LESSONS LEARNED FROM LOCAL AND STATE WATERSHED PROGRAMS – PROGRAM MANAGEMENT STEPS

ALEX YESCAS, PE, CFM, ENV SP
WATER RESOURCES MARKET SECTOR LEAD
SEPTEMBER 05, 2019
1. Local and State Program Examples
2. Program Requirements
3. Program Management Tools
1. Local and State Program Examples
What triggers a program to be developed

- National disaster
- Consent decree
- Regulatory compliance
- State bonds
Hurricane Harvey

- Trillion Gallons of water over a four day period
- Cover the entire 1800 square miles of the county with 33 inches of water
- 25.4 inches of rain in 24 hours (5,000-yr storm)
- 47.4 inches of rain in 4 days (50,000-yr storm), yearly average is 50 inches
- 120,000 structures impacted by flooding
- 300,000 vehicles flooded
- >$1B in damages
FEMA Requirements

- FEMA Flood Risk Project
- Project processes & deliverables must follow established standards
- Goals & objectives achieved through EV tracking
- Approach using 2D modeling
Katrina - August 29, 2005

FEMA: Hurricane Katrina Information

Individual Assistance (As of 11/13/06)

KATRINA Housing Assistance Other Needs Assistance
DR-1603-LA $3.39 billion $1.46 billion
DR-1604-MS $846 million $411 million
DR-1605-AL $90 million $38 million

Public Assistance (As of 11/13/06)

KATRINA Protective Measures Debris Removal Roads & Bridges Public Buildings
DR-1603-LA $1.61 billion $898 million $18 million $1.19 billion
DR-1604-MS $323 million $694 million $30 million $374 million
DR-1605-AL $16 million $36 million $2 million $6 million

Hurricane Katrina National Flood Insurance Program (NFIP) Estimates (As of 9/15/06)

<table>
<thead>
<tr>
<th>States Affected By Hurricane Katrina</th>
<th>Losses Received</th>
<th>Total Closed</th>
<th>Percentage Closed</th>
<th>Total Paid on Closed Claims</th>
<th>Average Claim Payment</th>
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</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>5,713</td>
<td>5,620</td>
<td>98.4%</td>
<td>$268,523,517</td>
<td>$52,800</td>
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<td>Florida</td>
<td>8,929</td>
<td>8,791</td>
<td>98.5%</td>
<td>$126,557,498</td>
<td>$21,907</td>
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<td>Mississippi</td>
<td>18,904</td>
<td>18,646</td>
<td>98.6%</td>
<td>$2,356,884,143</td>
<td>$137,516</td>
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<td>Louisiana</td>
<td>176,806</td>
<td>174,087</td>
<td>98.5%</td>
<td>$12,681,247,738</td>
<td>$100,033</td>
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<tr>
<td>TOTAL</td>
<td>210,352</td>
<td>207,124</td>
<td>98.5%</td>
<td>$15,433,212,895</td>
<td>$90,721</td>
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</tbody>
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FEMA Procedure Memorandum 34
Interim Guidance for Studies Including Levees

- This memorandum put the burden of identifying which levees provide base flood protection
- Certification process for levee across the country
California - Paterno Decision

- 1986 Yuba River Levee failure in the City of Linda
- 150 foot gap allowed 20,000 ac-ft of water to flood 7000 acres
- 2600 parties filed suit against the State and the Local Reclamation District
- When a public entity operates a flood control system built by someone else, its accepts liability as if it had planned and built the system.
- $464M Settlement
California’s Issues Water Supply - Jones Track Levee

The state’s water supply is at risk from levee failure
California’s Response

- Statewide Program
- 4 Major Activities
- Primarily funded by Propositions 1E and 84
- Emphasis on State-federal system in Central Valley and Delta
- ~10 year effort
State Bonds
Prop 1E – Disaster Preparedness and Flood Prevention

- $3.0 B -- State Central Valley flood control systems repairs & improvements; Delta repairs and maintenance
- $500 M -- Flood control subventions (cost sharing for local projects outside the Central Valley)
- $300 M -- Stormwater flood management (grants for projects outside the Central Valley)
- $290 M -- Flood protection corridors and bypasses; floodplain mapping
Prop 84 – Water Quality, Safety and Supply, Flood Control, Natural Resource Protection, Park Improvements

- **$800 M** -- Flood Control
  - **$315 M** -- State flood control projects – evaluation, system improvements, flood corridor program
  - **$275 M** -- Flood control projects in the Delta
  - **$180 M** -- Local flood control subventions (outside the Central Valley flood control system)
  - **$30 M** -- Floodplain mapping and assistance for local land use planning
Reduce flood risks throughout the State

California Meets the Challenge: Taking Steps to Manage Flood Risk in the Central Valley
Central Valley Floodplain Evaluation & Delineation Program (CVFED)

- Program management services for a $110 million floodplain mapping program
- CVFED purpose:
  - Provide the common building blocks in terms of standards, methodologies, and tools needed for floodplain assessments for FloodSAFE programs consistent with USACE and FEMA needs
CVFED Statistics

- Digital aerial photography – 9,000 mi² (23,300 km²)
- LiDAR – 7,800 mi² (20,200 km²)
- 5,500 surveyed cross section
- Riverine hydraulic models – 1,550 miles (2,500 km)
- Two-dimensional hydraulic models – 5,800 mi² (15,200 km²)
- Profiles for the 10-, 50-, 100-, 200-, and 500-year flood events
- Delineated floodplains for 100-, 200-, and 500-year flood events
Local Watershed Programs

- MS4 Compliance
- Watershed Comprehensive Mapping and Modeling
- Determine the needs, establish the funding mechanism
  - County of Los Angeles, Measure W-Safe Clean Water Program
    - Will generate up to $300M annually, to >80 cities in the County
    - County of Los Angeles will provide funding based on competitive proposals for each watershed
2. Program Requirements
Common Plan on Watershed Mapping

Challenges:

- Delivering projects on time and within budget
- Quality of the deliverable
- Mitigating risk during the process
- Establishing decision making protocols
- Communication-at all levels
Schedule driven program

2019 PROJECT KICK OFF

2019
DEVELOP MODELS & MAPPING*
FEB Phase 1
OCT Phase 2

2021
DELIVER MODELS & MAPPING* TO FEMA
APR Phase 1
OCT Phase 2

SPRING/ SUMMER 2022
PRELIMINARY MAPS (FIRMS) RELEASED BY FEMA
Maps available to public

18-24 MONTHS TYPICAL

90 DAYS 3 MONTHS
PUBLIC APPEAL & COMMENT PERIOD

3-6 MONTHS
REVISE MODELS & MAPPING* AS NEEDED

3-6 MONTHS
REVISED PRELIMINARY MAPS (FIRMS) (IF REQUIRED)

6-9 MONTHS
LETTER OF FINAL DETERMINATION

6 MONTHS
MAPS (FIRMS) RELEASED EFFECTIVE

Activities in this box outline Federal due process requirements to ensure affected property owners are provided formal means to appeal and comment on the changes prior to the issuance of final effective maps.
QA/QC Management

QA/QC policy for individual Modeling / Mapping consultants for continual reviews, checks, etc.

Continual sharing of information, results, questions, visits, over-the-shoulder, etc. (1 Day)

“Pass to the right” to allow consultants to check for consistency. (1 Week)

Submit progress package to management team. Consultants continue working. (1 Week)

Formal package submittal to Management. Consultants pause. Stagger reviews. (1-2 Weeks)
Earned Value Management

1. Study Consultants
2. Scope Fee / Value Schedule
3. Monthly Invoice & EV
4. Management Team
5. Agency Review
6. On Time? On Budget?
7. FEMA

Decision Points:
- YES: FEMA
- NO: Corrective Action Plan
Compliance is Key – Performance Index

Cost Performance Index (CPI) 0.92 – 1.08
Schedule Performance Index (SPI) 0.92 – 1.08
Community Engagement Plan Components

- Project Website
- Social media (Twitter, Facebook, Instagram)
- Integrated Media Campaign/Spokespeople
- Speakers Bureau
- Work Groups
  - Technical Advisory Work Group
  - Community Advisory Work Group
  - Youth Advisory Work Group
- Educational materials
- Community Outreach Events/Meetings
3. Program Management Tools
Risk Mitigation – Initiate Risk Register
Establish Program Management Systems

- Project Schedule
- RFIs
- Inspection Report
- Change Orders

System of Record → PMIS → Project Dashboard

PMIS (Project Management Information System)

- Quality Management
- Pay Apps
- Bid Tabs
- Risk Assessments

Suite of Tools
SharePoint Coordination
Thank you!
alex.yescas@hdrinc.com