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Santa Clara River (SCR-3) Levee System

Wednesday, June 4, 2014

Public Pre-Scoping Meeting on SCR-3
Levee Rehabilitation Public Safety Project

June 4, 2014



Presenters

Tully Clifford, WPD Director

Gerard Kapuscik, Manager, Strategic Decision Support Group and Levee Certification Program

Peter Sheydayi, Deputy Director, Design and Construction Division

John McCarthy, Vice President, RBF Consulting

Jon Davidson, Vice President, Aspen Environmental Group





Meeting Outline

- *Introductions – Tully Clifford*
- *Background – Tully Clifford*
- *Project History – Gerard Kapuscik*
- *Project Need – Peter Sheydayi*
- *Alternatives Analysis – John McCarthy*
- *Environmental Process – Jon Davidson*
- *Project Financing – Gerard Kapuscik*
- *Major Next Steps – Gerard Kapuscik*
- *Questions – Tully Clifford*





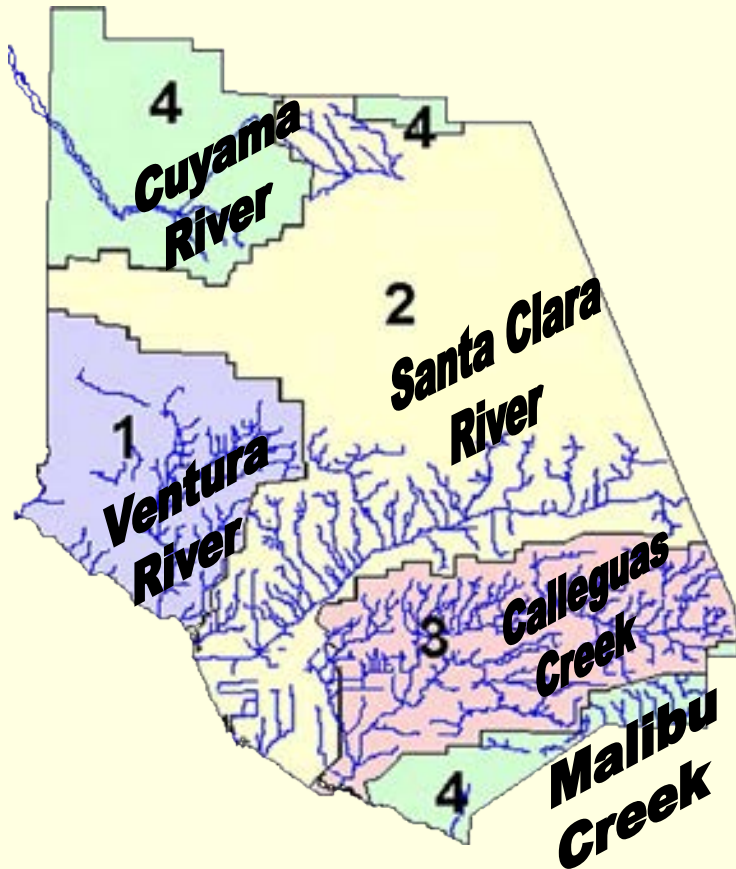
District Mission Statement



To protect life, property, watercourses, watersheds and public infrastructure from the dangers and damages associated with floods and stormwaters.



District Overview: Watersheds and Zones



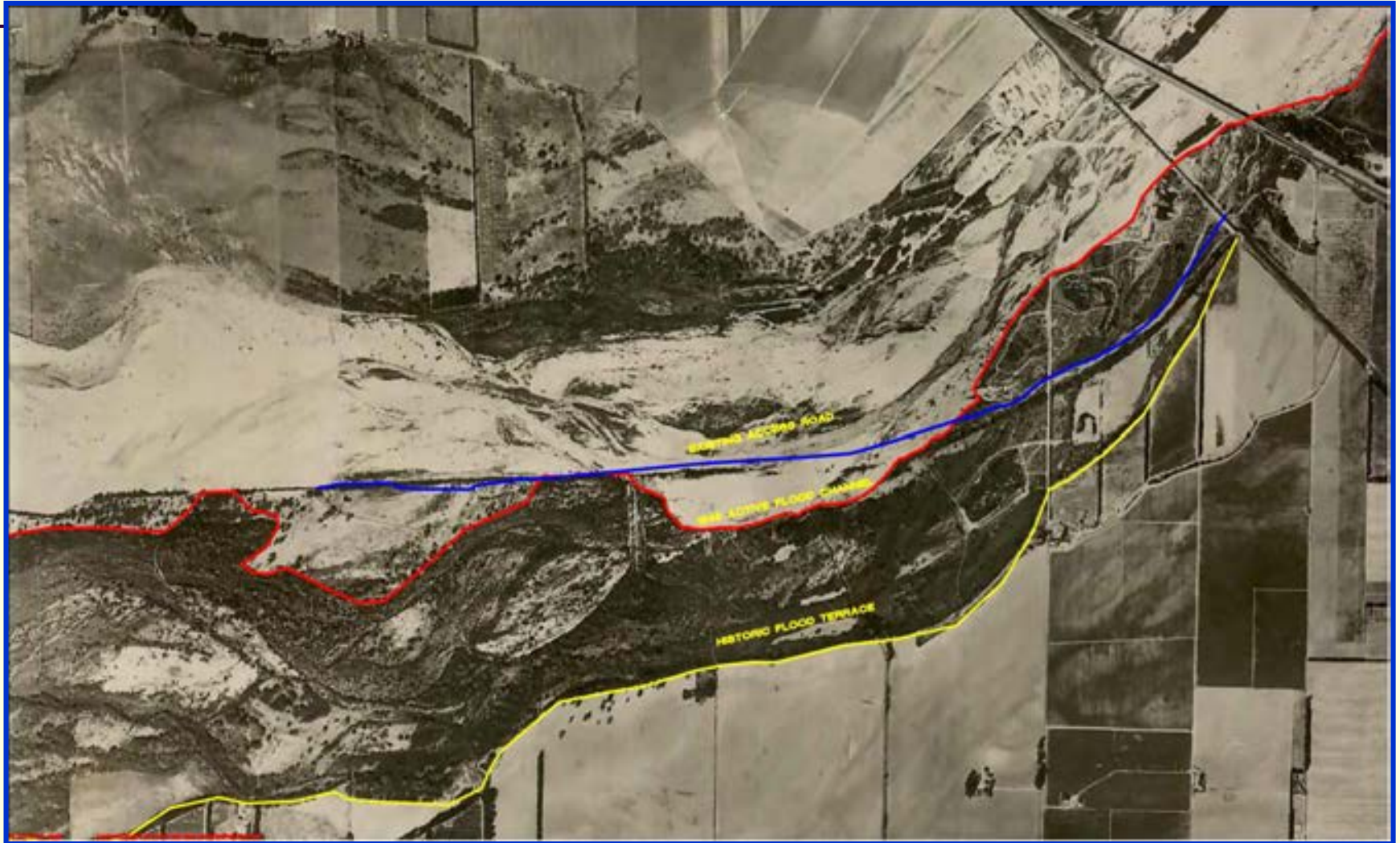
- Created by the State Legislature in 1944 (Ventura County Flood Control Act)
- Area: 1800 Square Miles
- Four Zones
- Three Major Watersheds
 - Calleguas Creek
 - Santa Clara River
 - Ventura River
- Includes 10 Cities and the County Unincorporated Areas
- Dependent Special District governed by the Board of Supervisors





SCR River Profiles: 1945

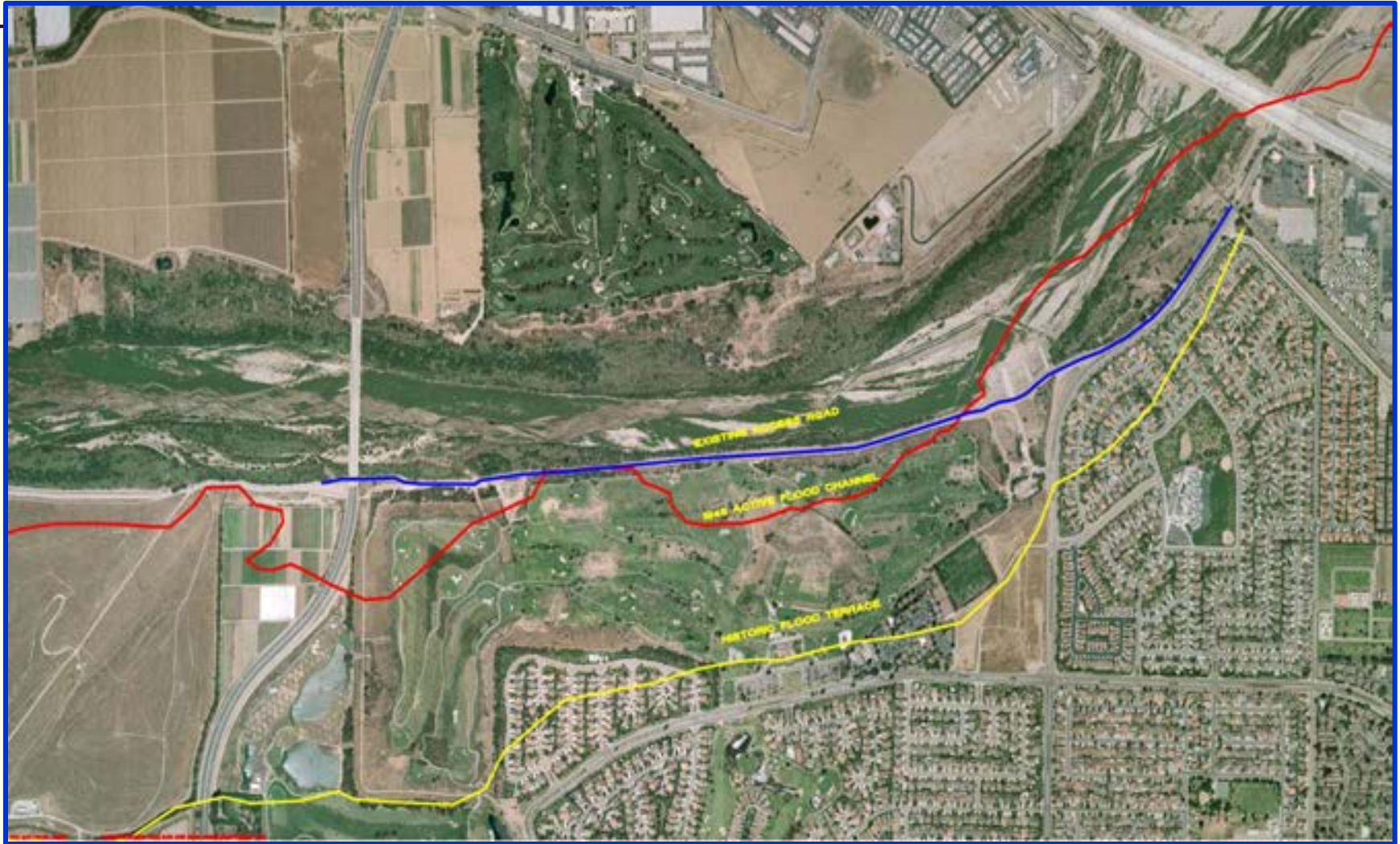
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SCR River Profiles: 1945 vs. 2007

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Santa Clara River Flooding 1969

View from Union Pacific Railroad Bridge

Looking S/SE towards Oxnard, Hwy 101 Bridge on the Left

Picture taken at **PEAK STORM FLOW of 165,000 cfs** (cubic feet per second)

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SCR-3 Flood Damage History and Repairs



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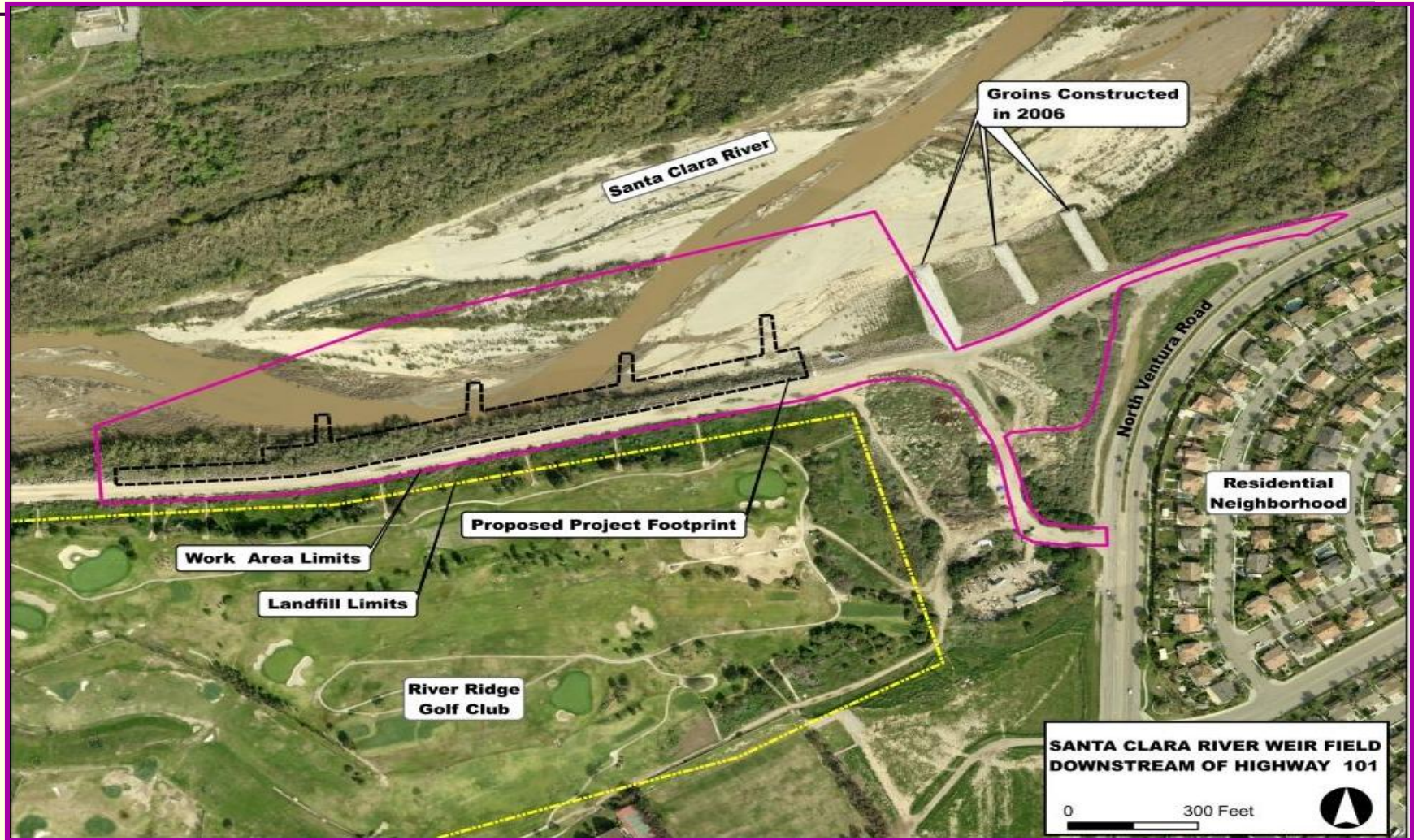
Year	Flow (cfs)	Damages	Repairs
1978	102,200	Bank erosion	½-ton rock slope protection
1980	81,400	Bank scour	Toe repair & add two 2-ton rock groins in 1982
1983	100,000	Bank and toe scour	Repair scour damage and protect with ½-ton rock
1992	104,000	None documented	Construct 6 additional 2-ton rock groins
1998	84,000	Loss of 80% of 5 rock groins	Initiate design to repair damaged groins
2005	136,000	Additional groin loss	<u>2006</u> : Construct 3 rock groins (emergency project) <u>2012</u> : Construct 4 rock weirs



SCR Weir Field: South Bank Erosion Protection



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SCR-3 Levee Improvement Project: Major Milestones Completed

- **2006:** FEMA Issued Guidelines for Provisionally Accredited Levees VCWPD **begins** Levee Certification Evaluation Work for SCR-3 Levee
- **2007:** VCWPD submitted request to FEMA to **provisionally accredit** SCR-3 Levee System, along with 14-other levees
- **2008:** FEMA issues Preliminary DFIRM **without BFEs** placing thousands of properties in North Oxnard into Zone “A” SFHA
- **2009:** SCR-3 Levee System could not be certified as 44 CFR 65.10 compliant **primarily** due to 2500’ gap in flood protection D/S of Hwy 101
- **2010:** FEMA issues Letter of Map Revision (LOMR) **deferring** final flood plain delineations for North Oxnard properties **pending** future re-map
- **2010-13:** **Preliminary** engineering, geotechnical, design alternative evaluations and environmental constraint analysis work **undertaken**
- **2012:** VCWPD **awarded** \$5.4 Million State LLAP Grant for SCR-3 Levee
- **2013:** Final Design Engineering and CEQA contracts **awarded** by BofS
- **2014:** Tonight’s Project Design Alternatives and Pre-Scoping Meeting presentation



SCR-3 Levee – Project Need





FEMA De-Accreditation of Levees: Mapping Consequences and Risk Management

No levee can offer *complete* protection ...

- FEMA is *currently evaluating* potential flood risk mapping methodologies for use behind decertified levees.
- In the future, FEMA will develop *new flood maps* to show the flood risk for areas behind the SCR-3 levee.
- When they're completed, flood insurance will be *required* for Federally-backed mortgage-holders in areas behind the SCR-3 levee that are placed in a hazard zone.
- A serious flood *could have* devastating consequences. Take steps now to *protect your home*.
- Visit FEMA's website: www.floodsmart.gov/floodsmart/



SCR-3 Levee – Project Reaches



SCR-3 Levee – Project Major Issues



Reach 4 "Gap" Closure Design Environmental Challenges



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SCR-3 – Alternatives Analysis

Considered:

- *Major Project issues*
- *FEMA requirements (Title 44 CFR Section 65.10)*
- *Technical Studies*
- *Construction Cost*
- *Environmental Permitting*
- *Project Schedule*
- *Risk Factors*





SCR-3 – System Alternatives

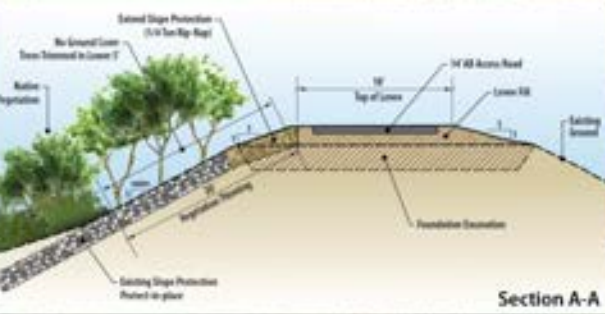
Reaches 1 – 3 Combined

- *3 Alternatives developed*
 - *Alternative I.A – Full levee system*
 - *Alternative I.B – Partial levee system*
 - *Alternative I.C – Limited levee system*

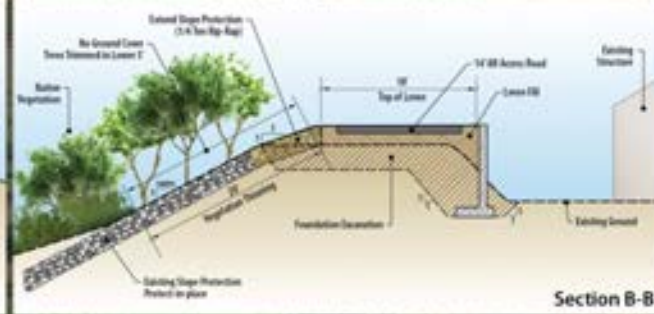
Reach 4

- *4 Alternatives developed*
 - *Alternative II.A – Riverside floodwall*
 - *Alternative II.B – Landside floodwall w / El Rio Drain*
 - *Alternative II.C – Landside floodwall to Hwy 101*
 - *Alternative II.D – Landside floodwall w / Fill*





Section A-A

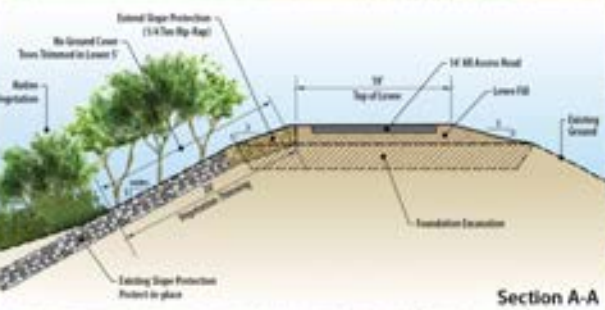


Section B-B



Alternative I.A (Reaches 1-3)





Section A-A

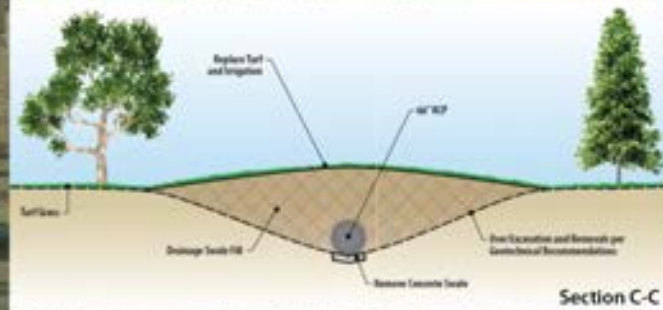
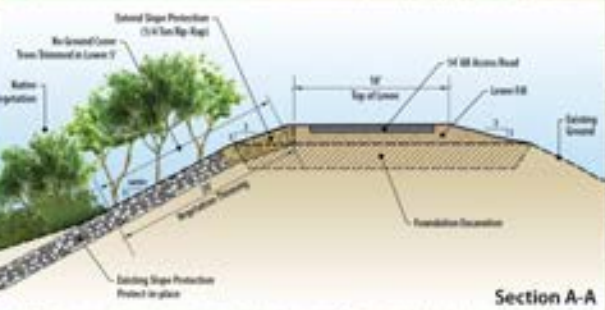


Section B-B



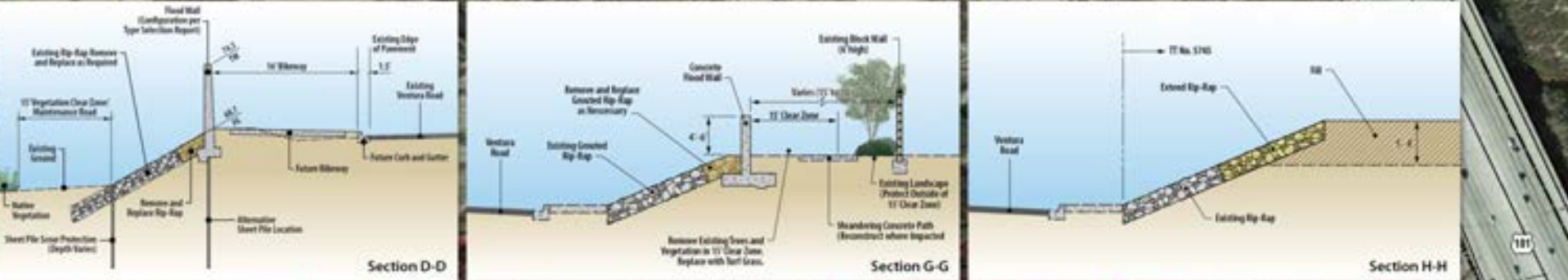
Alternative I.B (Reaches 1-3)





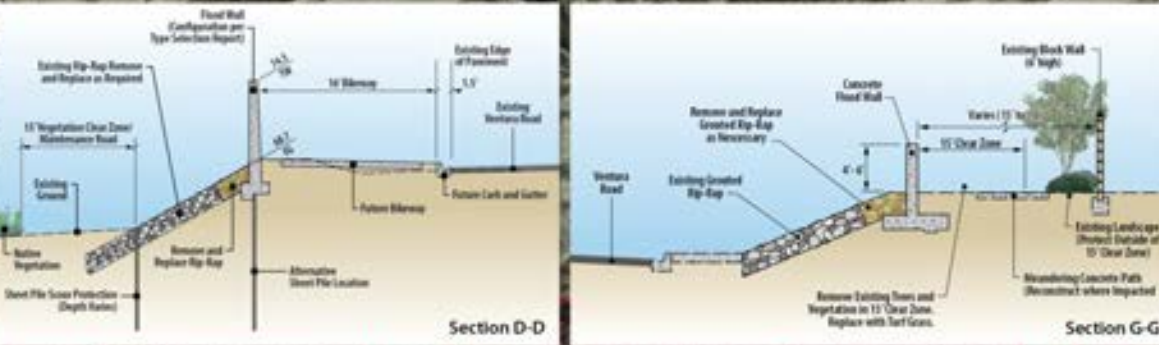
Alternative I.C (Reaches 1-3)





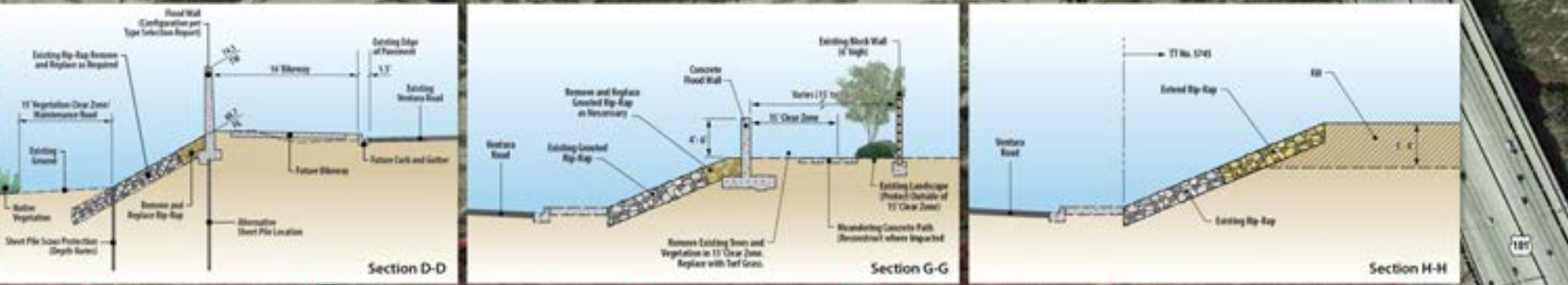
Alternative II.B (Reach 4)





Alternative II.C (Reach 4)





Alternative II.D (Reach 4)



Riverside

Landside

SCR-3 Reach 4: Existing Condition





SCR-3 Reach 4: Alt II.A





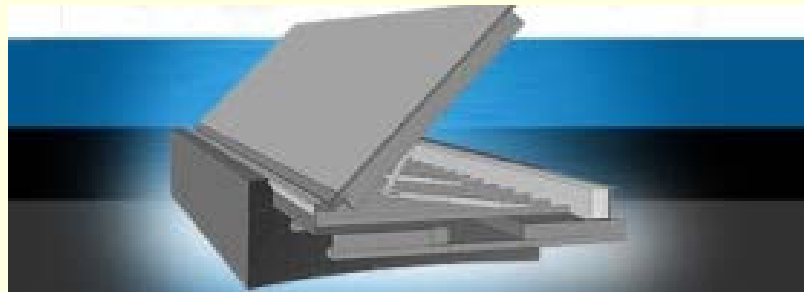
SCR-3 Reach 4: Alt II.B, C, & D





SCR-3 – Reach 4 Flood Gate System

- *Flood gate system necessary for flood protection*
- *Interim or Permanent basis*
- *FloodBreak Gate System recommended*
 - *Passive flood barrier system*
 - *Recessed into Road surface*
 - *Automatic or Manual operation*





SCR-3 – Reach 4 Flood Gate System

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SCR-3 – Reach 4 Flood Gate System

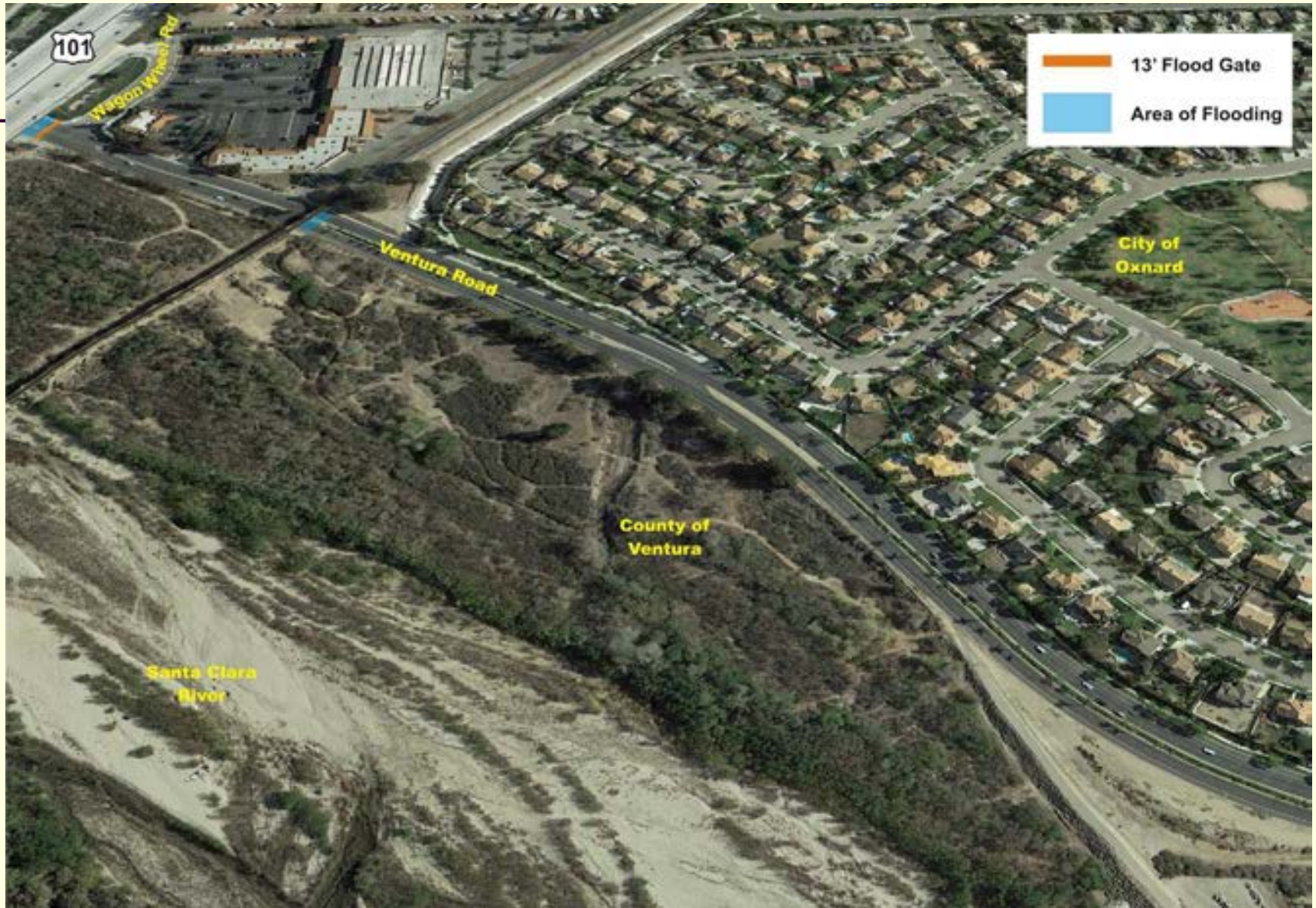
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Alternative II.A Road Impacts



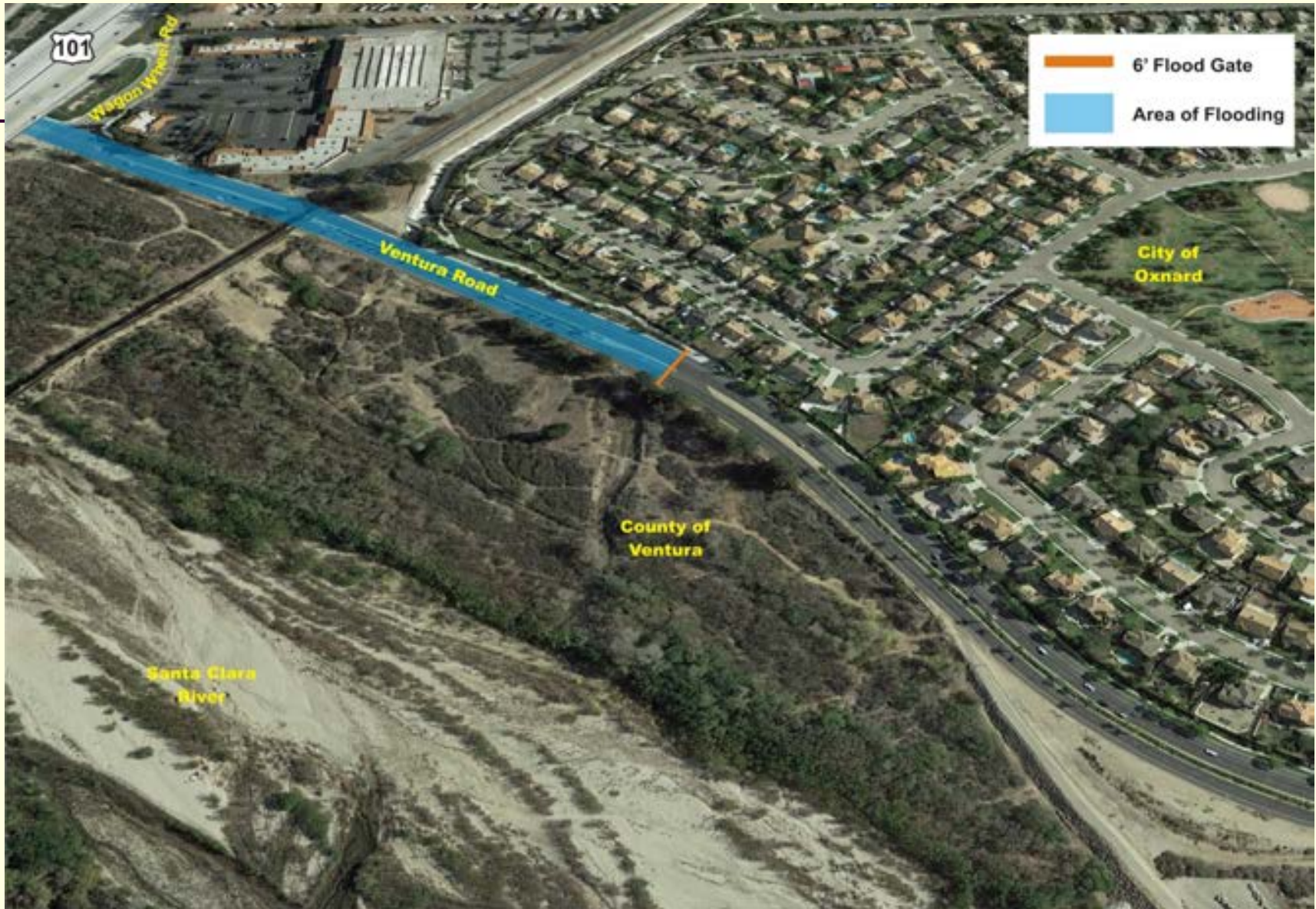
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Alternative II.B, C, D Road Impacts



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SCR-3 – Risk Evaluation & Matrix

Alternative	FEMA Criteria						Street Flooding/Closures	Adherence to Schedule	Permit Requirements	Total Project Cost	Construction Complexity	Robustness & Resiliency	Score
	Freeboard	Closures	Embankment Protection	Stability/Settlement	Interior Drainage	Operations and Maintenance							
Weighting	1	1	1	1	1	1	2	2	3	3	2	3	
Reaches 1-3													
I.A	Low	Low	Medium	Low	Low	Low	Low	Low	Low	High	Low	Low	35
I.B	Medium	High	Medium	Low	Low	Medium	Low	Medium	Low	Medium	Medium	Medium	51
I.C	Medium	Medium	Medium	Low	Low	High	Low	Medium	Low	Low	Medium	High	51
Reach 4													
II.A	Low	Low	Low	Low	Low	Low	Low	High	High	High	High	Medium	67
II.B	Low	Medium	Low	Low	Low	Low	High	Low	Medium	High	Low	Low	49
II.C	Low	High	Low	Low	Low	Medium	High	Medium	Medium	Medium	Medium	Medium	61
II.D	Low	Medium	Low	Low	Low	Low	High	Low	Medium	Low	Low	Low	37

Alternative		Reach 4			
		II.A	II.B	II.C	II.D
Reach 1-3	I.A	102	84	96	72
	I.B	118	100	112	88
	I.C	118	100	112	88





Environmental Review

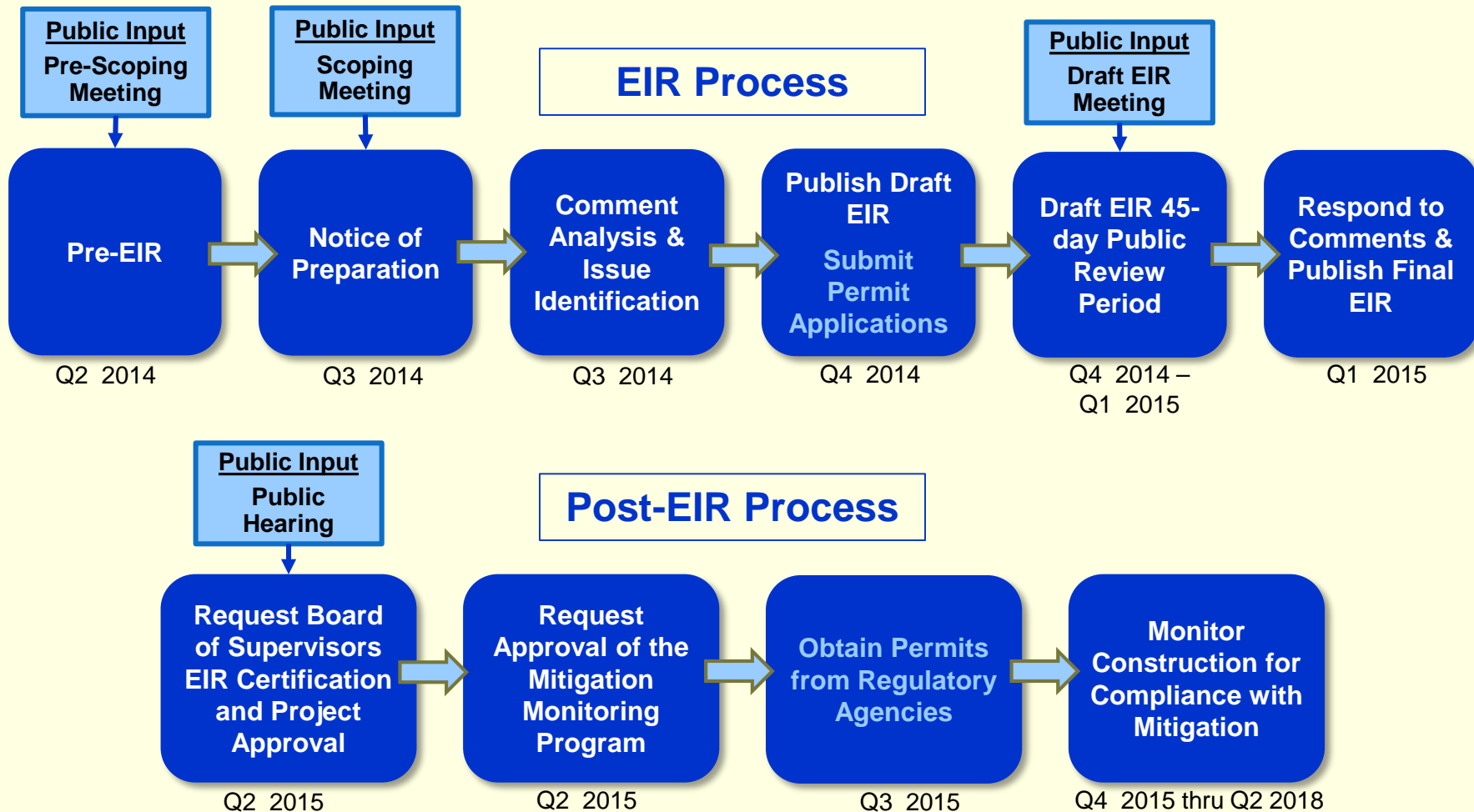
- Purpose of Environmental Review
 - Comply with the California Environmental Quality Act
 - Identify and disclose potential effects on the environment
 - Identify ways to reduce or avoid significant environmental impacts
 - Obtain permits in accordance with federal and State environmental laws








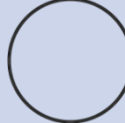


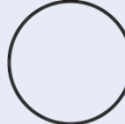









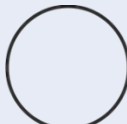




Environmental Review Process

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REACHES 1-3

Potential Impacts:					Alternatives		
		Minor or None	Moderate	Substantial	A	B	C
Air Quality	Air pollutant emissions, including dust, from construction activities						
Biological Resources	Disturbance of sensitive species from construction activities						
	Potential impacts on jurisdictional waters (including golf course swale)						
Recreation	Potential disturbance to golf course during construction						
Traffic & Circulation	Number of construction haul trips (and associated traffic, noise, and air pollution)						
Solid Waste	Excavations to tie levees into closed landfills may expose buried waste						

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SCR-3 Levee Improvement Project: Overall Funding Synopsis



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Project Elements	Range of Project Cost Estimates, Funding Contributions, and Shortfalls Dependent on Design Alternatives Chosen	
	Low	High
Reaches 1 thru 3	\$3,800,000	\$6,000,000
Reach 4	\$9,700,000	\$19,500,000
Reaches 1-4 Total Costs	\$13,500,000	\$25,500,000
VCWPD Zn2 CIP Funds	\$5,800,000	\$5,800,000
State LLAP Grant Award	\$5,400,000	\$5,400,000
Stakeholder Contributions	\$1,700,000	\$5,900,000
Total Available Funding	\$12,900,000	\$17,100,000
Project Funding Shortfall	\$600,000	\$8,400,000



SCR-3 Levee Improvement Project: Current Funding Shortfall



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Project Design Alternatives			Reach 4			
			II.A	II.B	II.C	II.D
Reaches 1-3	I.A	Cost	\$25.5M	\$21.1M	\$20.8M	\$15.7M
		Funding	\$17.1M	\$13.5M	\$15.9M	\$12.9M
		Shortfall	(\$8.4M)	(\$7.6M)	(\$4.9M)	(\$2.8M)
	I.B	Cost	\$25.0M	\$20.6M	\$20.3M	\$15.2M
		Funding	\$17.1M	\$13.5M	\$15.9M	\$12.9M
		Shortfall	(\$7.9M)	(\$7.1M)	(\$4.4M)	(\$2.3M)
	I.C	Cost	\$23.3M	\$18.9M	\$18.6M	\$13.5M
		Funding	\$17.1M	\$13.5M	\$15.9M	\$12.9M
		Shortfall	(\$6.2M)	(\$5.4M)	(\$2.7M)	(\$0.6M)



SCR-3 Levee Improvement Project

Comparative Financing Analysis:

30Yr. Debt Service vs. FEMA Flood Insurance Pmts.



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30 Year Debt Financing Options						
Proj. Cost Debt Fin.	\$8.5M	\$7.5M	\$6.5M	\$5.5M	\$3.5M	\$2.5M
Par Amt. of Bonds	\$8.8M	\$7.8M	\$6.7M	\$5.7M	\$3.6M	\$2.6M
Total Debt. Svc.	\$23.2M	\$20.4M	\$14.9M	\$12.3M	\$9.5M	\$6.8M
Bond Yield Rate	3.85%	3.85%	3.85%	3.85%	3.85%	3.85%
Avg. Ann. Debt Svc.	\$429	\$379	\$278	\$227	\$177	\$126
Ann. Flood Ins. Cost	\$1,958	\$1,958	\$1,958	\$1,958	\$1,958	\$1,958
Ann. Cost. Savings	\$1,529	\$1,579	\$1,680	\$1,731	\$1,781	\$1,832
30-Yr. Cost Savings	\$45,865	\$47,379	\$50,409	\$51,924	\$53,438	\$54,953



SCR-3 – Project Schedule

Alternative	2014				2015				2016				2017				2018 ⁽¹⁾				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Reaches 1-3																					
LA	Design & Construction	[Blue Bar]				[Blue Bar]				[Brown Bar]											
	Environmental/Permitting					[Green Bar]															
LB	Design & Construction	[Blue Bar]				[Blue Bar]				[Brown Bar]											
	Environmental/Permitting					[Green Bar]															
LC	Design & Construction	[Blue Bar]				[Blue Bar]				[Brown Bar]											
	Environmental/Permitting					[Green Bar]															
Reach 4																					
II.A	Design & Construction	[Blue Bar]				[Blue Bar]								[Brown Bar]				[Brown Bar]			
	Environmental/Permitting					[Green Bar]				[Green Bar]											
II.B	Design & Construction	[Blue Bar]				[Blue Bar]								[Brown Bar]				[Brown Bar]			
	Environmental/Permitting					[Green Bar]				[Green Bar]											
II.C	Design & Construction	[Blue Bar]				[Blue Bar]								[Brown Bar]				[Brown Bar]			
	Environmental/Permitting					[Green Bar]				[Green Bar]											
II.D	Design & Construction ⁽²⁾	[Blue Bar]				[Blue Bar]								[Brown Bar]				[Brown Bar]			
	Environmental/Permitting					[Green Bar]				[Green Bar]											

Notes:

- 1. Anticipated early effective date for new Digital Flood Insurance Rate Maps (DFIRMs) - January 2018
- 2. Reach 4 - Alternative D would not provide for an accredited levee system without the Wagon Wheel Improvements





SCR-3 – Project Information Website Resources

- Ventura County Watershed Protection District:
 - www.vcwatershed.com/levee/
- County of Ventura:
 - www.vcfloodinfo.com/
- FEMA:
 - www.floodsmart.gov/floodsmart/





SCR-3 – Contact Information

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SCR-3 Levee – Questions?

