### Station 1 – History and Proposed Project Process

#### Natomas Basin Flood Control History

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1911–</td>
<td>Basin reclaimed: levees and interior drainage</td>
</tr>
<tr>
<td>1915</td>
<td>Levees authorized as part of Sacramento River Flood Control Project (SRFCP)</td>
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<tr>
<td>1917</td>
<td>National Flood Insurance Program (NFIP) authorized</td>
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<tr>
<td>1968</td>
<td>First NFIP flood maps issued</td>
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<tr>
<td>1978</td>
<td>Major Floods lead to SRFCP system re-evaluation</td>
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<tr>
<td>1986</td>
<td>Sacramento urban area mapped into regulatory floodplain</td>
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<tr>
<td>1989</td>
<td>Sacramento Urban Area Levee Reconstruction</td>
</tr>
<tr>
<td>1990–</td>
<td>North Area Local Project</td>
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<tr>
<td>1993</td>
<td>Congress authorizes raise of Sacramento River East Levee</td>
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<tr>
<td>1996</td>
<td>Major flood in SRFCP</td>
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<tr>
<td>1997</td>
<td>Natomas Basin restores 100-year FEMA flood protection</td>
</tr>
<tr>
<td>1998</td>
<td>Congress authorizes raise of Natomas Cross Canal south levee</td>
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<tr>
<td>1999</td>
<td>Post 1997 Flood Assessment recognizes underseepage as a threat</td>
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<tr>
<td>2000</td>
<td>USACE initiates Natomas Basin Common Features Design</td>
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<tr>
<td>2002</td>
<td>USACE conducts public scoping meetings</td>
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<tr>
<td>2003</td>
<td>USACE Levee Task Force completes development of seepage criteria</td>
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<tr>
<td>2004</td>
<td>USACE adopts Standard Operating Levee Design Procedures</td>
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<tr>
<td>2004</td>
<td>USACE initiates General Re-evaluation of the Common Features Project</td>
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<tr>
<td>2004</td>
<td>SAFCA initiates planning for Natomas Levee Evaluation Program (NLEP)</td>
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<tr>
<td>2006</td>
<td>SAFCA completes NLEP</td>
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<tr>
<td>2006</td>
<td>USACE recommends levee decertification based on new geotechnical information and new standards</td>
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<tr>
<td>2006</td>
<td>SAFCA initiates Natomas Levee Improvement Program (NLIP)</td>
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<tr>
<td>2007</td>
<td>SAFCA Board certifies EIR for NLIP Phase 2 Landside Improvement Project</td>
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<tr>
<td>2008</td>
<td>USACE issues Draft EIS for NLIP Phase 2 Landside Improvement Project</td>
</tr>
</tbody>
</table>

#### Proposed Project

**Natomas Levee Improvement Program**

**Landside Improvements Project – Preferred Alternative**

- Raise, realign and install a seepage cutoff wall in the Natomas Cross Canal (NCC) south levee
- Construct an adjacent setback levee along the Sacramento River east levee from the NCC to the American River north levee, raised and with seepage remediation where needed
- Flatten slopes and construct seepage remediation along the Pleasant Grove Creek Canal west levee and Natomas East Main Drainage Canal west levee
- Construct cutoff wall in American River north levee to reduce seepage potential
- Implement related landscape changes at borrow sites and irrigation/drainage infrastructure modifications

**USACE Permitting Required**

- Permission to alter Federal Project levees under Section 408 of the Rivers and Harbors Act of 1899
- Permission to place fill in jurisdictional waters of the U.S. under Section 404 of the Clean Water Act

**Relationship to the General Re-evaluation of the Common Features Project**

- USACE initiated a general re-evaluation of the Natomas Basin elements of the Common Features Project.
- This followed changes in engineering standards, to address underseepage that were not identified when Congress authorized the project in 1996 and modified the authorization in 1999.
- USACE to present a General Re-evaluation Report (GRR) to Congress in 2010 likely recommending project scope and cost modifications.
- The NLIP will be considered in the GRR.
**NEPA/CEQA Compliance**

- **Purpose and Need**
  - Defines problems that the project is designed to address and the reason for the problems.

- **Alternatives Development/Evaluation/Refinement**
  - Defines alternatives that could address the project objectives.

- **Environmental Impact Analysis**
  - Evaluates the impacts of potential alternatives and develops mitigation measures (NEPA).
  - Evaluates the significant environmental impacts (CEQA).

- **Scoping**
  - Defines the study by identifying issues and obtaining comments from the general public, agencies, and jurisdictions.

- **Draft EIS/EIR**
  - Describes the purpose and need, alternatives considered, alternatives rejected or accepted, and a comprehensive, detailed, interdisciplinary evaluation of the significant environmental impacts that the alternatives would likely cause, and conceptual mitigation. Identifies the least environmentally damaging alternative, and the USACE's preferred alternative.

- **Public Review Period**
  - At least a 45-day period during which the public reviews the Draft EIS/EIR and submits comments to USACE and SAFCA about that document.

- **Final EIS/EIR**
  - Addresses the comments on the Draft EIS/EIR and from the Public Hearing, presents the final evaluation of project-induced environmental impacts and ways to mitigate unavoidable impacts.

- **Record of Decision (ROD)**
  - SAFCA Board certifies EIR.
  - USACE uses information in the Final EIS/EIR and the project record to prepare the ROD.

**EIS/EIR Organization**

**NLIP Landslide Improvement Project Phase 3**

- Phase 3 EIS/EIR will tier off 2008 EIS and 2007 EIR Programmatic documents
- Phase 3 components will be described in detail and analyzed at a **project** level
- Phase 4 construction components will be described more generally and analyzed at a **general, program** level

**Proposed Table of Contents**

- **Summary**
- **Purpose of and Need for Action**
- **Alternatives**
- **Affected Environment**
- **Environmental Consequences**
- **Cumulative and Growth-Inducing Effects**
  - Combined Phase 2/Phase 3 single-year construction analysis
- **Compliance with Other Environmental Laws and Regulations (includes Environmental Justice)**
- **Consultation and Coordination**
Station 3 – Project Purpose and Need

SAFCA’s Project Purpose

Provide at least 100-year flood protection as quickly as possible while laying the groundwork to achieve at least “200-year” flood protection over time

Project Need: Levee Problems

Seepage: Geotechnical studies have identified seepage beneath and through segments of the Natomas levee system as a significant risk to the stability and reliability of the system.

Height Deficiency: Much of the Natomas levee system is not high enough to meet the FEMA criteria for the National Flood Insurance Program and the Urban Level of Flood Protection required by state law.

Encroachments: USACE levee guidance requires the removal of vegetation greater than 2 inches in diameter on the levee slopes and within 15 feet of the waterside and landside levee toes. Other encroachments that penetrate the levee and limit access on the land side and the water side (e.g., fences, retaining walls and driveways) may also be subject to removal.

Levee Segments Requiring Seepage Remediation and Levee Height Increases

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Aerial Image: NAIP 2006

0 3,000 6,000

FEET

NORTH

LEGEND

Natomas East Main Drainage Canal and American River (additional remediation being evaluated)

Seepage Vulnerability

Average Height Deficiency

Height Deficiencies: > 2.5 (ft)

Height Deficiencies: 2.0 - 2.5 (ft)

Height Deficiencies: 1.5 - 2.0 (ft)

Height Deficiencies: 0.0 - 1.5 (ft)

Note: Print at 295% for 30x40 poster.
Station 4 – Alternatives

**Yolo Bypass Improvements:**
- Redesign of Fremont Weir,
- new setback levee from Fremont Weir to north levee of Sacramento Bypass.

**Reduced Natomas Urban Levee Perimeter:**
- Construction of an east-west cross levee across Natomas Basin approximately 500 feet north of Elkhorn Boulevard.

**Reasons for Elimination**
- Need for interagency coordination would delay improvements well beyond 2010
- Would not address seepage deficiencies
- High cost of land acquisition, road relocation and levee materials.
- Would strand current investments in levee system in northern part of basin.
- Would not protect a portion of Sutter County designated for development
- Does not meet project objectives

**General Remediation Methods**

**Levee Height**
- Raise existing levee where needed (would require substantial encroachment removal)
- Construct adjacent levee, raised where needed (would reduce need to remove encroachments)
- Construct Sacramento River setback levee where feasible, raised where needed

**Seepage**
- Seepage berms (extending 100-300 feet from landside levee toe)
- Seepage cutoff walls
- Relief wells

Methods depend on localized conditions

**Alternatives Considered and Eliminated**

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**Alternatives To Be Evaluated**

- No-Action Alternative A—No Authorization for Phase 2 or Phase 3
- No-Action Alternative B—Authorization for Phase 2 but Not for Phase 3
- Alternative 1 (Preferred Alternative)—Construct an Adjacent Setback Levee along the Sacramento River East Levee (combined with PGCC west levee, NEMDC west levee, and American River north levee improvements)
- Alternative 2—Raise Levee in Place along the Sacramento River East Levee (combined with PGCC west levee, NEMDC west levee and American River north levee improvements)

All action alternatives would include increasing levee height on the NCC south levee and implementing a combination of seepage remediation measures.
**Station 5 – Construction**

**Construction Methods**
- Hauler and excavator on levee crown
- Levee embankment grading
- Construction of a slurry cutoff wall

**Utility Pole Relocations**

**Project Commitments**

**Construction Noise, Dust and Vibrations**
- Dust control best management practices
- Vibration monitoring
- Written notification prior to construction activity within 500 feet of homes and businesses
- Minimized traffic on Garden Highway

**Traffic Management and Safety**
- Implementation of traffic safety and control measures in each construction season
- City and county review of traffic control plans
- Use of traffic control personnel and signage
- Point-of-contact to address public concerns about construction activity will be provided
Permit Phasing

Station 5 – Phasing

Phase 3 construction will be evaluated at a project level, while Phase 4 construction will be evaluated at a program level.

Phase 1 cut-off wall work completed
Phase 2 canal work
Phase 3 levee work
Phase 3 canal work
Phase 4 levee work
Phase 4 canal work

LEGEND
- Phase 1
- Phase 2
- Phase 3
- Phase 4
- City of Sacramento Boundary
- Borrow Sites

Source: MBK Engineers 2008
Topics of Major Concern

**Air Quality, Noise, Traffic**
- Temporary effects during construction
  - Best management practices and environmental commitments for construction will reduce localized construction effects.
- Cumulative effects of combined construction phases

**Cultural Resources**
- Changes to elements of RD 1000 rural historic landscape district
- Potential effects on archaeological resources
  - Programmatic Agreement between USACE, SAFCA, State Historic Preservation Officer, and Advisory Council on Historic Preservation will govern phased approach to cultural resource protection.
- On going coordination with tribal representatives to protect resources and minimize impacts

**Agricultural Land Conversion**
- Conversion in footprint of flood control facilities, relocated and new canals, borrow sites
  - Additional lands to be preserved in agricultural use under public ownership.

**Biological Resources**
- Effects on habitats of species protected under the Natomas Basin Habitat Conservation Plan
  - Canals and rice fields that provide Giant garter snake (GGS) habitat
  - Agricultural cropland used for foraging by Swainson’s hawks
  - Trees potentially used for nesting by Swainson’s hawk and other birds
  - Habitat replacement and conservation strategies in project design: marsh habitat for GGS use, new drainage canal to connect GGS population areas, grassland on flood control features and in borrow sites, lands preserved in agricultural use, new woodland groves.

**Hydraulics**
- Required levee height increases for compliance with regulations
- Minimize work in channels
- No impact on Sacramento River Flood Control Project design profiles
Station 6 – NEPA/CEQA Issues

Habitat

Habitat Compensation/Conservation

- Compensate for habitat losses in project design
- Produce net gains to ecosystem function
- Advance Natomas Basin Habitat Conservation Plan goals for sustainability
- Secure Giant garter snake movement corridors linking populations in north and south
- Reduce Airport wildlife hazards
- Create replacement canals and uplands; use managed marsh or rice field preservation for Giant garter snake
- Create managed grassland or preserve farmland for Swainson’s hawk
- Establish replacement tree plantings based on affected trees and woodland plantings
Station 7 – Hydraulics

Typical View of a Channel Cross Section on the Sacramento River Corridor, Looking Downstream

Cross-section: Sacramento River at USGS River Mile 76.1 (looking downstream)

Water Surface Profile - Sacramento River Natomas Reach

Water Surface Profile - Sacramento River Natomas Reach

NOTE: All data are condition measurements.
- In some locations, the elevations to 0 feet NGVD29 are estimated.
- This water level line also represents the Corps-design water surface (WS), which is on the basis of a pre-1961 flood level at this location.
Comparison of 200-year Design Water Surface Profiles, Natomas East Main Drainage Canal

Comparison of 200-year Design Water Surface Profiles, Pleasant Grove Creek Canal

Water surface and top of levee elevations were originally on NGVD 1929 datum. The elevations were converted to NAVD 1988 using a factor of +2.28 ft. (0 NGVD29 = 2.28 NAVD88)

Note: The water surface profile for the NEMDC between Sankey Road and the SAFCA Pump Station was not computed in Aug. 2005, Aug. 2006, or Mar. 2007.

Source: MBK Engineers 2008