capacity of a 1 in 10 chance of occurring, the existing levee system has historically contained flow events of a 1 in 20 chance of occurring in any given year.

system. Structural measures included storage, channel improvements, levee modification, setback levees, and backup levee.

The screening of the measures and public comments resulted in five preliminary flood damage reduction plans for lower Cache Creek. In addition to the No-Action Plan, they include Channel Clearing, Raising Existing Levees and Constructing New Levees, Channelization and Constructing New Levees, Constructing Setback Levees and Raising Existing Levees, and Constructing a Flood Barrier Levee.

Based on a comparison of costs and ability to meet the planning criteria, constructing setback levees and raising existing levees (Setback Levees) and the flood barrier levee (Lower Cache Creek Flood Barrier or LCCFB) were selected for further study. Two initial setback plans, the Narrow and Wide Setback Levee Plans, were evaluated prior to the development of the third plan, Modified Wide Setback Levee Plan. These two initial plans were not considered further due to high cost and potential adverse significant environmental effects on biological resources and social and economic resources. Therefore, the LCCFB and the Modified Wide Setback Levee Plans are the two final plans carried forward for a detailed analysis in this Draft EIS/EIR.

The environmental analysis was prepared for a range of levee crown widths between 12 and 20 feet for the Modified Wide Setback Levee and the LCCFB plans. Crown widths will be refined for the selected plan.

ALTERNATIVE PLANS

The alternative plans listed below are evaluated throughout this Draft EIS/EIR.

No-Action Plan

The No-Action Plan serves as a basis for comparison against which the effects and benefits of the action plans are evaluated. It is assumed that the Federal Government would take no action to implement a specific plan to reduce the chance of flooding of unincorporated areas of Yolo County and the city of Woodland. The existing Cache Creek levee system would continue to contain floods that have a 1 in10 to 1 in 20 chance of occurring in any given year.

Lower Cache Creek Flood Barrier Plan (LCCFB)

Features

- The LCCFB would extend 6 miles from the intersection of County Road (CR) 19B and CR 96B to the Cache Creek settling basin, just north of the city of Woodland.
- An inlet weir, similar to the existing outlet weir in the settling basin, would be constructed in the west levee of the settling basin.

- Highway closure and stoplog structures would be provided at road and railroad crossings.
- A flood warning system would be incorporated to initiate evacuation of the flood plain and closure of crossings.

Accomplishments

- The LCCFB Plan would remove the city of Woodland and an area of Yolo County south of the barrier from the flood plain.
- Due to the large flood plain between the creek and the flood barrier, the flood barrier would serve as a reliable flood protection alternative by withstanding floods that have, at a minimum, a 1 in 100 chance of occurring in any given year.
- The existing levee system would be maintained to provide protection from floods with a 1 in 10 to 1 in 20 chance of occurring in any given year to unincorporated areas adjacent to lower Cache Creek.
- The LCCFB Plan involves less direct effects to the Cache Creek biological environment than the Modified Wide Setback Levee Plan.
- The LCCFB Plan involves the relocation of significantly fewer residences than the Modified Wide Setback Levee Plan.
- The LCCFB Plan minimizes impacts to Prime Farmland.

Modified Wide Setback Levee Plan

Features

- About 19 miles of flood control levees, consisting of a combination of new setback levees and modifications to the existing levees, would be constructed.
- The levees would extend from the settling basin inlet to high ground near CR 94B.
- Bridges would be extended using viaducts to allow for increased overbank flow areas.

Accomplishments

- The Modified Wide Setback Levee Plan would remove the city of Woodland, the town of Yolo, and a large portion of the unincorporated land north and south of Cache Creek from the flood plain.
- The Modified Wide Setback Levee Plan would allow for future restoration of Cache Creek.

- The Modified Wide Setback Levee Plan involves fewer transportation effects from flooding than the LCCFB Plan.

AFFECTED ENVIRONMENT

Environmental resources not affected by the project alternatives include climate; topography; geology and soils; recreation; hazardous, toxic, and radiological waste; public health vectors and vector control; and fisheries. Resources that may be significantly affected by the project include socioeconomics, land use, prime and unique farmlands, transportation, noise, air quality, water quality, vegetation and wildlife, special-status species, cultural resources, and esthetic/visual resources.

ENVIRONMENTAL EFFECTS AND MITIGATION

Tables ES-1 and ES-2 summarize the environmental effects of the LCCFB and the Modified Wide Setback Levee Plans on the resources mentioned above as well as potential mitigation measures. Those resources that would experience significant unavoidable effects from the LCCFB and Modified Wide Setback Levee Plans are land use, prime and unique farmlands, esthetics, noise, and air quality. Mitigation, in the form of best management practices (BMP's), for both plans would serve to lessen adverse effects. BMP's would be included in construction practices for transportation, water quality, noise, air quality, and cultural resources. Agency recommended mitigation/conservation/permit requirements would apply to vegetation and wildlife, special-status species, and water quality.

ENVIRONMENTAL COMMITMENTS

The environmental commitments to mitigate the direct effects of the project alternative plans are listed below.

Transportation

- The lead agency would develop a traffic management plan and implement precautions such as posted construction zones, reduced speed limits, flagmen, and construction quality control monitors to ensure public safety on the roadways. Traffic would be rerouted when necessary to avoid construction zones.
- Contractors would avoid public roads as much as feasible when hauling materials to the construction site. Any damage to roadway surfaces from the operation of heavy equipment would be repaired.

Noise

- During project construction, noise-generating equipment would be limited to work during daytime hours only.

- Additionally, all mobile equipment would be fitted with mufflers consistent with the best noise reduction technology.

Air Quality

- The lead agency would provide a dust suppression plan that would likely include the following measures:
 - All construction areas, unpaved access roads, and staging areas would be watered as needed when soil is dry.
 - All trucks hauling soil or other loose material would be covered or have at least 2 feet of freeboard. Construction vehicles would use paved roads to access the construction site wherever possible.
 - Vehicle speeds would be limited to 15 mph on unpaved roads and construction areas, or as required to control dust.
 - Streets would be cleaned daily if visible soil material is carried onto adjacent public streets.
 - Exposed stockpiles of soil and other excavated materials would be enclosed, covered, and watered twice daily as needed.
 - Vegetation would be replanted in disturbed areas as quickly as possible following the completion of construction.
- All standard practices and procedures set by the Yolo-Solano Air Quality Management District, the Air Resources Board, and the guidelines provided by the U.S. EPA to minimize emissions would be used during construction.
- According to the results of the conformity review process, a conformity determination is not needed.

Water Quality

- The lead agency would prepare a stormwater pollution prevention plan. A portion of this plan would specifically address erosion and sediment control, including the following measures:
 - Regular watering of construction surfaces with water trucks to prevent wind erosion of dust into water resources.
 - Construction crews would install erosion controls such as hay bales, water bars, covers, sediment fences, and sensitive-area access restrictions where necessary and appropriate before initiating extensive clearing and grading to prevent materials from eroding in or near water resources.

- The refueling of equipment in designated staging areas.
- The regular monitoring and maintenance of equipment for fuel leaks.
- Reseeding soil areas with native grass to prevent soil erosion from surface water runoff.
- The lead agency would prepare a Hazardous Substance Control and Emergency Response Plan.
- The lead agency would comply with all Section 404 requirements.

Vegetation and Wildlife

- Limiting construction crews to the right-of-way and confinement of disturbance to as small an area as possible;
- Requiring construction crews to maintain a 15-m.p.h. speed limit on all unpaved roads to reduce the chance of wildlife being mortally wounded if struck by construction equipment;
- Avoidance of effects to Cache Creek’s water quality by taking appropriate measures to prevent construction materials (fuels, oils, and lubricants) from spilling or otherwise entering the creek;
- Avoidance of effects to woody vegetation at all construction sites, staging areas, borrow sites, and haul routes by fencing them with orange construction fencing;
- Minimization of effects to trees along the construction area by having all trimming performed by a qualified arborist to ensure tree survival after the project;
- Conducting of nest surveys prior to the removal of any trees or scrub shrub to ensure migratory birds would not be lost during construction, pursuant to the Migratory Bird Treaty Act; and
- Revegetation of borrow, staging, turn-arounds, and any other disturbed areas with native grasses and forbs.
- Development of a mitigation and remediation plan for the project by the lead agency.

Special-Status Species

The conservation measures for the giant garter snake include those taken from the “Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa,

Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, and Yolo Counties, California,” (November 13, 1997). Measures include:

- Seasonal restrictions (construction from May 1 to October 1 only) to avoid overwintering giant garter snakes;
- Ensuring that dewatered habitat remains dry for at least 15 consecutive days after April 15 and prior to excavation or filling;
- An environmental awareness program for construction workers;
- Avoidance of giant garter snake identified during completion of pre-construction surveys 24 hours prior to commencement of construction by a qualified biologist, who would remain available thereafter to provide additional services should a snake be encountered during construction;
- Halting of all construction activities within the area should a giant garter snake be encountered during construction until the snake has had time to move away from the area;
- Confinement of construction activities to the minimal area necessary to facilitate construction;
- Flagging and avoidance of areas that would not be affected by construction and are designated Environmentally Sensitive to the giant garter snake;
- Restoration of all riprap areas to upland habitat by placing at least an 18- to 24-inch layer of soil over the rock and reseeding the area with native grasses and forbs; and
- Compensation of lost habitat according to ratios agreed upon by the Corps and the USFWS.

Conservation measures for chinook salmon and steelhead are based on the recommendations outlined in the “Guidelines for Salmonid Passage at Stream Crossings,” (September, 2001). In addition to guidance specific to culverts, the following general conservation measures would be observed (the final determination of specific conservation measures would be determined during consultation with NMFS):

- Minimization of erosion and sediment delivery through the use of erosion control devices such as hay bales, water bars, covers, and sediment fences where necessary and appropriate;
- Restriction of access to sensitive-areas to minimize streamside habitat effects;
- Installation of culverts in a de-watered site with a sediment control and flow routing plan;

- Use of pumps with fish screens to dewater the site; and
- Restoration of the affected area to pre-project conditions including reseeded using locally native riparian and other vegetation.

Conservation measures for Swainson's hawks would include:

- Replacement of non-native trees at a 1:1 ratio and native trees at a 5:1 ratio.
- Avoidance of hawks identified during pre-construction surveys conducted according to Swainson's Hawk Technical Advisory Committee guidelines (2000); and
- Prohibition of construction activities within one-half mile of a nesting hawk until young fledge.

The following conservation measures for the valley elderberry longhorn beetle include those taken from the "Conservation Guidelines for the Valley Elderberry Longhorn Beetle," (July 9, 1999). Measures include:

- All areas to be avoided during construction activities would be fenced at 100-feet from the dripline of each elderberry plant;
- Signs would be erected along the edge of the avoidance area designating the area as environmentally sensitive for the valley elderberry longhorn beetle;
- An environmental awareness program for construction workers; and
- Compensation of lost habitat according to ratios agreed upon by the Corps and the USFWS.

These conservation measures for the giant garter snake would provide sufficient conservation measures for the northwestern pond turtle.

Cultural Resources

- If previously unidentified cultural materials and/or features are discovered during construction, all work in the immediate area would cease and a cultural resources specialist would be immediately contacted for identification and evaluation.
- If materials and/or features are determined to be significant and cannot be avoided, a site-specific mitigation plan would be prepared in consultation with interested parties and the SHPO.
- If human remains are encountered, a cultural resources specialist and county coroner would be contacted in compliance with State law.

COMPLIANCE WITH APPLICABLE LAWS, POLICIES, AND PLANS

This document would be adopted as a joint EIS/EIR and would fully comply with National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements. The project would comply with all Federal laws, regulations, and Executive orders. In addition, the non-Federal sponsor would comply with all State and local laws and permit requirements.

MAJOR CONCLUSIONS AND FINDINGS

The existing lower Cache Creek levee system provides reliable protection from floods that have a 1 in 10 to 1 in 20 chance of occurring in any given year to unincorporated areas and the city of Woodland. The three plans considered in this Draft EIS/EIR are No-Action, Lower Cache Creek Flood Barrier, and Modified Wide Setback Levee Plans. The two latter plans would increase protection from floods from Cache Creek that have at a minimum a 1 in 100 chance of occurring in any given year. The Lower Cache Creek Potential Flood Damage Reduction Project evaluates the environmental effects of these plans as well as the No-Action Plan.

The No-Action Plan would continue to provide reliable protection from floods from Cache Creek that have a 1 in 10 to 1 in 20 chance of occurring in any given year. Within the FEMA 1 in 100 chance flood plain, this would require residences that have Federally-insured mortgages and some businesses/facilities to acquire flood insurance. These structures would remain subject to future flood damages. The socioeconomic effects of this would be significant. Frequent flood fighting (greater than floods that have approximately a 1 in 10 chance of occurring in any given year) would be necessary, and bank erosion/undercutting of the existing levee system would continue to require repairs that may lead to further degradation of the creek environment. According to project objectives, this plan is unacceptable.

The LCCFB Plan would provide the city of Woodland and unincorporated areas south of the LCCFB with protection from floods from Cache Creek that have at a minimum, a 1 in 100 chance of occurring in any given year. This would eliminate federal flood insurance requirements for residences and businesses within city limits. Unincorporated areas to the north of the flood barrier and to the north of Cache Creek would remain within the FEMA 100-year flood plain, but would continue to have reliable protection from floods with a 1 in 10 to 1 in 20 chance of occurring in any given year by the existing system. Although not part of the LCCFB Plan, continued flood fighting would be necessary for greater floods and bank erosion/undercutting of the existing levee system would continue to require repairs that may lead to further degradation of the creek environment. This plan is consistent with the City and County's General Plans through construction of the flood control facility along the urban limit line. The LCCFB would significantly affect transportation (an indirect effect), esthetics, and 100 acres of prime farmland and 2 acres of locally important farmland through conversion for flood control purposes. Construction of the LCCFB would also cause temporary, but significant, effects to noise and air quality.

The Modified Wide Setback Levee Plan would provide the city of Woodland and the unincorporated land to the north and south of the levee system with protection from floods from Cache Creek with a 1 in 100 chance of occurring in any given year. This plan would eliminate federal flood insurance requirements for residences and businesses in this area, including the town of Yolo. It would also reduce the risk of flooding and closure of the transportation system, including Interstate-5 (I-5). Continued maintenance of the existing levee system would not be necessary and the creek would be allowed to meander. This plan would have significantly greater effects to biological resources and sensitive species, requiring extensive mitigation costs. Although no sponsor has been identified, the plan would allow restoration of the creek environment. The Modified Wide Setback Levee Plan would significantly affect esthetics and 158 acres of prime farmland through conversion for flood control purposes. Construction of the setback levees would also cause temporary, but significant, effects to noise and air quality during construction.

Least Environmentally Damaging Plan

The following factors served as a basis in the determination of the least environmentally damaging plan: 1) The LCCFB would remove less acres of farmland, including prime farmland, than the Modified Wide Setback Levees, 2) Construction of the LCCFB would result in less required mitigation for adverse effects on vegetation and wildlife than the Modified Wide Setback Levees, 3) Construction of the LCCFB, as compared to construction of the Modified Wide Setback Levees, would require fewer project-related vehicles on the roadways, 4) Combustion emissions from construction equipment necessary to build the LCCFB would be less than the pollutants emitted from construction of the Modified Wide Setback Levees, 5) The Modified Wide Setback Levee Plan would have adverse effects on Cache Creek due to construction within the creek channel; construction of the LCCFB would only temporarily affect the Creek due to a haul route which would be removed upon project completion, and 6) The Modified Wide Setback Levee Plan would require many homes and farm support structures to be relocated as compared to the LCCFB Plan which would require the relocation of only one home. Based on the comparative effects assessment, including environmental and socioeconomic considerations, the LCCFB Plan is the least environmentally damaging plan.

PUBLIC INVOLVEMENT

The Corps published a Notice of Intent to prepare the Draft EIS in the Federal Register on May 5, 2000. The Board delivered a Notice of Preparation of an EIR to the California State Clearinghouse on June 11, 2000. Primary coordination activities included the May 30, 2000 and May 31, 2001 public workshops and the February 8, 2001 City of Woodland Flood Task Force meeting. The Corps and the Board met numerous times with public and private parties to identify and discuss concerns, tailor actions, and expand insight into the flood control management process. Public and private parties include private landowners, a private gravel mining company, and Sacramento and Yolo County Farm Bureaus. This project was heard twice at public meetings before the Board on June 13, 2001, and December 21, 2001. Members of the public, as well as other public and

private entities, were invited to express concerns during the proceedings. After the Draft EIS/EIR is made available to the public, there is a required review period during which comments can be submitted for consideration and inclusion in the Final EIS/EIR. Public hearings will also be held on the Draft and Final EIS/EIR.

UNRESOLVED ISSUES

Unresolved issues are defined as subject matter that requires further information or areas where a consensus needs to be made in order to make a final determination on a given issue.

Currently there is little information on the hydraulic effects on sedimentation within the settling basin. Studies would be conducted in the planning, engineering, and design (PED) phase to detail operational impacts and to describe modified O&M for sedimentation in the settling basin. The planning team has also recommended that additional information on basin sediment characteristics be obtained by DWR.

Potential conservation measures to reduce effects on special-status species due to the construction of the LCCFB are identified in the Special-Status Species Technical Appendix (Appendix B). The Special-Status Species Technical Appendix, along with the rest of the draft EIS/EIR will be used as supporting documents for a biological assessment. The purpose of the Biological Assessment is to request concurrence from USFWS with the Corps' determination of no effect or not likely to adversely affect the palmate-bracted bird's beak and valley elderberry longhorn beetle due to construction of the LCCFB. The Biological Assessment would also serve as a request to initiate formal Section 7 and Essential Fish Habitat consultation on the giant garter snake, chinook salmon, and steelhead. The USFWS and NMFS would use the Biological Assessment as the basis for their Biological Opinions. It is expected that these Biological Opinions would be rendered before the completion of the Final EIS/EIR. Neither the Corps nor the Board would approve the initiation of construction on the proposed action prior to consideration of these Biological Opinions.

There are a number of historic buildings within the project area. These buildings may require flood proofing. If action is taken to protect these buildings from flood damage, then consultation with the California State Historic Preservation Officer (SHPO) would need to be initiated. Under Section 106 of the National Historic Preservation Act, an extensive cultural resources inventory and evaluation would need to be conducted.

In the March 5, 2002 election, three measures were included on the ballot in regards to the financing of the City share of the Lower Cache Creek Flood Damage Reduction Project. One was a local sales tax extension and the remaining two were advisory measures related to the sunseting of the sales tax measure if the setback levee were the selected plan, or if the flood barrier were the selected plan. The funding measure was put on the ballot in advance of release of the Draft Feasibility Report and Draft EIS/EIR in order to facilitate seeking federal funding support in 2002. All three measures were voted down. Release and public review of the Draft Feasibility Report

and Draft EIS/EIR are expected to clarify and address concerns raised during the March 2002 election process.

The environmental analysis was prepared for a range of levee crown widths between 12 and 20 feet for the Modified Wide Setback Levee and the LCCFB. Crown widths will be refined for the selected alternative.

RECOMMENDED PLAN

To this stage of the planning process, the study team has focused on the development and evaluation of an array of alternative plans to reduce flood damages in Woodland and vicinity, consistent with protecting the environment and with pertinent laws, regulations, and policies. Based on the evaluation of estimated costs and benefits, and potential environmental and socioeconomic conditions and effects, the LCCFB Plan has been identified by the study team as the Tentatively Recommended Plan. The partners for the potential project (the Corps, the Board, and the City of Woodland) will fully consider the comments received from the public regarding this Draft Feasibility Report and Draft EIS/EIR before formally selecting a Recommended Plan in the Final EIS/EIR. Based on the evaluation of all environmental and socioeconomic conditions, the LCCFB Plan has been determined to be the least environmentally damaging alternative.

Table ES-1. Summary of Environmental Effects and Mitigation – LCCFB Plan

Significant Effects	Mitigation and Best Management Practices	Level of Significance with Mitigation
<i>Social and Economic Resources</i>		
Project-induced flooding on some lands north of the flood barrier would cause a potential decrease in land value.	Agricultural landowners would be compensated for land value effects/takings to the extent required by law.	LTS ¹
One home would be relocated.	Land and home owner would be compensated for land/home value effects/takings.	LTS
<i>Land Use</i>		
The flood barrier footprint would convert 100 acres of row crop, 2 acres of orchard, and 2 acres of agricultural support lands for flood control purposes.	This effect represents an incompatible land use change and is a significant effect that cannot be mitigated.	SU ²
<i>Agriculture, Prime and Unique Farmlands</i>		
The flood barrier would result in a loss of 100 acres of prime farmland and 2 acres of statewide important/locally important farmland.	The conversion of prime farmlands represents an effect that cannot be mitigated.	SU
<i>Transportation</i>		
Temporary direct transportation effects would include lane closure during road repair, roadway safety hazards, and an increase in traffic volume.	<ul style="list-style-type: none"> • Lead agency to provide traffic management plan. • Contractors would use construction easements as much as feasible when hauling materials to the construction site. • Traffic would be rerouted when necessary to avoid construction areas. • Flaggers would be stationed to slow or stop approaching vehicles to avoid conflicts with construction vehicles or equipment. 	LTS
¹ LTS = Less than significant ² SU = Significant unavoidable		

Table ES-1. Summary of Environmental Effects and Mitigation – LCCFB Plan

Significant Effects	Mitigation and Best Management Practices	Level of Significance with Mitigation
<i>Transportation (continued)</i>		
<p>Indirect transportation effects result from the flooding of CR 102 for a greater length of time than under existing conditions. Under existing conditions, a 5' levee perpendicular to CR 102 would cause flooding of the roadway. With project conditions, the levee height would be increased to 18', increasing the depth and duration of flooding at CR 102. This impact would occur for floods that have greater than a 1 in 40 chance of occurring. These road closures could cause lengthened response times for emergency vehicles traveling to residents northeast of the city of Woodland.</p>	<p>The mitigation listed below would reduce the effects, but not to a less-than-significant level.</p> <ul style="list-style-type: none"> • Detours would be available to circumvent flooded roadways. 	<p align="center">SU</p>
<i>Noise</i>		
<p>Construction of the flood barrier would temporarily produce decibel levels above the significance threshold for some sensitive receptors during construction.</p>	<p>The mitigation listed below would reduce the effects, but not to a less-than-significant level.</p> <ul style="list-style-type: none"> • Construction equipment would be outfitted and maintained with noise-reduction devices such as mufflers. • Construction would be limited to daytime hours. 	<p align="center">SU</p>
<i>Air Quality</i>		
<p>NO_x emissions would exceed the significance thresholds established by the Yolo-Solano Air Quality Management District (YSAQMD). The exceedence would be a temporary effect during construction.</p>	<p>The mitigation listed below would reduce NO_x emissions, but not to a less-than-significant level.</p> <ul style="list-style-type: none"> • Incorporate NO_x mitigation measures into construction plans and specifications. 	<p align="center">SU</p>

Table ES-1. Summary of Environmental Effects and Mitigation – LCCFB Plan

Significant Effects	Mitigation and Best Management Practices	Level of Significance with Mitigation
<i>Air Quality (continued)</i>		
<p>PM₁₀ emissions would exceed the significance thresholds established by the YSAQMD. The exceedence would be a temporary effect during construction. Sensitive receptors would also be exposed to the high levels of fugitive dust emissions.</p>	<p>The mitigation listed below would reduce PM₁₀ emissions, but not to a less-than-significant level. The lead agency would provide a dust suppression plan that would likely include the following measures:</p> <ul style="list-style-type: none"> • All construction areas, unpaved access roads, and staging areas would be watered as needed during dry soil conditions, or soil stabilizers would be applied. • All trucks hauling soil or other loose material would be covered or have at least 2 feet of freeboard. Construction vehicles would use paved roads to access the construction site wherever possible. • Vehicle speeds would be limited to 15 mph on unpaved roads and construction areas, or as required to control dust. • Streets would be cleaned daily if visible soil material is carried onto adjacent public streets. • Soil stabilizers would be applied to inactive construction areas on an as-needed basis. • Exposed stockpiles of soil and other excavated materials would be enclosed, covered, watered, or applied with soil binders as needed. • Vegetation would be replanted in disturbed areas as quickly as possible following the completion of construction. 	<p align="center">SU</p>
<i>Settling Basin</i>		
<p>The removal of the training levee could alter the distribution of sedimentation in the settling basin.</p>	<p>Design of the LCCFB Plan would incorporate the function of the settling basin.</p>	<p align="center">LTS</p>

Table ES-1. Summary of Environmental Effects and Mitigation – LCCFB Plan

Significant Effects	Mitigation and Best Management Practices	Level of Significance with Mitigation
<i>Water Quality</i>		
Pollutants from construction equipment and erosion at the construction site could temporarily degrade the water quality of local runoff during construction.	The proper permitting procedures would be adhered to. In addition, appropriate best management practices and monitoring would be implemented to preserve the quality of surface runoff.	LTS
<i>Vegetation and Wildlife</i>		
Project-related effects, as determined by the USFWS in its draft CAR would include the loss of 122 acres of agricultural habitat, 100 native and non-native trees, 0.52 acre of upland habitat, and 0.28 acre of scrub shrub.	Mitigation for habitat loss has been outlined by the Fish and Wildlife Service in its Coordination Act Report (Appendix A).	LTS
Construction-related effects would include disturbance from equipment and crews and potential disturbance of species.	Mitigation measures include: <ul style="list-style-type: none"> • Restricting construction crews to the right-of-way and confinement of disturbance to as small an area as possible; • Requiring construction crews to maintain a 15 m.p.h. speed limit on all unpaved roads to reduce the chance of wildlife being mortally wounded if struck by construction equipment; and • Conducting of nest surveys prior to the removal of any trees or scrub shrub to ensure migratory birds would not be lost during construction, pursuant to the Migratory Bird Treaty Act. 	LTS

Table ES-1. Summary of Environmental Effects and Mitigation – LCCFB Plan

Significant Effects	Mitigation and Best Management Practices	Level of Significance with Mitigation
<i>Special-Status Species</i>		
Project-related effects to special-status species (Swainson’s hawk, giant garter snake, northwestern pond turtle, chinook salmon, steelhead) would include temporary and permanent loss of habitat.	Incidental Take Conditions for effects to special-status species would be determined through formal consultation with the Fish and Wildlife Service and National Marine Fisheries Service and outlined in their Biological Opinion. Proposed conservation measures are outlined in Section 5.7.	LTS
Construction-related effects would include disturbance from equipment and crews and potential take of species.	Incidental Take Conditions for effects to special-status species would be determined through formal consultation with the Fish and Wildlife Service and National Marine Fisheries Service and outlined in their Biological Opinion. Incidental Take Conditions for effects to State special-status species would also be determined through formal consultation with the California Department of Fish and Game. Proposed conservation measures are outlined in Section 5.7.	LTS
<i>Cultural Resources</i>		
Increased flooding may occur at sites between the creek and barrier.	Mitigation measures would be developed in consultation with the State Historic Preservation Office and could include flood proofing some structures.	LTS
<i>Esthetic and Visual Resources</i>		
The flood barrier would create a new linear feature and a view block to residents.	The LCCFB would be reseeded with grasses and forbs; however, this would not reduce the overall effect to less-than-significant.	SU

Table ES-2. Summary of Environmental Effects and Mitigation - Modified Wide Setback Levee Plan

Significant Effects	Mitigation and Best Management Practices	Level of Significance with Mitigation
<i>Social and Economic Resources</i>		
The proposed setback alignment would result in the relocation of 32 residences and up to 182 farm structures.	Land and homeowners would be compensated for land and home value effects/takings to the extent required by law.	LTS ¹
<i>Land Use</i>		
The levee system would convert 123 acres of row crop, 35 acres of orchard, 11 acres of riparian, and 47 acres of agricultural support lands. Potential conversion of an additional 2,135 acres of land confined between the levees.	This effect represents an incompatible land use and is a significant effect that cannot be mitigated.	SU ²
<i>Agriculture, Prime and Unique Farmlands</i>		
The setback levee would result in a loss of 158 acres of prime farmland. A total of 1,254 acres of prime farmland confined by the levee system has the potential of conversion (to native habitat) due to indirect effects (inability to farm due to size, accessibility, or other factors).	The conversion of prime farmlands represents an effect that cannot be mitigated.	SU
<i>Transportation</i>		
Temporary direct transportation effects would include lane closure during road repair, roadway safety hazards, and an increase in traffic volume.	<ul style="list-style-type: none"> • Lead agency to provide traffic management plan. • Contractors would use construction easements as much as feasible when hauling materials to the construction site. • Traffic would be rerouted when necessary to avoid construction areas. • Flaggers would be stationed to slow or stop approaching vehicles to avoid conflicts with construction vehicles or equipment. 	LTS
¹ LTS = Less than significant ² SU = Significant unavoidable		

Table ES-2. Summary of Environmental Effects and Mitigation - Modified Wide Setback Levee Plan

Significant Effects	Mitigation and Best Management Practices	Level of Significance with Mitigation
<i>Noise</i>		
Construction of the setback levees would temporarily produce decibel levels above the significance threshold for some sensitive receptors during construction.	Mitigation would reduce the effects, but not to a less-than-significant level. <ul style="list-style-type: none"> • Construction equipment would be outfitted and maintained with noise-reduction devices such as mufflers. • Construction would be limited to daytime hours. 	SU
<i>Air Quality</i>		
NO _x emissions would exceed the significance thresholds established by the YSAQMD. The exceedence would be a temporary effect during construction.	The following mitigation would reduce NO _x emissions, but not to a less-than-significant level. Incorporate NO _x mitigation measures into construction plans and specifications.	SU
PM ₁₀ emissions would exceed the significance thresholds established by the YSAQMD. The exceedence would be a temporary effect during construction. Sensitive receptors would also be exposed to the high levels of fugitive dust emissions.	The following mitigation would reduce PM ₁₀ emissions, but not to a less-than-significant level. The lead agency would provide a dust suppression plan that would likely include the following measures: <ul style="list-style-type: none"> • All construction areas, unpaved access roads, and staging areas would be watered as needed during dry soil conditions, or soil stabilizers would be applied. • All trucks hauling soil or other loose material would be covered or have at least 2 feet of freeboard. Construction vehicles would use paved roads to access the construction site wherever possible. • Vehicle speeds would be limited to 15 mph on unpaved roads and construction areas, or as required to control dust. • Streets would be cleaned daily if visible soil material were carried onto adjacent public streets. • Soil stabilizers would be applied to inactive construction areas on an as-needed basis. 	SU

Table ES-2. Summary of Environmental Effects and Mitigation - Modified Wide Setback Levee Plan

Significant Effects	Mitigation and Best Management Practices	Level of Significance with Mitigation
<i>Air Quality (continued)</i>		
	<ul style="list-style-type: none"> • Exposed stockpiles of soil and other excavated materials would be enclosed, covered, watered, or applied with soil binders as needed. • Vegetation would be replanted in disturbed areas as quickly as possible following the completion of construction. 	
<i>Settling Basin</i>		
The removal of the training levee could alter the distribution of sedimentation in the settling basin.	Design of the Modified Wide Setback Levee Plan would incorporate the function of the settling basin.	LTS
<i>Water Quality</i>		
Pollutants from construction equipment and erosion at the construction site could temporarily degrade the water quality of local runoff during construction.	The proper permitting procedures would be adhered to. In addition, appropriate best management practices and monitoring would be implemented to preserve the quality of surface runoff.	LTS
<i>Vegetation and Wildlife</i>		
Project-related effects, as identified by the USFWS in its draft CAR, would include loss of 174 acres of agricultural habitat, 49 acres of orchard trees, 9.01 acres of riparian habitat, and 0.69 acres of shaded riverine aquatic habitat.	Mitigation for habitat loss would be outlined by the Fish and Wildlife Service according to guidelines detailed in the CAR. (Appendix A)	LTS

Table ES-2. Summary of Environmental Effects and Mitigation - Modified Wide Setback Levee Plan

Significant Effects	Mitigation and Best Management Practices	Level of Significance with Mitigation
<i>Vegetation and Wildlife (continued.)</i>		
Construction-related effects would include disturbance from equipment and crews and potential disturbance of species.	Mitigation measures include: <ul style="list-style-type: none"> • Restricting construction crews to the right-of-way and confinement of disturbance to as small an area as possible; • Requiring construction crews to maintain a 15 m.p.h. speed limit on all unpaved roads to reduce the chance of wildlife being mortally wounded if struck by construction equipment; and • Conducting of nest surveys prior to the removal of any trees or scrub shrub to ensure migratory birds would not be lost during construction, pursuant to the Migratory Bird Treaty Act. 	LTS
<i>Special-Status Species</i>		
Project-related effects to special-status species (valley elderberry longhorn beetle, Swainson’s hawk, giant garter snake, northwestern pond turtle, chinook salmon, steelhead) would include loss of habitat.	Incidental Take Conditions for effects to Federal special-status species would be determined through formal consultation with the Fish and Wildlife Service and National Marine Fisheries Service and outlined in their Biological Opinion. Incidental Take Conditions for effects to State special-status species would also be determined through formal consultation with the California Department of Fish and Game. Proposed conservation measures are outlined in Section 5.7.	LTS
Construction-related effects would include disturbance from equipment and crews and potential take of species	Incidental Take Conditions for effects to special-status species would be determined through formal consultation with the Fish and Wildlife Service and National Marine Fisheries Service and outlined in their Biological Opinion. Incidental Take Conditions for effects to State special-status species would also be determined through formal consultation with the California Department of Fish and Game. Proposed conservation measures are outlined in Section 5.7.	LTS

Table ES-2. Summary of Environmental Effects and Mitigation - Modified Wide Setback Levee Plan

Significant Effects	Mitigation and Best Management Practices	Level of Significance with Mitigation
<i>Cultural Resources</i>		
Archeological and historic sites could be affected by levee construction, degradation of the present levee, and accelerated erosion.	Mitigation measures could consist of avoidance; data recovery; and, for structures, recordation under the Historic American Buildings Survey/Historic American Engineering Recordation criteria.	LTS
<i>Esthetic and Visual Resources</i>		
Effects would include the extension of bridges and the presence of a new viewblock to numerous rural residences.	Mitigation measures would include reseeding the new levees; however, this would not reduce the effect to a less-than-significant level.	SU