FLOOD HAZARD MITIGATION PLANNING FOR FEMA GRANTS
SOBOBA MASTER DRAINAGE PLAN

Aric Torreyson P.E. – Presenter
Patti Sexton, P.E, CFM – Project Manager
Orlando Lopes, - Project Engineer
Kenneth McLaughlin, SBLI Public Works Department

Thursday, June 21, 2018
What We Will Cover

• Overview of the Soboba Band of Luiseño Indian (SBLI) Reservation
• Repeated flooding issues over the past decade
• SBLI’s work with FEMA Region 9 to provide several emergency repairs projects over the years (PA)
• Assistance in funding an H&H study through the CTP (Cooperating Technical Partner)
• Post study coordination effort to identify potential grant funding programs for flood mitigation projects
Soboba Band of Luiseño Indian Reservation

- **7,000 AC Reservation in Western Riverside County, CA**
  - Near two major drainage courses, the San Jacinto River and Poppet Creek
  - Deep canyons and rolling hills
  - Reservation consist of existing residential lots (1-5 acre)
  - Limited Infrastructure – only isolated undersized drainage facilities at major road crossings
Watershed Characteristics

• Brush-covered hills and mountains
  – Extend abruptly from the alluvial valley floor
• Rainfall occurs during the winter months and increase rapidly with elevation
  – Higher elevations receive more than twice the precipitation received by the valley floors
• Steep Slopes + High Rainfall = Lots of Storm Water
  – Rapid concentration of runoff causing flows with high velocities and large peaks
• Flows include large amounts of debris compounding the flooding problem.
Other Contributing Factors

- Limited Land Planning
Flooding within SBLI Reservation

- Historical floods occurred in the San Jacinto River during 1916, 1927, 1937, 1938, and 1980
- 2011 Flooding in Riverside County
- December 2014 flooding caused significant damage
- FEMA approved repair efforts through the Public Assistance Program
Flooding within SBLI Reservation
Flooding within SBLI Reservation
Flooding within SBLI Reservation
FEMA Support

• SBLI had two disaster declarations
  – Older disaster is #1952 (2011) and the newer one is #4206 (Dec 2014)

• CTP (Cooperating Technical Partner) program
  – H&H Analysis for Flood Hazard Mitigation
  – Master Drainage Plan (MDP) with Prioritization and Funding Sources
H&H Analysis for Flood Hazard Mitigation

- Historical and potential flood damage sites within the Soboba reservation were identified
- Existing drainage facilities were analyzed for capacities

<table>
<thead>
<tr>
<th>Site</th>
<th>Damage Description</th>
<th>Watershed</th>
<th>Structure Type</th>
<th># Diameter</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flooding due to undersized drainage facility (PW-00004)</td>
<td>A</td>
<td>RCB</td>
<td>-</td>
<td>60”Wx42”H</td>
</tr>
<tr>
<td>2</td>
<td>Arizona Road Xing washed out along Poppet Creek</td>
<td>B</td>
<td>Roadway</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Pipes are filled with sediment and water overflows road</td>
<td>C</td>
<td>CMP</td>
<td>4-48”</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Flooding due to undersized drainage facility</td>
<td>D</td>
<td>CIP RCB</td>
<td>-</td>
<td>60”Wx50”H</td>
</tr>
<tr>
<td>5</td>
<td>Damage to road/shoulders and adjacent residences from flooding in this area</td>
<td>E</td>
<td>CMP</td>
<td>36”</td>
<td>36”Wx20”H</td>
</tr>
<tr>
<td>6</td>
<td>Erosion along road shoulders (PW-00018)</td>
<td>F</td>
<td>Roadway</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Road and adjacent areas flooding due to undersized culvert</td>
<td>G</td>
<td>CMP</td>
<td>2-36”</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Erosion along dirt ramp due to undersized drainage facility (PW-00015)</td>
<td>H</td>
<td>CMP</td>
<td>36”</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>Culvert and road is washed out</td>
<td>I</td>
<td>RCP</td>
<td>48”</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Erosion along areas adjacent to Silvas Flats Road (PW-00006)</td>
<td>J</td>
<td>Roadway</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>Flooding of area and bank erosion due to water flowing over road (PW-00010)</td>
<td>K</td>
<td>CMP</td>
<td>36”</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>Uncontrolled water flow damage along road (PW-00019)</td>
<td>L</td>
<td>Roadway</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>Erosion along the bank as water flows into Poppet Creek (PW-00027)</td>
<td>M</td>
<td>Roadway</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>Flooding and erosion from runoff in upstream canyon(s) (PW-00008)</td>
<td>N</td>
<td>Roadway</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>15</td>
<td>Bank erosion near site (PW-00038)</td>
<td>O</td>
<td>Roadway</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>16</td>
<td>Erosion of road shoulders and flooding of residences</td>
<td>P</td>
<td>Roadway</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>17</td>
<td>Flooding of residences along road (PW-00006)</td>
<td>Q</td>
<td>Roadway</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>18</td>
<td>Dirt shoulder eroded along road (PW-00006)</td>
<td>R</td>
<td>Roadway</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>19</td>
<td>No damage. Capacity analysis to be done for retention basin. (PW-00010)</td>
<td>S</td>
<td>None</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>20</td>
<td>No damage. Capacity analysis to be done for retention basin.</td>
<td>T</td>
<td>None</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>21</td>
<td>Local flooding</td>
<td>U</td>
<td>Drainage Ditch</td>
<td>-</td>
<td>2’ W x 0.75’ H rectangular</td>
</tr>
<tr>
<td>22</td>
<td></td>
<td>V</td>
<td>Catch Basin</td>
<td>8” PVC pipe</td>
<td>-</td>
</tr>
</tbody>
</table>
H&H Analysis for Flood Hazard Mitigation
H&H Analysis for Flood Hazard Mitigation
Soboba MDP
FEMA Mitigation Programs

- HMGPs (HAZARD MITIGATION GRANT PROGRAM)
- PDM (PRE-DISASTER MITIGATION)
- FMA (FLOOD MITIGATION ASSISTANCE)
FMA/PDM

• Eligible Activities
  – 75% to 100% federal funding
  – Infrastructure and housing related projects
  – Focused on two projects
FEMA Grant Process

Hazard Mitigation Grant Program – HMGP

- Tied to a specific disaster for Soboba #4206
- Given $128,697 (a 25% match must be put to that) for project implementation

Pre-Disaster Mitigation (404)

- Money to improve flood resiliency and is intended to be for a project not addressed by the PW’s
- Competitive program with a tribal set-aside.
- A request of up to $575,000 is allowed that must be matched by the tribe with 25%
Project Identification and Selection
Project Identification and Selection
Project Identification and Selection

Line “G” – Soboba Road Culvert

- Road impacted Dec. 2014 rain events
  - Damaged road primary access to SBLI
  - Fiber Optic Line to Ca$ino
- FEMA funds used in the rehabilitation.
- Application focused on adding capacity to prevent future damage
- Grant Approved for Design next phase construction
Project Identification and Selection

Line “G” – Soboba Road Culvert
Interim Line “J”

- Pre-Disaster Mitigation Project
- Intercepts storm flows that flooded numerous houses during Dec 2014 rain events.
- Assist in reducing flows to Soboba Road and Castille Canyon Road
- Provided large BCA
Project Identification and Selection

Interim Line “J” – Recently Awarded
Overall Assistance Provided

- H&H Analysis for Flood Hazard Mitigation
- Implementation of MDP
  - Assist SBLI with development review for new buildings and/or residences.
  - Provided a priority list of flood reduction projects
- Grant Funding Support for PDM and HMGP
  - Project identification
  - Assistance BCA analysis
  - Preliminary design and Construction Cost estimates (MDP)
- Preparation of Plans, Specifications, and Construction Documents
Going Forward

• Further assistance with completing Interim Line “J” design and construction documents
• Assisting with construction of Line “G” – Soboba Road Culvert
• Assistance with next PDM Grant Application
  – Line “G” extension (2019)
  – Line “K” (2020)