

## Working Through Partnerships/Leveraging Resources

November 14, 2011

<b>Water Supply &amp; Infrastructure Reliability</b>	
<b>Flood Protection &amp; Shoreline Study</b>	
<b>Ecological Monitoring and Assessment Framework</b>	
<b>Trail Development</b>	



## Water Supply & Infrastructure Reliability

<b>Water Supply</b>	<b>Water Supply and Demand Outlook</b> <b>Water Supply Infrastructure Reliability</b>	
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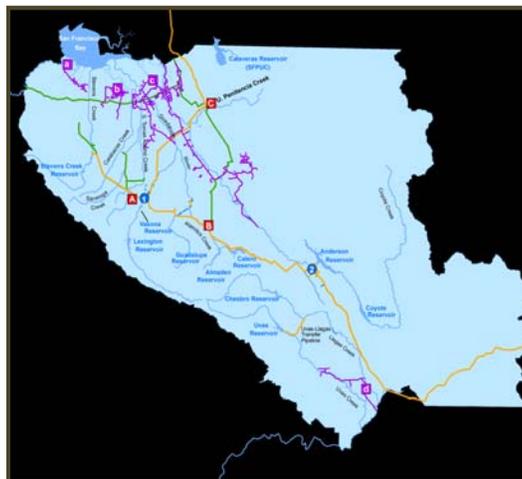
## Common Goals

City of San José	Santa Clara Valley Water District
Clean, reliable supply of drinking water	Current and future water supply for municipalities, industries, agriculture and the environment is reliable
Responsible, sustainable management of water supply	Aggressively protect groundwater from the threat of contamination and maintain and develop groundwater to optimize reliability and to minimize land subsidence and salt water intrusion
	Protect, maintain & develop local surface water, imported water.
Continue and improve water conservation efforts and increase water use efficiency	Maximize water use efficiency, water conservation and demand management opportunities
Recycle or beneficially reuse 100% of the City's wastewater supply	Protect, maintain and develop recycled water

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## A complex infrastructure integrates natural and constructed systems

- 10 - surface reservoirs
- 169 - thousand AF total storage capacity
- 17 - miles of canals
- 4 - water supply diversion dams
- 393 - acres of recharge ponds
- 91 - miles of controlled in-stream recharge
- 142 - miles of pipelines
- 3 - water treatment plants
- 3 - pumping stations



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## District Priorities are Influenced by Local, State and National issues

- ▶ Improving efficiencies
- ▶ Securing imported water supplies
- ▶ Expanding high-quality recycled water
- ▶ Managing infrastructure for reliability
- ▶ Ensuring dam safety
- ▶ Long-term planning for the future
- ▶ Select capital projects:
  - ▶ Lower Silver Creek flood protection
  - ▶ Anderson Dam seismic retrofit
  - ▶ Pacheco Pumping Plant ASD replacement
  - ▶ Permanente Creek flood protection
  - ▶ Rinconada Water Treatment Plant residuals management
- ▶ Water Conservation



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## A Diversified Portfolio

- ▶ Variety of Water Supply Sources for Santa Clara County



*Imported water*



*Local surface and groundwater*



*Recycled water*

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## Current Water Reserves Ensure Reliability

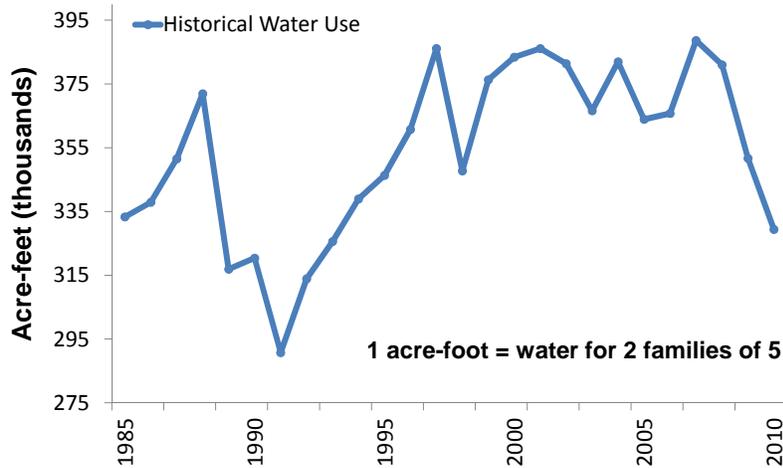


	<b>2010</b> (end of year)	<b>2011</b> (projected)
Local Reservoir Storage, KAF	92	74
Imported Water Carryover, KAF	34	30
Groundwater Storage, KAF	289	368
Semitropic Bank, KAF	264	326
<b>Total</b>	<b>679</b>	<b>798</b>

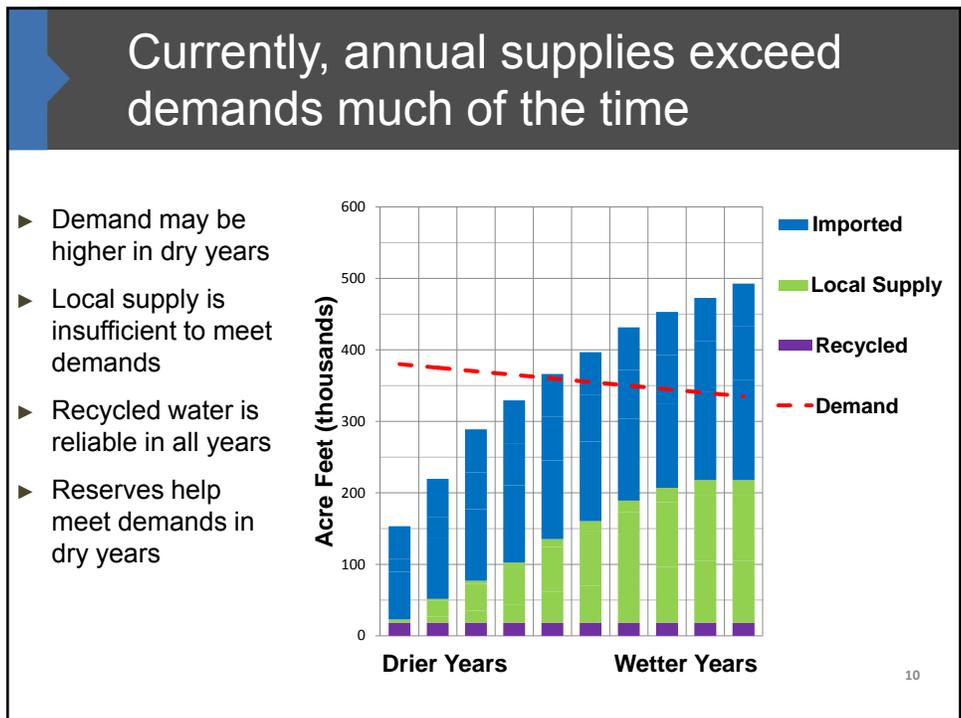
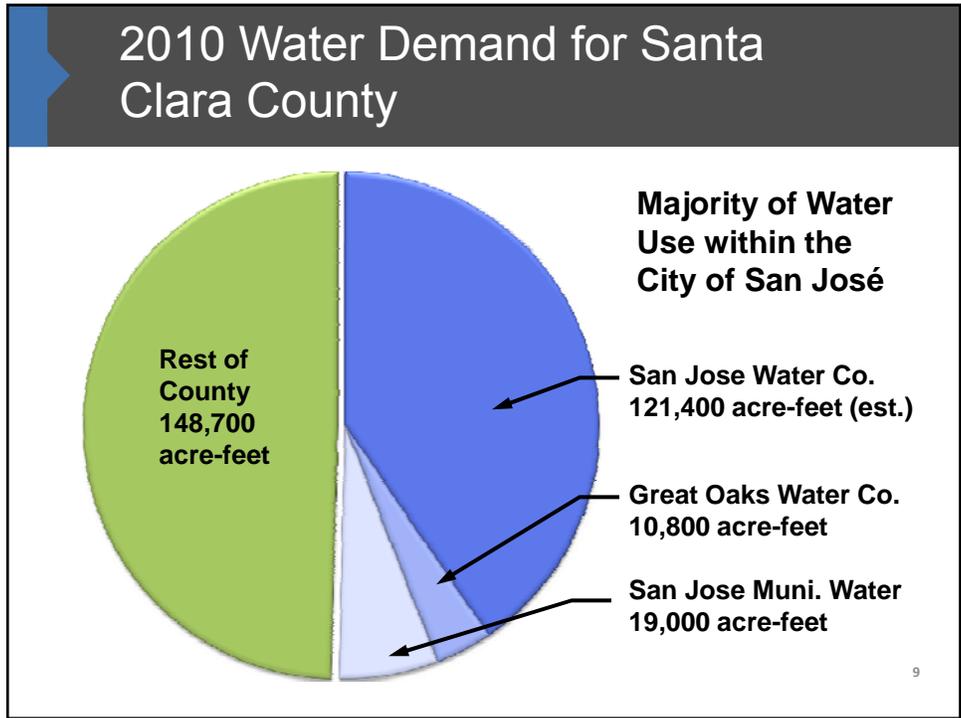
1 KAF= 1000 acre-feet = 325 million gallons

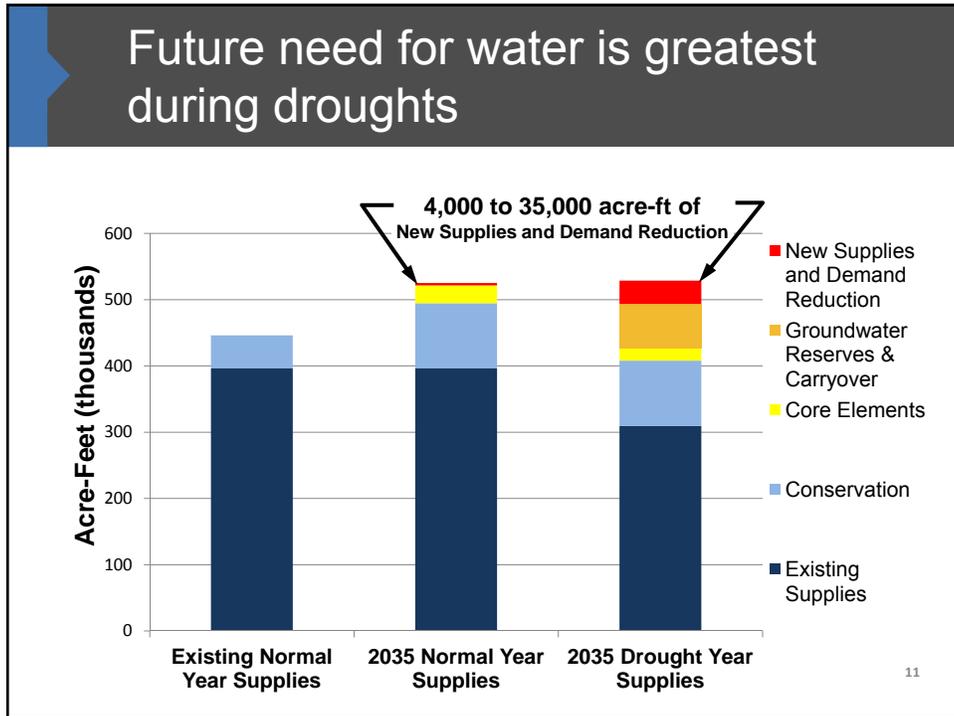
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## Countywide Water Use



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## Water Supply and Infrastructure Master Plan Overview

- ▶ The Water Master Plan will
  - ▶ Document preferred mix of water supply sources and demand management programs
  - ▶ Plan for new and upgraded infrastructure
- ▶ Completion scheduled for September 2012
- ▶ Community and Stakeholder engagement



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## A variety of supplies may meet future needs

<b>Imported Water/Water Transfers</b>	<ul style="list-style-type: none"> <li>• Continue dry year transfers of imported water</li> <li>• Purchase additional long-term water transfers</li> </ul>
<b>System Reoperations</b>	<ul style="list-style-type: none"> <li>• New raw water pipelines between reservoirs</li> </ul>
<b>Storage</b>	<ul style="list-style-type: none"> <li>• Expand local reservoir storage capacity</li> </ul>
<b>Water Conservation</b>	<ul style="list-style-type: none"> <li>• Further implementation of aggressive programs</li> <li>• Graywater reuse</li> </ul>
<b>Desalination</b>	<ul style="list-style-type: none"> <li>• Partner in regional desalination project</li> </ul>
<b>Recycled Water</b>	<ul style="list-style-type: none"> <li>• Expand non-potable recycled water use</li> <li>• Groundwater recharge with advanced treatment</li> </ul>

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## Meeting Water Demand Through Collaboration

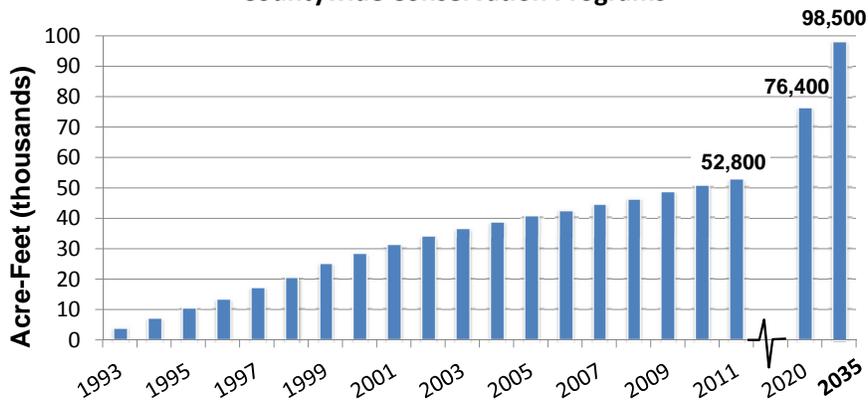
- ▶ Cost-sharing agreement for water conservation since 1996
- ▶ Collaborative agreements for recycled water since 1994
- ▶ New 40-year agreement for recycled water signed 2010
- ▶ Common long-term goals in City's and District's Urban Water Management Plans (2000, 2005 and 2010)



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## Collaborative Efforts to Date to Reduce Demand

**Total Water Savings for Countywide Conservation Programs**

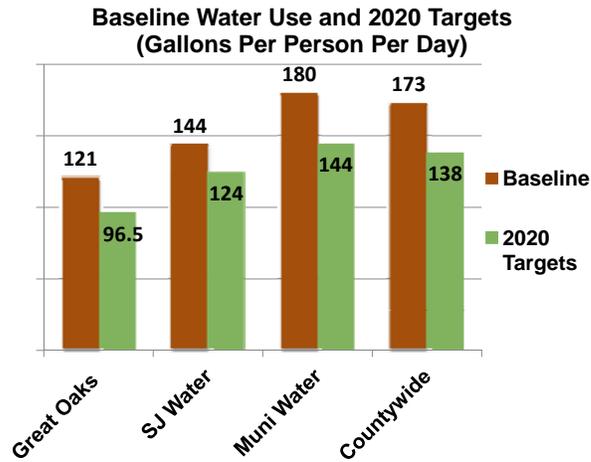


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## Water Use Targets in Urban Water Management Plan

### Retailers each have targets to reduce per capita water use by 2020

- ▶ Baseline calculated by selecting a 10-year period (Muni Water baseline is 1997-2006).
- ▶ Targets calculated using 1 of 4 allowed methods.
- ▶ Optional countywide alliance with countywide targets.



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## Current City efforts in support of District conservation programs

- ▶ Cost-sharing and joint implementation of conservation programs
- ▶ Common messaging and shared efforts for outreach and marketing
- ▶ Additional youth education programs and grants to educators



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## Continued Collaboration to Reduce Demand

**Continued collaboration and cost-sharing on conservation programs, plus key efforts on:**

- ▶ Landscape water use (new measures such as water budgets)
- ▶ Commercial, Industrial and Institutional sector
- ▶ Ordinances
- ▶ Public Education and Outreach



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## Recycled Water Goals

**SAN JOSE'S GREEN VISION**

**By 2022:**  
 Recycle or beneficially reuse 100% of our wastewater (50% from District activities)  
**Re-use 40 mgd (45,000 AF/year)**

**Santa Clara Valley Water District**

**Board Ends Policy**

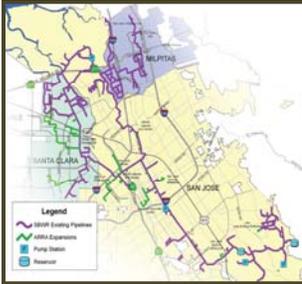
**By 2025:**  
 10% of total water use will be recycled water  
**Recycled water 35.4 mgd (39,600 AF/year)**

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## Efforts to Increase Recycled Water

### Cooling Tower Initiative





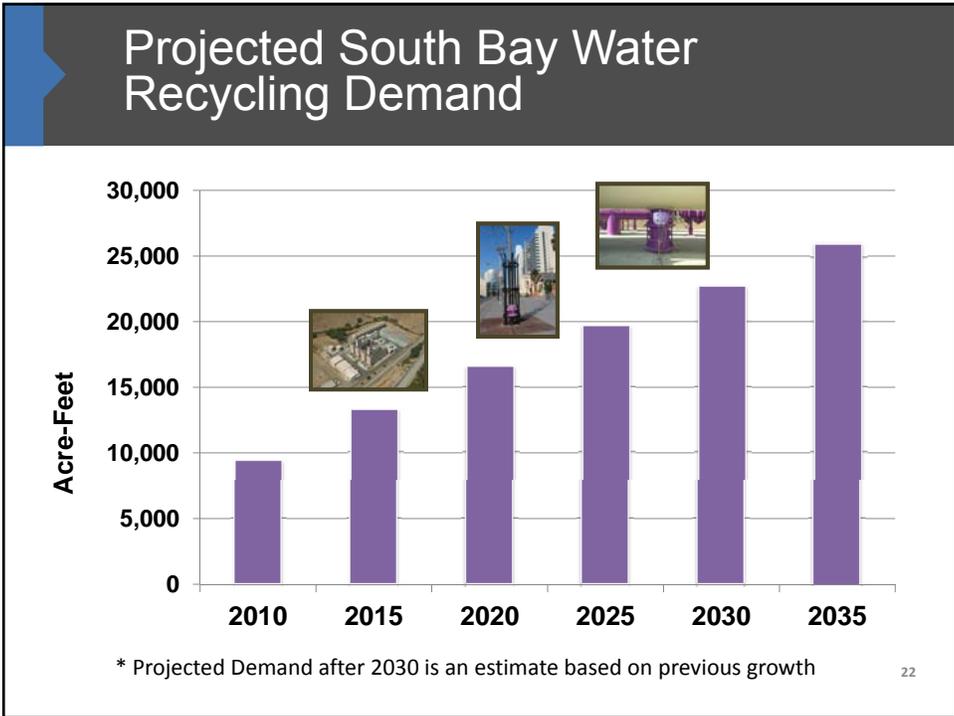
**Legend**

- Water Recycling Routes
- Water Expansion
- Pump Station
- Reservoir

### System Expansion

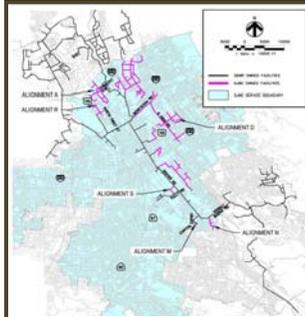


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## Partnerships to Increase Recycled Water Use

### Santa Clara Valley Water District – San Jose/Santa Clara Water Pollution Control Plant partnership



San Jose Water  
Company partnership



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## Recycled Water Infrastructure Funding

### ► Advanced Water Treatment

- USBR: \$8.1M
- DWR: \$3M

### ► Pipelines:

- USBR: \$59M

### ► Additional resources

- Partnership with San Jose Water Company
- Cooperation with developers, business customers



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## Evaluating Feasibility for Indirect Potable Reuse

- ▶ Advanced water treatment technologies to produce highly purified water
- ▶ IPR is a purified, drought-proof, reliable, local raw water supply
- ▶ Feasibility Study evaluates IPR alternatives of groundwater replenishment and reservoir augmentation
- ▶ The Water Supply Master Plan will evaluate IPR options
- ▶ Recycled water can account for 10% of total countywide water use by 2025



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## The Roadmap To Indirect Potable Reuse (IPR)

To implement a successful IPR project key steps involve

- ▶ Public Outreach, Education and Acceptance
- ▶ An Independent Advisory Panel
- ▶ Regulatory Approval
- ▶ Site Specific Technical Studies
- ▶ CEQA, Design, and Construction



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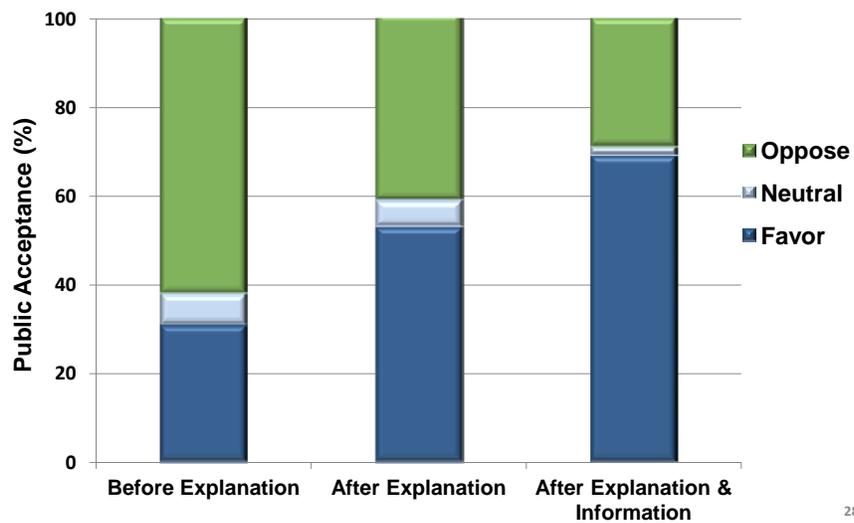
## Strategic Communication Plan for Recycled Water

- ▶ **Objective:** build community support for current and future recycled water programs
- ▶ **Key messages** have been developed to
  - ▶ help create public understanding of water use, treatment, and reuse in a water cycle context;
  - ▶ establish messages in the context of the District's mission; and
  - ▶ establish common terminology and approaches.



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## Survey Shows Education Leads to Greater Public Acceptance



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## Recycled Water Outreach Timeline

	QTR 1	QTR 2	QTR 3	QTR 4	FY 2012-13
Informational materials development	●	●			
Website development	●	●			
Key stakeholder updates		●	●	●	●
Internal communications		●		●	●
Proactive media relations				●	●
AWT Dedication					●
Speakers Bureau					●
Independent Advisory Panel					●
Stakeholder Working Group					●

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## Summary and Future Challenges

Past Success: City and District are well-aligned on water supply collaboration

Future Challenges:

- ▶ Fluoridation
- ▶ Indirect Potable Recharge
- ▶ Imported Water Reliability





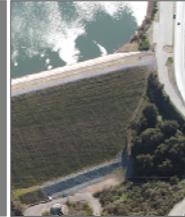
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# Water Supply & Infrastructure Reliability

Water Supply

Water Supply and Demand Outlook

Water Supply Infrastructure Reliability



## Key Delta Facts

Water delivered through Delta:

- ▶ Provides drinking water for 25 million Californians
- ▶ Irrigates 7 million acres of farmland

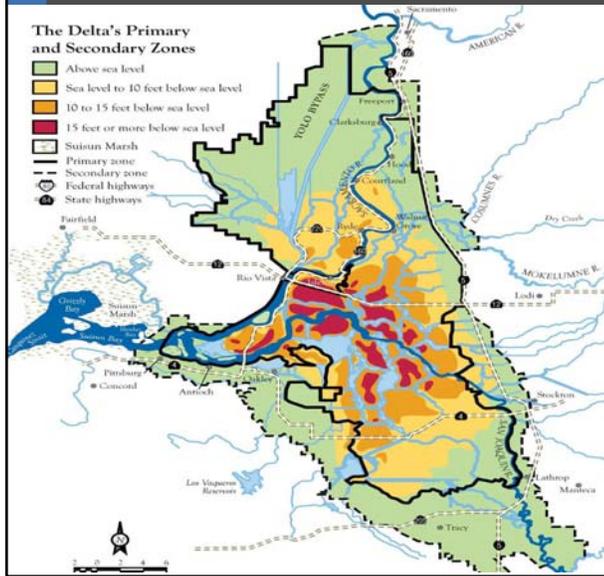
The Delta also

- ▶ Provides habitat for over 500 species
- ▶ Supports local agriculture, recreation, transportation



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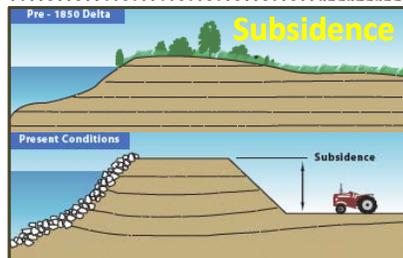
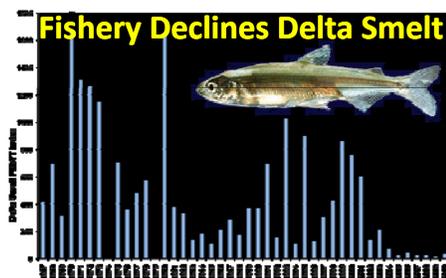
## Delta Risks



- ▶ Many Delta islands are below sea level and at risk of flooding
- ▶ Delta failures impact water quality

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## Delta Risks (cont.)



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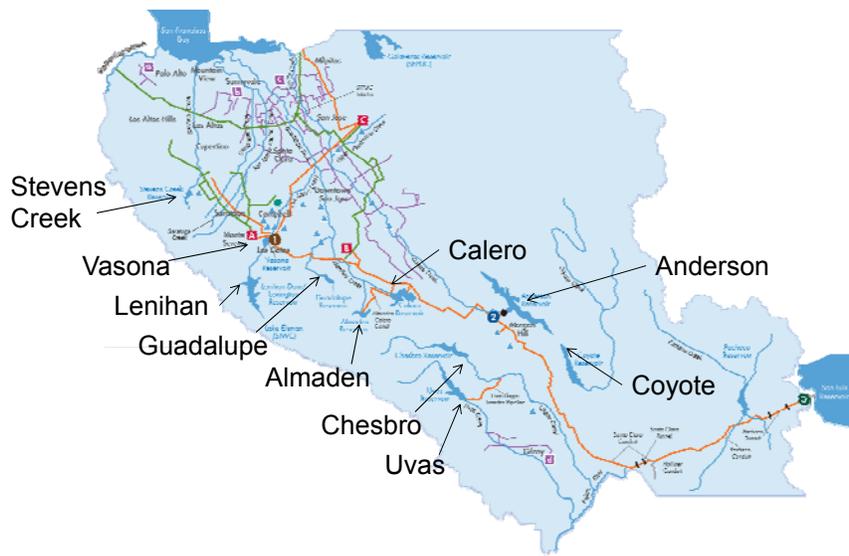
## Near Term Issues

- ▶ Emergency preparedness measures
- ▶ Operations Criteria and Plan litigation and new Endangered Species Act biological opinions
- ▶ Water management agreements



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## District Owns Ten Dams and Reservoirs



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## Reservoir Capacities

Reservoir	Reservoir Capacity	Restricted Capacity
Almaden*	1,586 AF	1,260 AF
Anderson*	90,373 AF	61,810 AF
Calero*	9,934 AF	5,671 AF
Chesbro	7,945 AF	7,945 AF
Coyote*	23,244 AF	12,382 AF
Guadalupe*	3,415 AF	2,738 AF
Lexington*	19,044 AF	19,044 AF
Stevens Ck	3,138 AF	3,138 AF
Uvas	9,835 AF	9,835 AF
Vasona*	495 AF	495 AF
<b>Total</b>	<b>169,009 AF</b>	<b>124,318 AF</b>



AF = Acre-feet \* Reservoir drains through San Jose

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## Seismic Stability Evaluations at District Dams

### Five Dams Being Analyzed in San Jose Area

- ▶ Anderson
- ▶ Calero
- ▶ Almaden
- ▶ Guadalupe
- ▶ Lenihan

### Three Dams With Seismic Issues

- ▶ Anderson
- ▶ Calero
- ▶ Guadalupe



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## Seismic Stability Evaluations at District Dams

### Actions to Address Deficient Dams

- ▶ Water Level Operating Restrictions
- ▶ Retrofit of Dams
- ▶ Increased Coordination with Emergency Managers

### Impacts

- ▶ Lost water yield
- ▶ Less water management flexibility
- ▶ Retrofits are expensive
- ▶ Water rate increases



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## Anderson Reservoir

### General Facts

- ▶ Largest reservoir: 90,000 AF
- ▶ Provides operational storage and water management flexibility
- ▶ Delivers water directly to treatment plants

### Seismic Issues

- ▶ Deformation up to 25 feet expected in large earthquake
- ▶ Fault traces under dam
- ▶ Reservoir restriction of 45 feet, lost capacity is 28,500 AF
- ▶ Annual water loss, 10,500 AF
- ▶ Seismic retrofit, 2018 completion



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## Summary and Future Challenges

Past Success: District and City recognize the need to invest in water infrastructure.



Funding needs:

- ▶ Seismic Retrofit of Dams
- ▶ Delta Improvements to ensure reliable imported water supply



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## Flood Protection & Shoreline Study

**Flood Protection  
& Shoreline Study**

Collaborative  
Approach to  
Managing  
Community Assets

Shoreline Study



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## Common Goals

City of San José	Santa Clara Valley Water District
Flood Protection - develop flood protection facilities to protect from flood events	Goal 3.1 Natural flood protection for residents, businesses, and visitors
Flood Protection – develop and maintain flood protection retention facilities as needed	Goal 3.2 Reduce potential for flood damages
Shared Goals	
Flood Protection – determine appropriate adaptations to climate change and sea level rise	
In partnership with other agencies, protect the Water Pollution Control Plant and other critical infrastructures from flooding	

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## Common Interests

District and City:

- ▶ Share a desire for healthy creeks and ecosystem.
- ▶ Operate and maintain a distinctive set of stormwater/flood protection assets.
- ▶ Facing common challenge of aging infrastructure
- ▶ Share mutual interest to leverage available funding.

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## City Stormwater Assets

The City maintains 178 square miles of storm conveyance systems, including:

- ▶ 1,150 miles of storm sewers
- ▶ 29,900 storm drain inlets
- ▶ 4,500 miles of curb and gutter
- ▶ 28 pump stations
- ▶ 1,500 creek outfalls



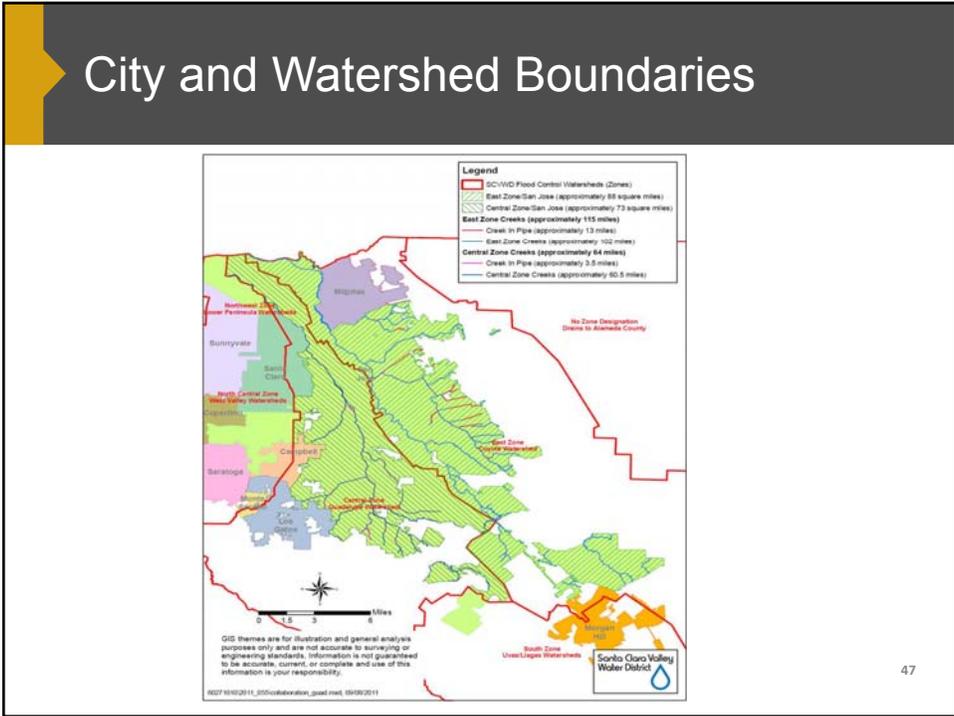
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## City Strengths

- ▶ Planning, design and construction of storm sewer pipes, pump stations and appurtenances.
- ▶ Maintenance and operation of storm conveyance and treatment assets.
- ▶ Can quickly mobilize emergency monitoring, cleaning and pumping operations.
- ▶ On-call contractors for emergency repairs and construction.



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## District Flood Protection Assets

**Coyote Watershed within CSJ:**

- ▶ 115 miles of creeks
  - ▶ SCVWD has land rights over 43 miles
- ▶ 13 miles of "creeks in pipes"
  - ▶ SCVWD has land rights over 3.9 miles

**Guadalupe Watershed in CSJ:**

- ▶ 64 miles of creeks
  - ▶ SCVWD has land rights over 50 miles
- ▶ 3.5 miles of "creeks in pipes"
  - ▶ SCVWD has land rights over 1.6 miles

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## District Strengths

- ▶ Knowledge and practice of flood protection.
- ▶ Expertise in creek channel maintenance.
- ▶ Regulatory permits to perform stream maintenance work.



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## Collaboration

- ▶ Remove trash and Cleanup Illegal Encampment
- ▶ Develop Trails – 22.2 miles in City since 2000
- ▶ Conduct Community Rating System (CRS) activities to reduce FEMA flood insurance premium (City at 15% discount)



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## Collaboration

- ▶ Maintain Levee Vegetation under Corps of Engineers new Veg-Free Standard
- ▶ Coordinate Upper Berryessa and Penitencia Creek projects with BART Extension – Promote federal funding
- ▶ Maintain stormwater infrastructure – Agreement - saved City \$300-400K over 5 projects



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## Recent Collaboration Examples

Thompson Creek at Everdale (2009) – Bank Erosion Stabilization



Before Construction



After Creek Bank Stabilization

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## Recent Collaboration Examples

Thompson Creek at Farnsworth Drive (2009) – Bank Erosion Stabilization



Before Construction



After Creek Bank Stabilization

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## Current Collaboration

Thompson Creek at Cadwallader Bridge (2011) – Outfall Repair and Bank Erosion Stabilization



Before Construction



During Construction

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## Current Collaboration

### Guadalupe River at Capitol AutoMall (2011) – Bank Erosion Stabilization



Before Construction



During Construction

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## Comments on Post Project Surveys

### Thompson Creek at Farnsworth

1. Glad to see the creek was repaired upgraded to prevent erosion from continuing.
2. Keep up the good work, please continue the improvements along more sections of Thompson Creek.
3. Barely noticed they were there. It seemed to be completed quickly.

### Thompson Creek Everdale Bank Repair

1. The workers did a very professional job at the worksite. They answered questions asked of them. The crew cleaned the area during and after the completion of the job.
2. Good job for taking care of the community welfare.
3. I wish to thank all who participated in having this project come to fruition.

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## Framework for Master Agreement

- ▶ Partner for cost-effective infrastructure maintenance
- ▶ Leverage each other's strengths
- ▶ Exchange land rights to provide convenience and community service
- ▶ Couple City Storm Drain Master Plan with District Watershed Hydrologic Model to support water resource management and flood risk reduction

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## Upcoming Major Issues

- ▶ BART Extension Project schedule
- ▶ Corps of Engineers Levee Maintenance Requirements



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## Flood Protection & Shoreline Study

Flood Protection  
& Shoreline Study

Collaborative  
Approach to  
Managing  
Community Assets

Shoreline Study






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## South San Francisco Bay Shoreline Study Participants

**Study Sponsoring Agencies**

▶ United States Army Corps of Engineers	\$104 million
▶ Santa Clara Valley Water District	\$8.5 million
▶ California State Coastal Conservancy	\$1.9 million
▶ Total	\$114.4 million

**Other Key Stakeholders**

- ▶ United States Fish and Wildlife Service
- ▶ City of San José

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## Purpose of Shoreline Study

**Study Purpose:** To determine federal interest in a flood risk management and ecosystem restoration project.

**Reset Purpose:** To determine how to minimize future study costs and duration while identifying options for quickly moving forward with the study and subsequent construction.

**Two Elements:** Flood Protection and Habitat Restoration

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## Background of Shoreline Study

**1992:** Insufficient flood damages to justify federal interest.

**2005:** New Study to consider higher development, sea level rise and restoration potential.

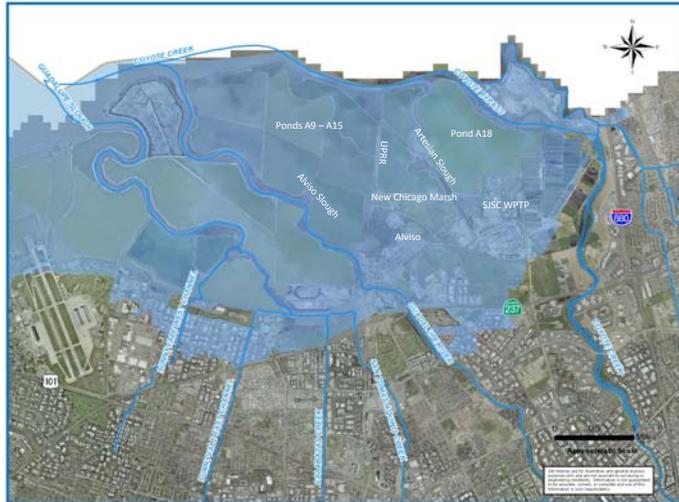
**October 2010:** Corps determines that damages are greater than previously estimated and identifies restoration potential.

**March 2011:** SCVWD Board of Directors directs Corps to focus on North San Jose Area and to expedite study conclusions.

**August 2011:** Array of alternative plans under consideration presented to public.

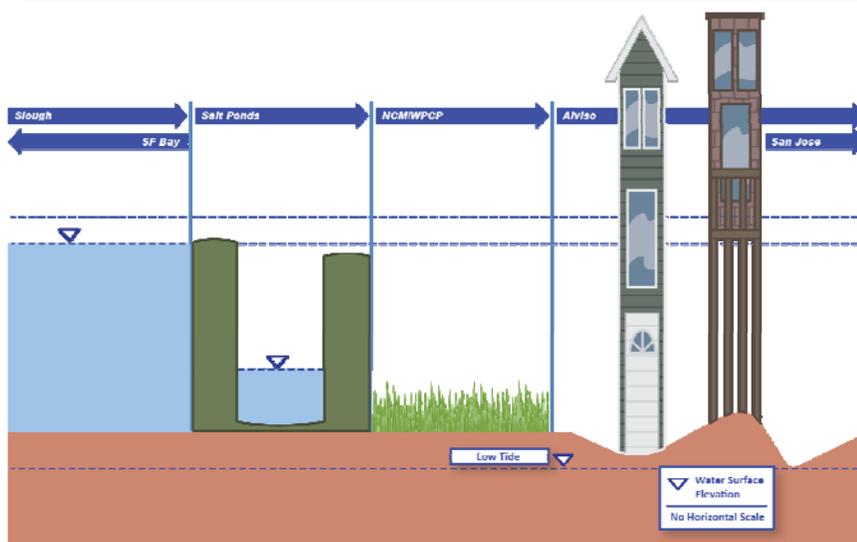
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## Tidal Flooding Limits

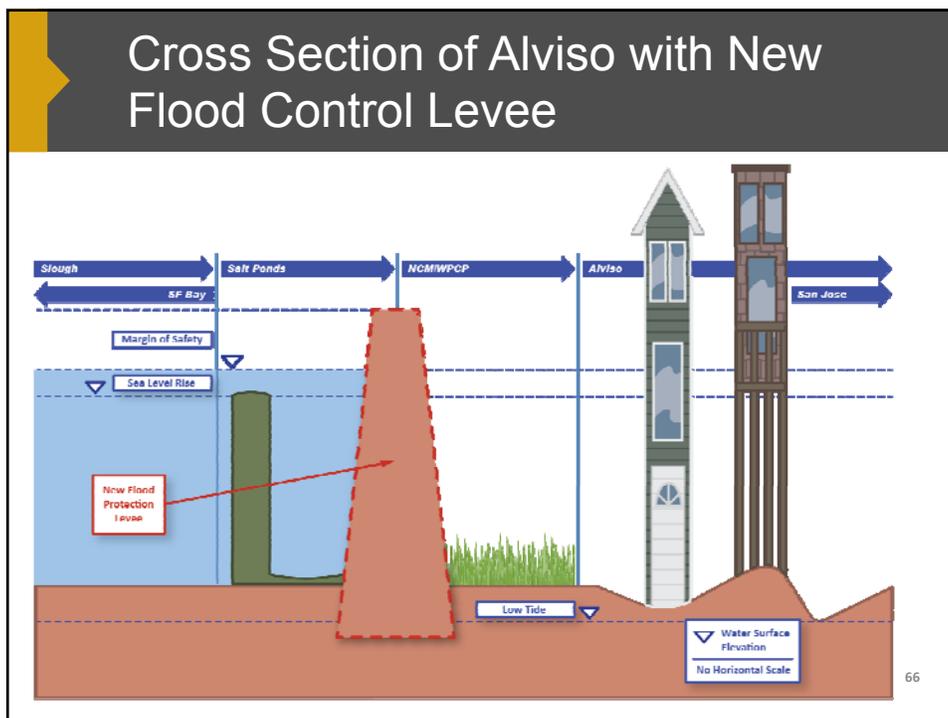
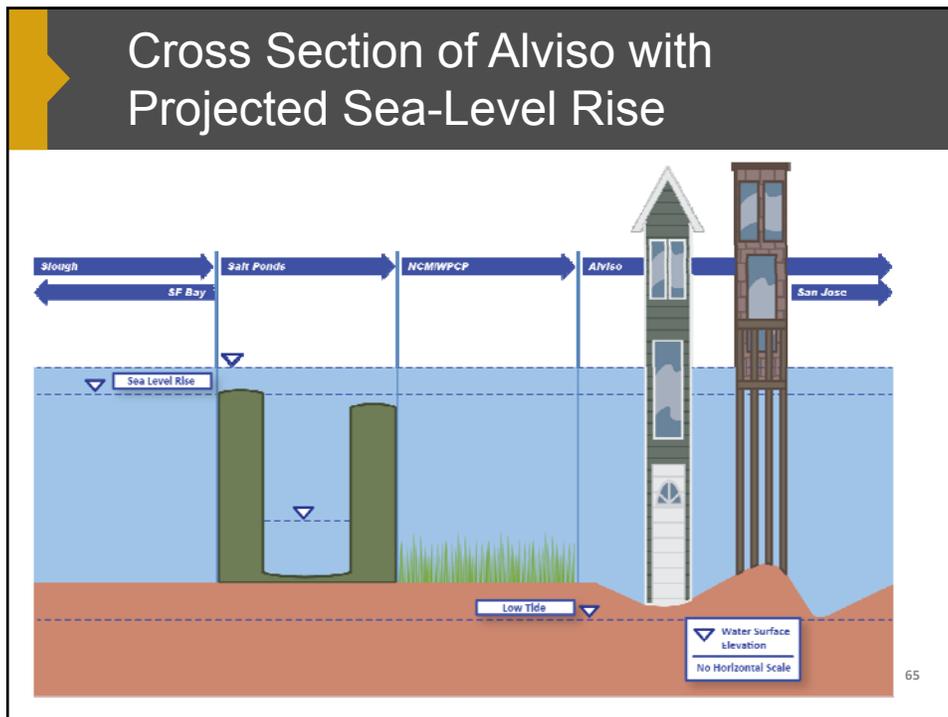


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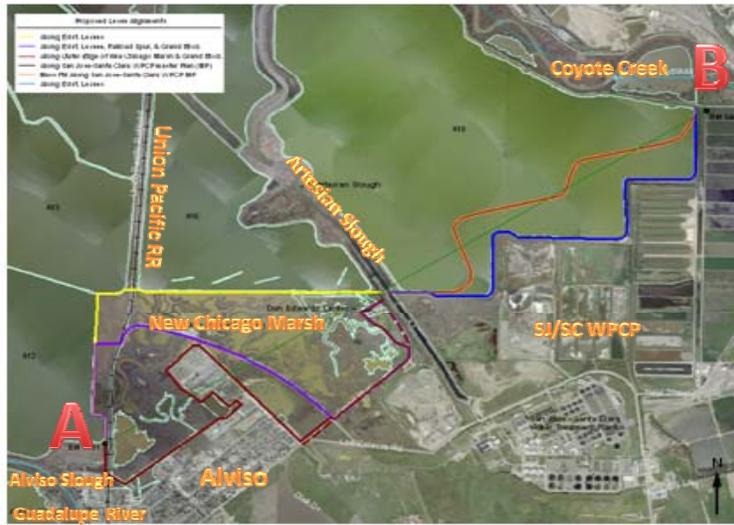
## Cross Section of Alviso at High Tide



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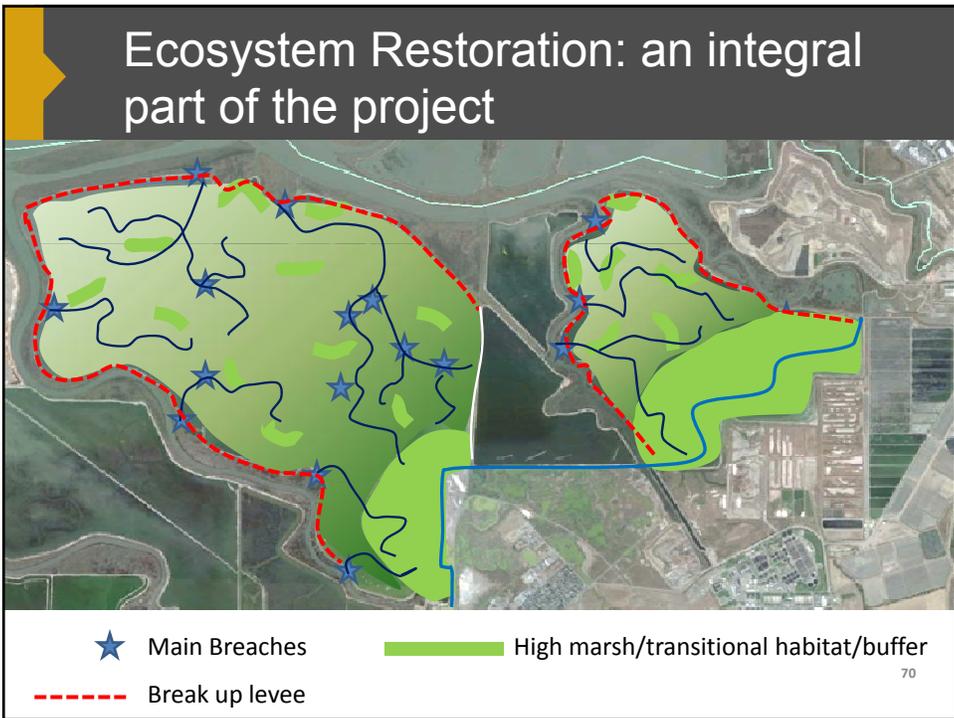
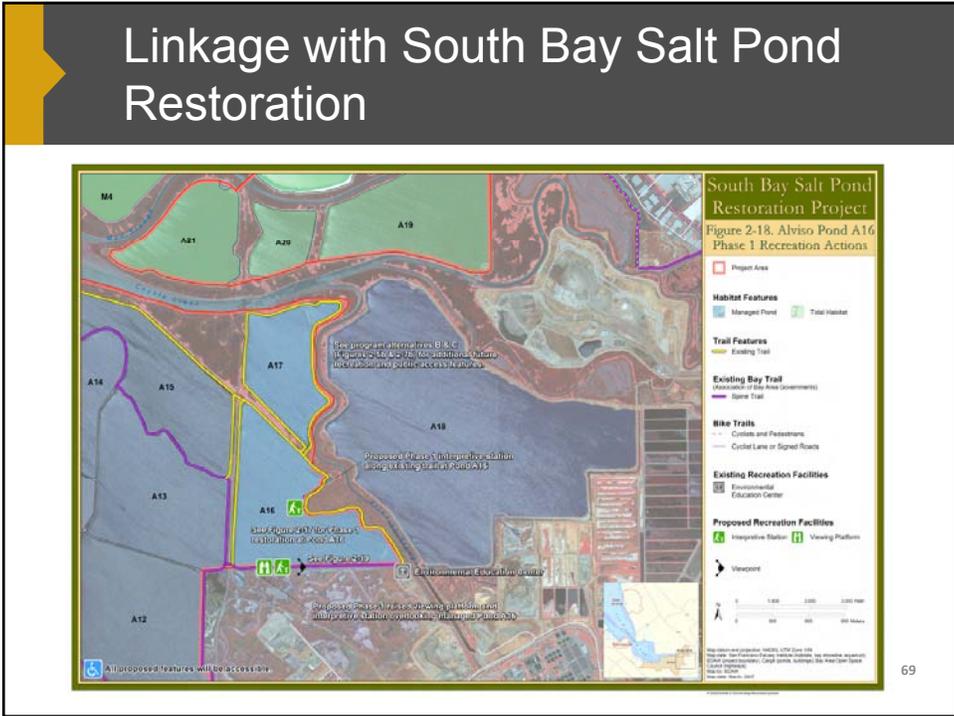


## Alternative Tidal Levee Alignments



## Linkage with Plant Master Plan Proposed Levee Alignment





## Ecosystem Restoration Through Terraced Habitat



## Next Steps and Future Decisions

1. Alternatives Refined - October 2011
2. Hydrodynamic Analysis - February 2012
3. Economic Analysis - March 2012
4. Environmental Analysis - April 2012
5. **Feasibility Decision - June 2012**
6. **Draft Report to HQ - November 2012**
7. Chief's Report to Congress - December 2013
8. Congressional Authorization - TBD
9. Congressional Appropriations - TBD
10. Construction Start - TBD

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# Ecological Monitoring & Assessment Framework

**Ecological Monitoring & Assessment Framework**

**A Framework for Assessing Stream Condition**






## Common Goals

City of San José	Santa Clara Valley Water District
Preserve, protect, and restore riparian resources in an environmentally responsible Manner	Healthy creek, bay and other aquatic ecosystems
Minimize adverse effects of urbanization on natural lands adjacent to developed areas	Clean, safe water in creeks and bays
Minimize the adverse effects on ground and surface water quality and protect property and natural resources from stormwater runoff	Improved quality of life in Santa Clara County through trails, open space and water resources management

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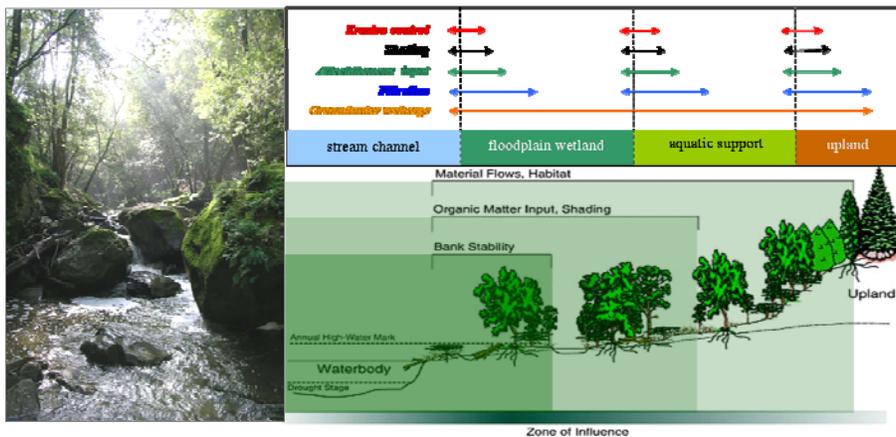
## Stewardship Activities

### Healthy creek, bay and other aquatic ecosystems

- Habitat mitigation and enhancement
- Mitigation monitoring
- Invasive species management
- Re-vegetation mitigation maintenance
- Watershed property vegetation control
- Watershed erosion protection
- District urban runoff program (NPDES permit)
- Creek clean ups
- Ecological monitoring and assessment

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## Healthy Watersheds – Healthy Streams



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## 1-2-3 Framework

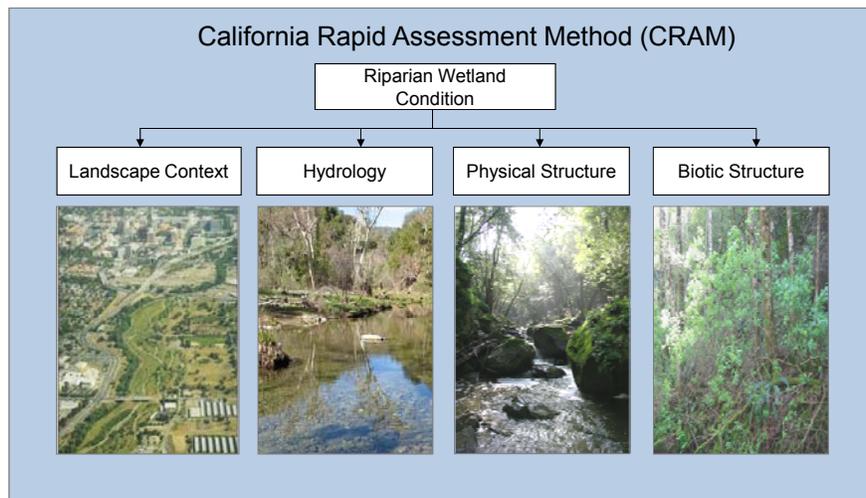


### Common framework to assess and communicate stream health

- Scientifically-vetted approach
- Linked to state and national efforts
- 3-tiered framework guides data collection most cost-effectively
- Management question-driven to tie data collection to needed decision outcomes
- Comprehensive picture of stream condition
- Risk-based assessment of stream condition to inform investment decisions to improve condition

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## Measuring Overall Stream Condition



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## Stream Score Examples



**95**



**70**



**15**



**75**

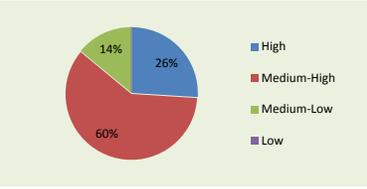


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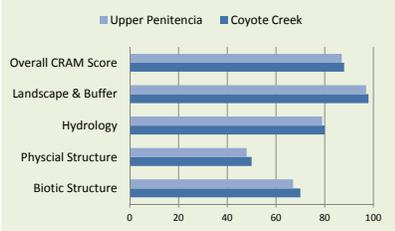
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## Coyote Stream Conditions

- ▶ Of 2,830 miles of stream, District owns 76 miles (<3%)
- ▶ Ecological Services Index: 75
- ▶ 86% of stream miles in high or medium-high condition
- ▶ No stream miles in low condition category

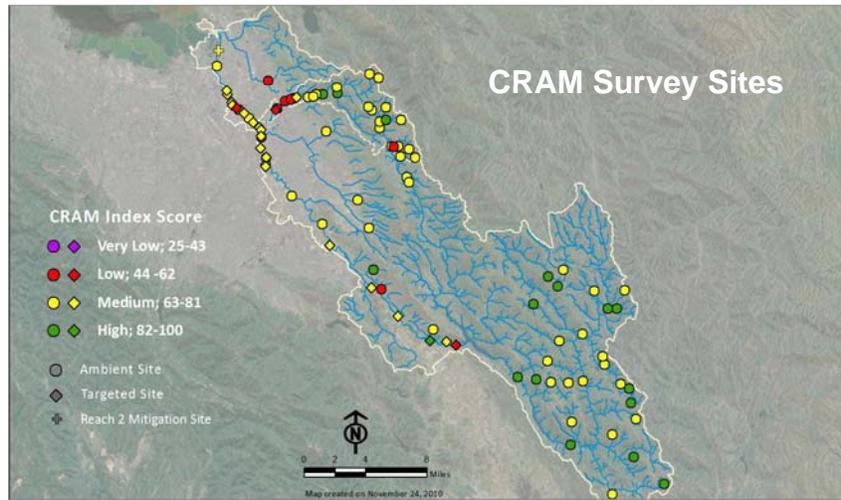


- ▶ Attributes of stream condition scored moderately high, except physical structure
- ▶ Lowest scores: Middle reaches Mid-Coyote, adjacent development, poor hydrology condition, invasive plant species.
- ▶ Highest scores: urban transition zone, development risk



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## Coyote Stream Conditions



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## Actions Needed to Protect Streams in the Coyote Creek Watershed

ACTIONS NEEDED	WHO NEEDS TO DO IT?		
	SCVWD	Municipal	Other
Alter management of impoundments -- flushing of aggraded sediment	✓		
Flood Protection Projects: Mid-Coyote -- increasing gradient and floodplain connectivity. Upper Penitencia Creek -- enhance physical structure. Lower Silver--address high turbidity Lake Cunningham-- restore riparian and wetland areas	✓		
Maintain existing urban growth boundaries.		✓	
Implement and enforce riparian and wetland protection policies and ordinances		✓	
Urban development plans and land management actions: provide opportunities to enhance wetland and riparian areas and achieve flood control and water supply objectives.		✓	
Ranchland best management practices to prevent livestock over grazing			✓

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## Next Steps

### Assess Streams in the Guadalupe River Watershed

Refine approach

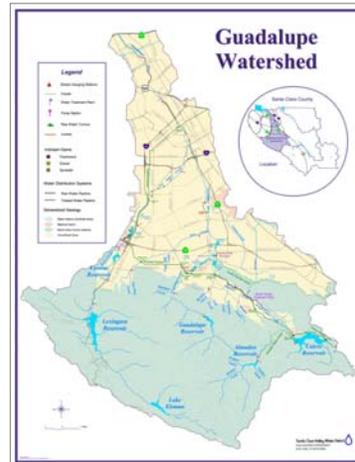
Planning initiated in August 2011

Field work begins in June/July 2012

Assessment Report March 2013

### Develop & Implement Integration Strategy

### Stakeholder Outreach



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## How San José may use the Framework

### Align with other monitoring

Stormwater Program and Permit Monitoring on Guadalupe

- ▶ Stressors Study related to fish kills
- ▶ Status Monitoring
- ▶ Long Term Trends Monitoring

### Inform other monitoring

- ▶ Bay monitoring by Regional Monitoring Program
- ▶ Pump Station discharge monitoring
- ▶ Construction General Permit monitoring
- ▶ Citizen Monitoring



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## How San José may use the Framework

### Inform Storm Sewer Master Plan

- ▶ Pump station design and operations
- ▶ Outfall rehabilitation and design
- ▶ Stormwater treatment and detention (regional facilities) to support targeted improvements



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## How San José may use the Framework

### Support Policy Implementation

Provide further context for basis of policies  
 Demonstrate long term results of policy implementation

- ▶ Stormwater treatment requirements
- ▶ General Plan Update

### Influence Riparian Corridor Policy

From the General Plan Update:

ER-2.6 Develop a City Council Policy based on the City's Riparian Corridor Policy Study and HCP/NCCP to successfully implement the riparian goals and policies of this GP, which recognizes that a 100-foot setback is the standard to be achieved in all but a limited number of instances, where no significant environmental impacts would occur.



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## Next Steps for the Framework

Santa Clara Valley Water District	City of San José
Assess streams in Guadalupe Watershed	Align with other monitoring
Develop and implement integration strategy	Inform storm system planning
Stakeholder outreach	Validate policy implementation over time

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## Trail Development

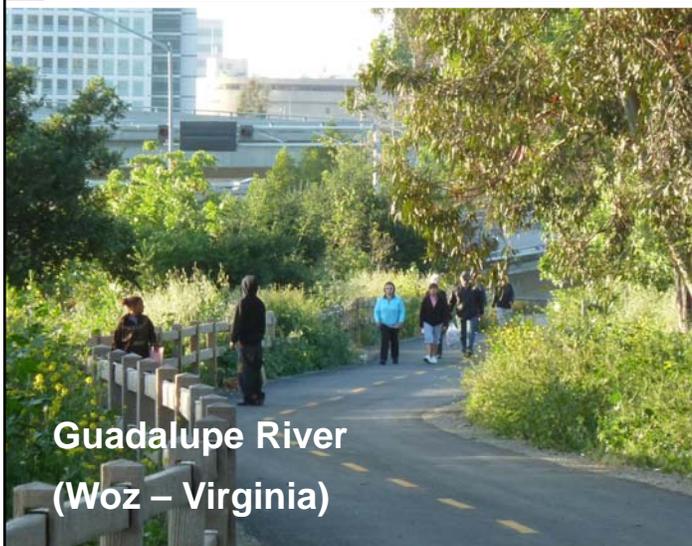
**Trail Development**

Trail Development Accomplishments and Current Collaborative Action Plan Projects





## Joint Projects



Guadalupe River  
(Woz – Virginia)



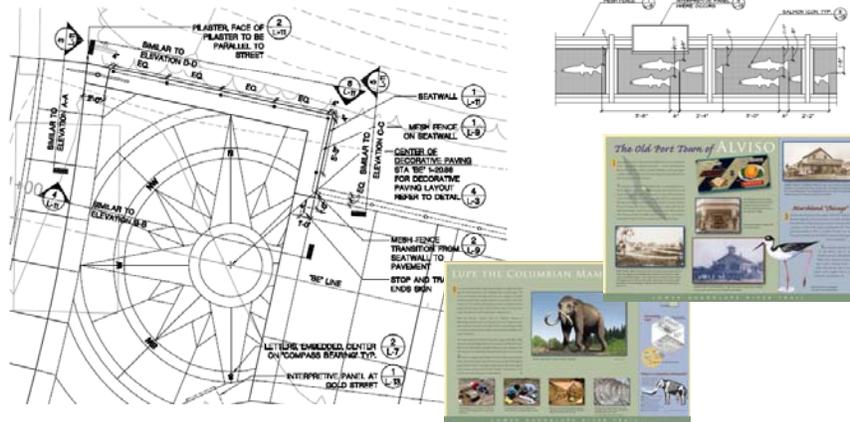
## Trails: Multi-Use Facilities



Trail Count



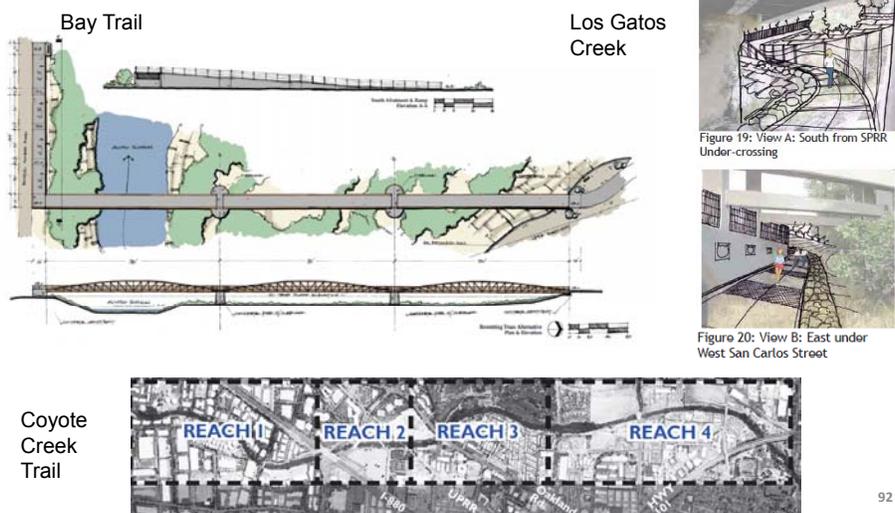
# Current efforts



## Lower Guadalupe River Trail

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# Current efforts



Coyote Creek Trail



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## Working Through Partnerships/Leveraging Resources

November 14, 2011

Water Supply & Infrastructure Reliability



Flood Protection & Shoreline Study



Ecological Monitoring and Assessment Framework



Trail Development



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