Natural Hazard Mitigation Projects

Kent Gylfe
Principal Engineer
kgylfe@scwa.ca.gov

SONOMA COUNTY WATER AGENCY

www.sonomacountywater.org

Natural Hazard Reliability Assessment

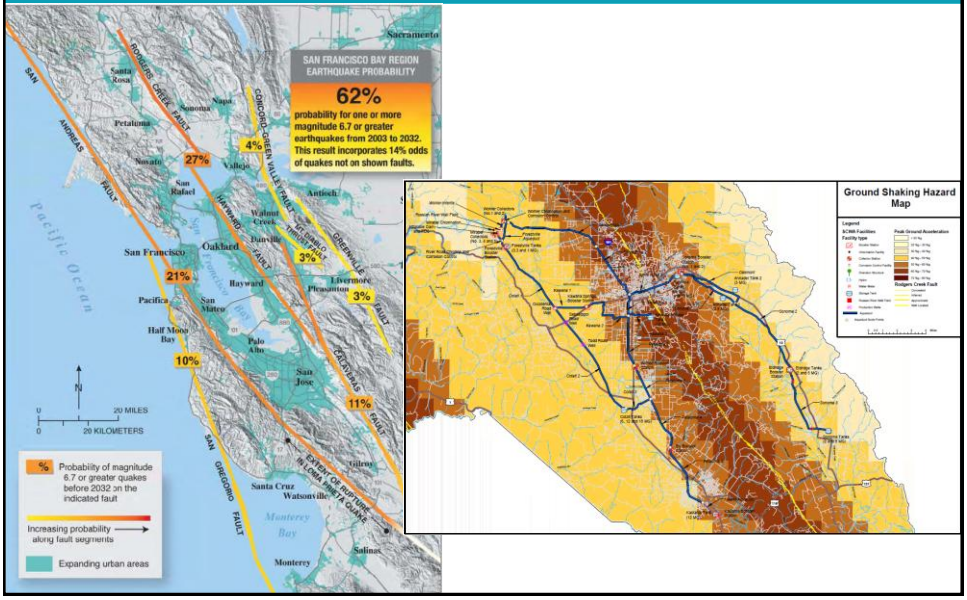
- Goal:
  - *Evaluate the risks from natural hazard events*
  - *Identify potential impacts to facilities*
  - *Identify Reliability Improvements Projects to mitigate any unacceptable risk of service interruption.*
- Scope:
  - *Phase 1*
    - Identify the most significant hazards and apparent system vulnerabilities
  - *Phase 2*
    - Evaluate the impact of vulnerable system components

MMI ENGINEERING
A geosyntec company

Primary Hazard: Earthquakes

- Findings
  - Earthquakes identified as primary natural hazard to the water system (Rodgers Creek Fault)
  - Floods a secondary concern
  - Wildfires, tornadoes, hurricanes and other weather related hazards were seen as having a limited impact

Primary Hazard: Earthquakes



Local Hazard Mitigation Plan

- *NHRA completed in 2008*
- *Identified 41 mitigation actions and projects*
- *Prioritized top 10 recommended projects*
- *Developed Local Hazard Mitigation Plan*

Local Hazard Mitigation Plan

- LHMP: Why Required?
  - Disaster Mitigation Act of 2000
    - Encourages pre-disaster planning
  - A FEMA approved Hazard Mitigation Plan is a pre-requisite for funding
    - Pre-Disaster Mitigation (PDM)
    - Flood Mitigation Assistance(FMA)
    - Severe Repetitive Loss (SRL) grants
  - A larger amount of funding available
    - Hazard Mitigation Grant Program (HMGP)

FEMA Funding

Grant Requirements (partial list)

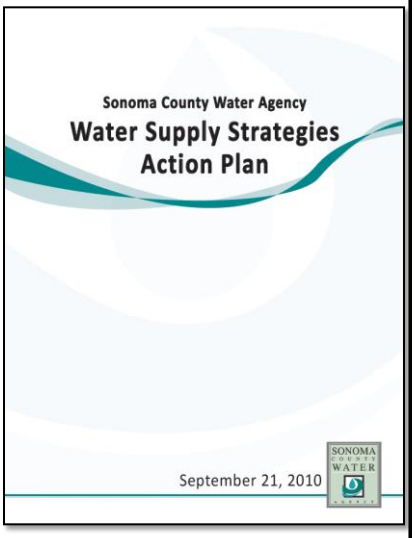
- Administered through Cal EMA
- FEMA funds 75% of project cost up to 3 million dollars
- Project must be completed within 3 years of award
- Must have FEMA approved LHMP
- Benefit to Cost Ratio > 1 to qualify for funding
- FEMA is lead agency on NEPA environmental review

FEMA

Cal EMA
CALIFORNIA EMERGENCY MANAGEMENT AGENCY

Water Supply Strategies Action Plan

- Adopted Fall of 2010
- Addresses 9 strategies for water supply reliability
- Prepared in coordination with the water contractors
- Natural Hazard Mitigation Projects included as part of Strategy 6



Rodgers Creek Fault Crossing

Rodgers Creek Fault Crossing

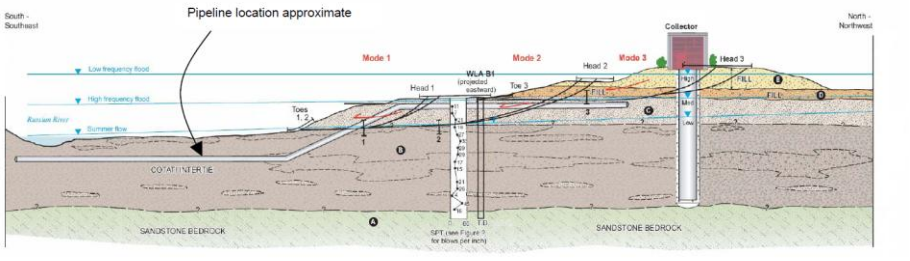
- Description
  - Approx. 2,000 LF of pipeline
  - Isolation valves and manifolds
- Purpose
  - New steel pipe to absorb deformations without rupture.
  - Provide a means of isolation and temporary emergency bypass.
- Amount
  - Est. Project Cost = $1.83 M
  - Grant Funds = $1.37 M

Current Status…

- FEMA funds obligated Oct. 2010
- Design in progress
- Field investigations completed July 2011
- Construct in 2012

Russian River Crossing

- Description/Purpose:
  - Approx 600 feet of 48 inch steel pipeline
  - Install within the "safe" soil layer zones
- Amount
  - Est. Project Cost = $3.93M
  - Grant Funds = $2.95M



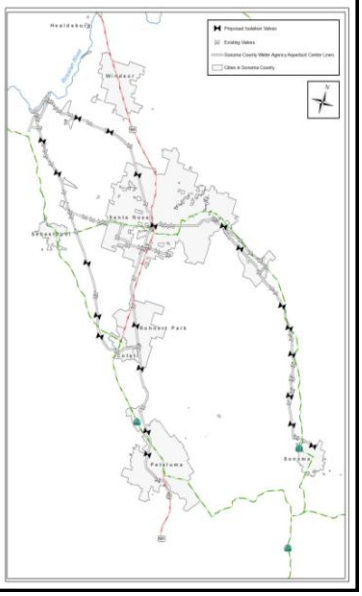
Russian River Crossing

Current Status…

- Grant application Oct. 2009
- Preliminary FEMA Award Mar. 2010
- Meet FEMA/CalEMA Aug. 2011 to initiate environmental review

Isolation Valves Project

- Description
  - Up to 27 isolation valves
- Purpose
  - Enhance operational capability to restore service
  - Maximize geographic area that can remain in service
  - Reduce down time and adverse impacts of an uncontrolled release
- Amount
  - Est. Project Cost = $2.57 M
  - Grant Funds = $1.93 M
- Current Status
  - Same as RR X-ing (initiating env. review)



Mark West Creek Crossing

Description/Purpose:

- *Approx 600 feet of 48 inch steel pipeline*
- *Install within the "safe" soil layer*

Amount:

- *Est. Project Cost = $3.75 M*
- *Grant Funds = $2.81 M*

Current Status:

- *Grant application Oct. 2010*
- *Selected for further review by FEMA Mar. 2011*

Review Next Steps for existing FEMA Grant Projects

- Rodgers Creek Fault Crossing
  - Complete design and construction by 2012
- Russian River Crossing
  - Support NEPA review
  - Next Fiscal Year budget for design
- Isolation Valves
  - Support NEPA review
  - Next Fiscal Year budget for design
- Mark West Creek Crossing
  - Project Development this Fiscal Year

Flow Monitoring

- Project: Advance Metering Infrastructure (AMI)
- Description/Purpose:
  - Enhance meter reading infrastructure to provide real-time flow monitoring
    - 15 minute update intervals
- Schedule
  - Phase 1: (Operational by end of September)
    - 3 Tower Gateway Base Stations
    - Approx. 50% of the billing meters
  - Phase 2: (Operational by July 2012)
    - More Base stations to cover the remainder of the meters
- Cost:
  - Phase 1: $200,000
  - Phase 2: $160,000

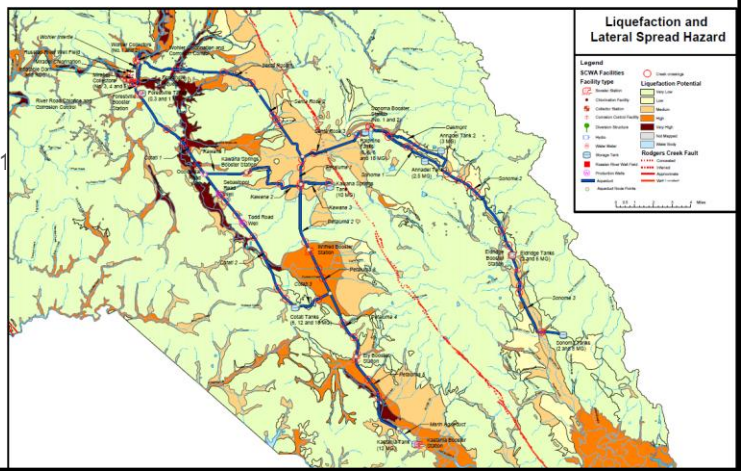
Wohler-Mirabel Liquefaction

Description/Purpose:

- *Ground improvements around collector wells and RDS*
- *To mitigate risks of damage from liquefaction & lateral spread*

Schedule:

- LOI Aug. 2011
- Applic. Oct. 2011



Additional Next Steps…

- Develop Wohler-Mirabel Liquefaction Mitigation Projects
- Scope out additional Projects for future applications
- Update the LHMP

Comments or Questions…

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