



Compton Creek and Dominguez Channel Flood Risk Mitigation Alternatives Study

ADVISORY COMMITTEE MEETING NO. 3

SEPTEMBER 30, 2013





Introductions

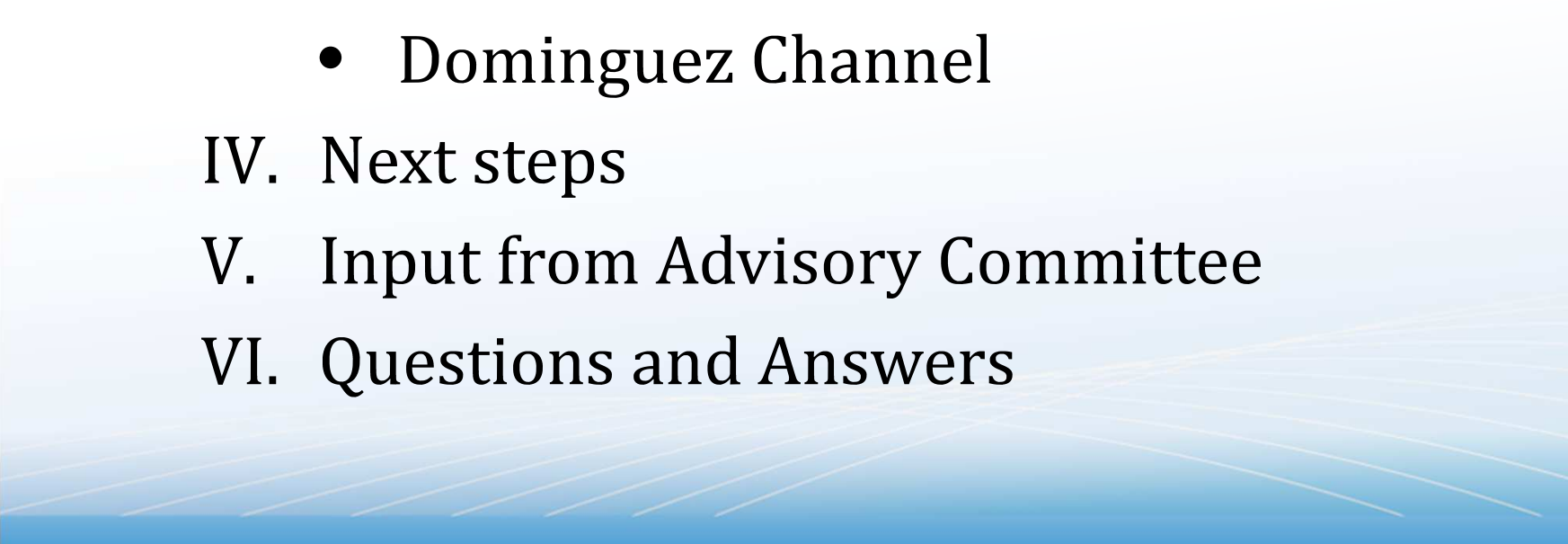
❖ Name

❖ Agency / Group / Organization





Agenda

- I. Background
 - II. Alternative Study Analysis
 - III. Potential Solutions
 - Compton Creek
 - Dominguez Channel
 - IV. Next steps
 - V. Input from Advisory Committee
 - VI. Questions and Answers
- 

I. Background

FEMA Guidelines Update



<http://www.fema.gov/final-levee-analysis-and-mapping-approach>



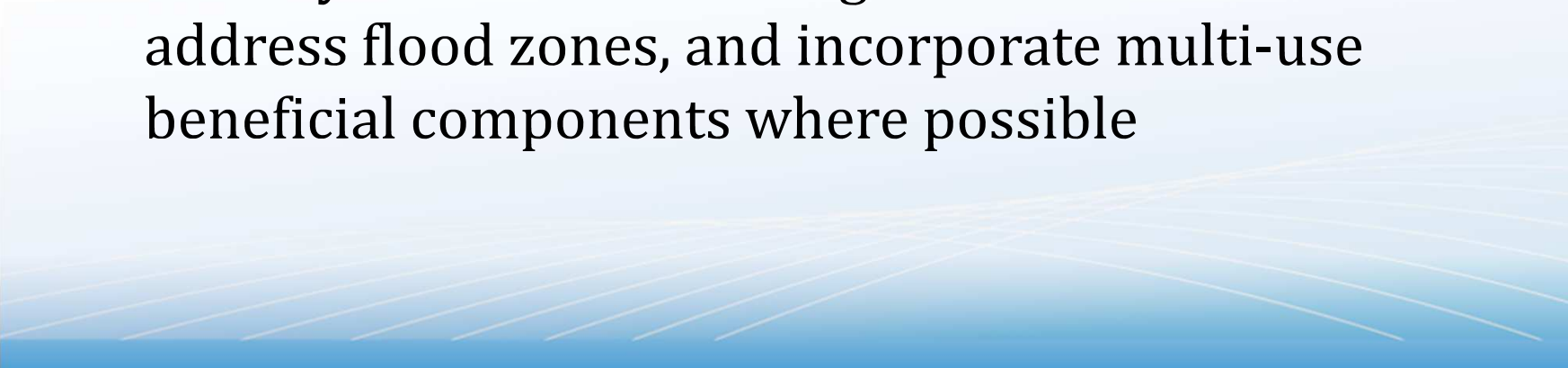
I. Background

Alternatives Study Purpose

PRIMARY OBJECTIVE

- ❖ Identify projects for levees to meet FEMA freeboard requirements

GOAL

- ❖ Identify solutions that mitigate channel deficiencies, address flood zones, and incorporate multi-use beneficial components where possible
- 

I. Background

Potential Losses


Compton Creek	
Estimated Annual Flood Insurance Cost (3,617 Parcels Within the Flood Zone)	\$6.1 Million
Potential Loss (Hazardus)	\$413 Million

Dominguez Channel	
Estimated Annual Flood Insurance Cost (6,773 Parcels Within the Flood Zone)	\$12 Million
Potential Loss (Hazardus)	\$572 Million




I. Background

Alternatives Study Process

1. Adjust Alternatives Study based on FEMA's new levee guidelines
 2. Further develop the Alternatives Study
 - 3. Share Alternative Study Analysis and Draft Potential Solutions with the Advisory Committee**
 4. Share Draft Potential Solutions with the Community
 5. Finalize the Alternatives Study
- 



II. Alternative Study Analysis

- ❖ Summary Table
 - Compilation of alternative study analysis data
 - ❖ Data Used for Optimization of Solutions
 - Construction phasing and constraints
 - Environmental permits and constraints
 - Multi-use opportunities and cost analysis
- 

II. Alternative Study Analysis

Construction Phasing and Constraints

- ❖ Time frame/phasing
- ❖ Utilities
- ❖ Adjacent property uses
- ❖ Traffic/truck routes



II. Alternative Study Analysis

Environmental Permits and Constraints


- ❖ Regulatory permits
- ❖ Environmental impacts
- ❖ Phase I site analysis (site history)





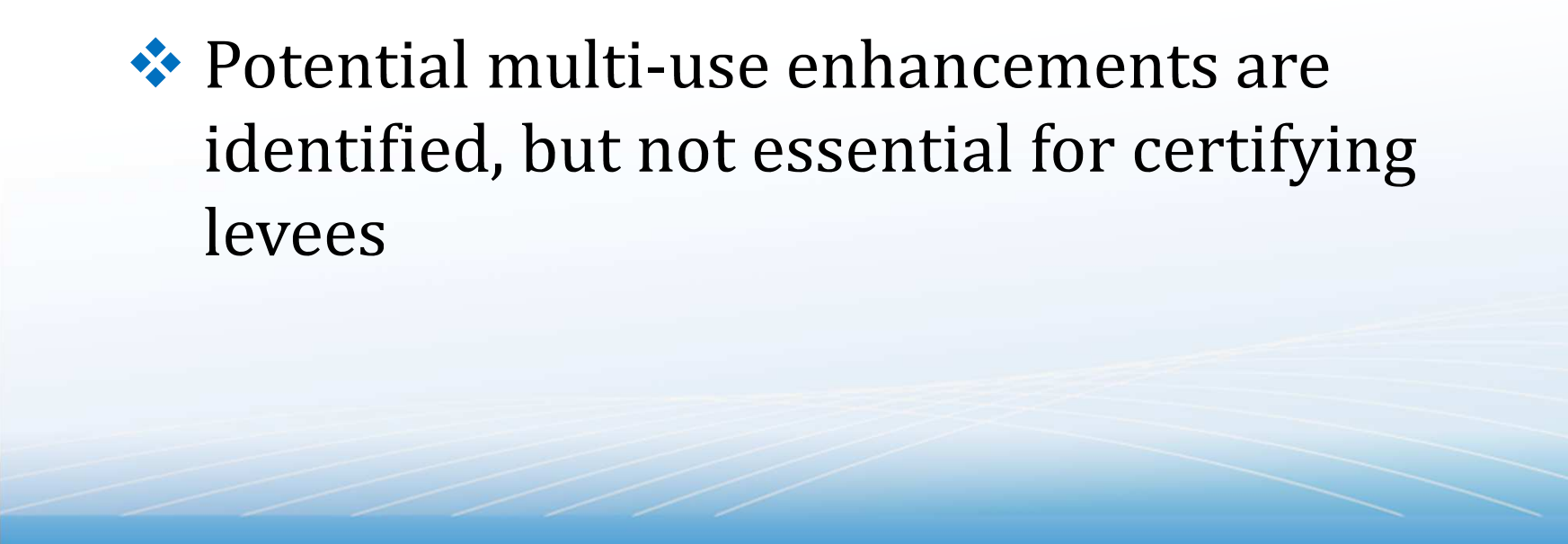
II. Alternative Study Analysis

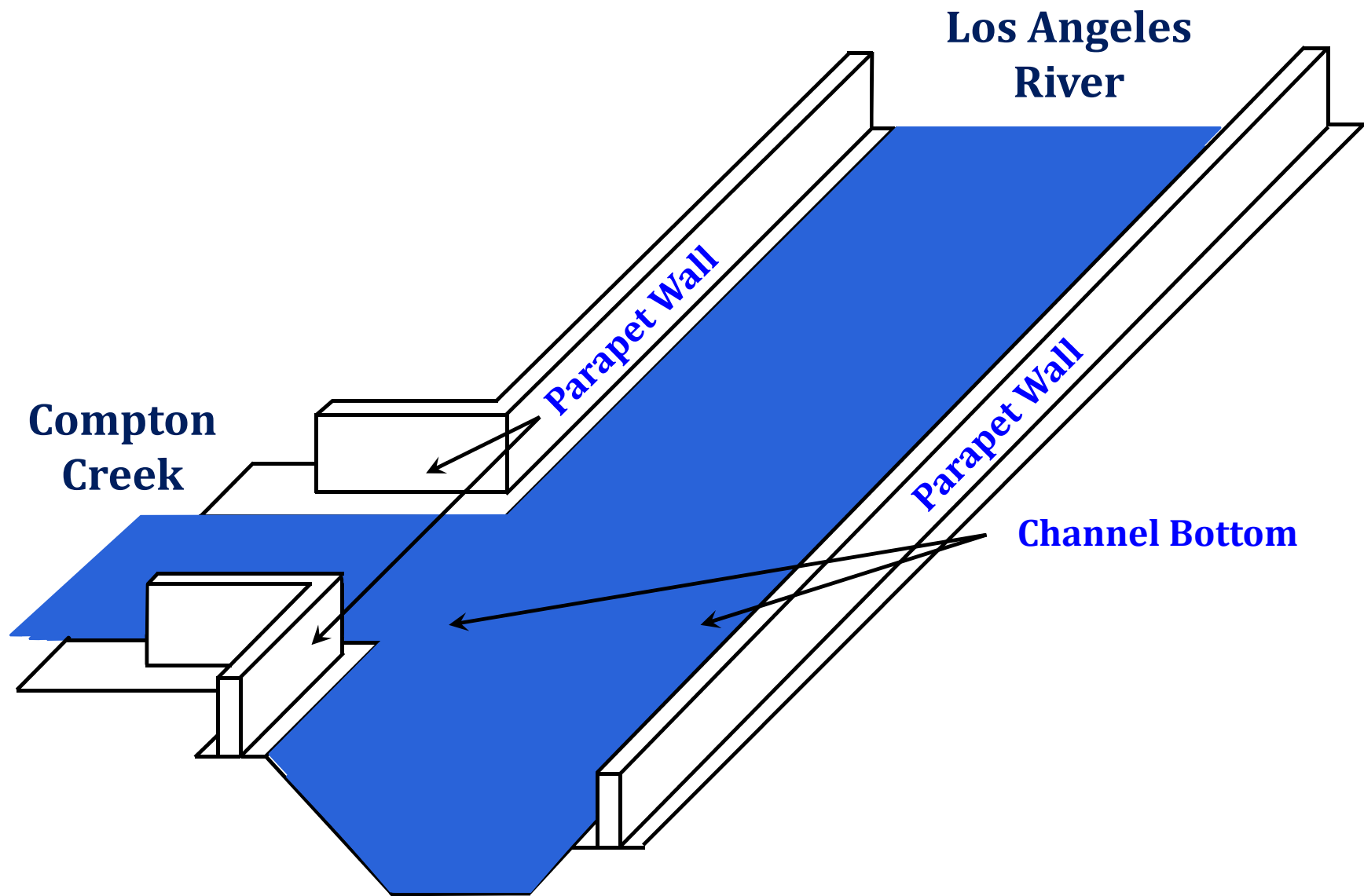
Multi-Use Opportunities and Cost Analysis

- ❖ Potential multi-use opportunities
 - Channel enhancement with multi-use
 - Detention/Retention projects with multi-use
 - ❖ Cost Analysis
 - 'No Project' cost – damages
 - Project cost – improvements
- 

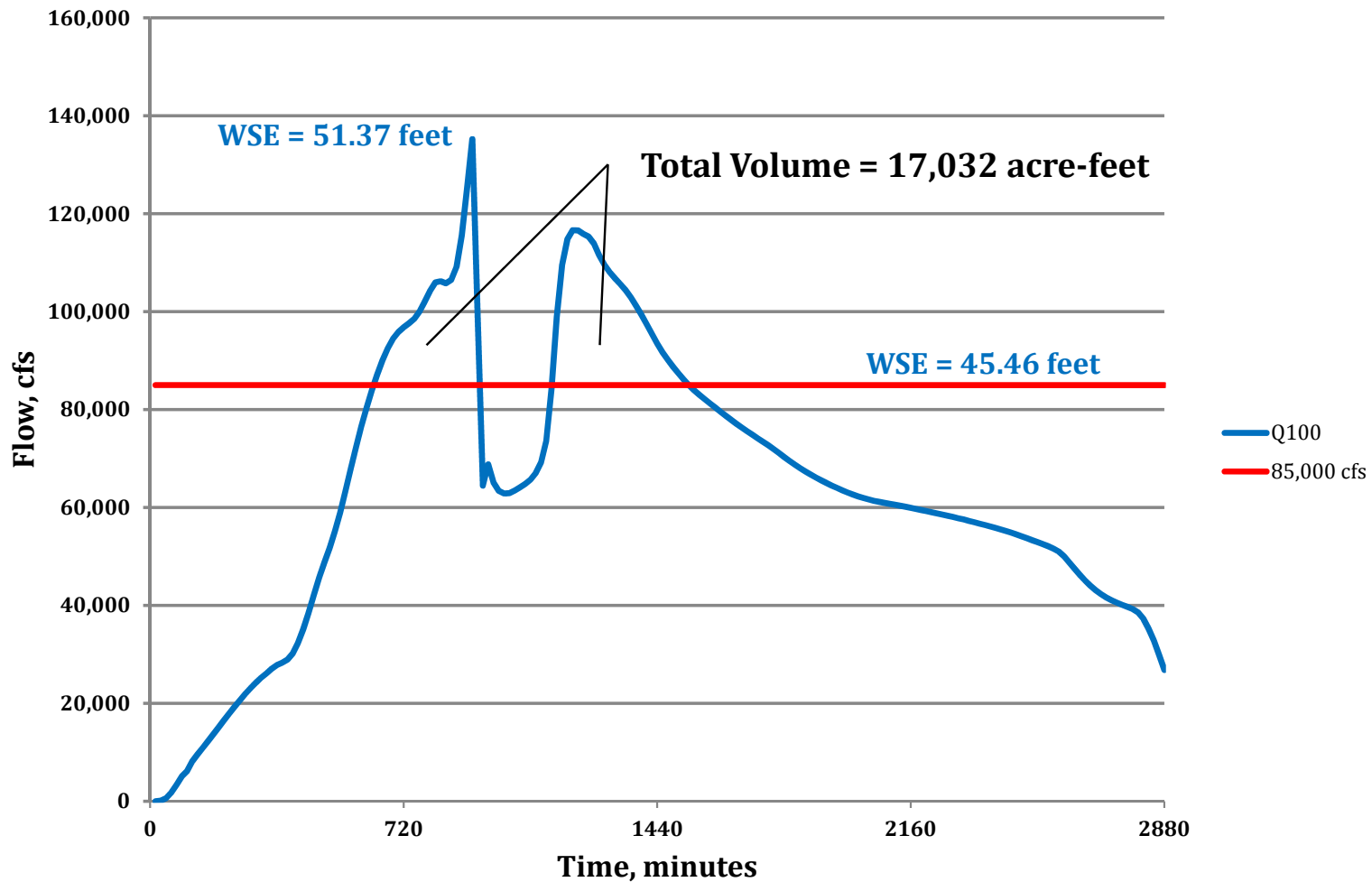


III. Potential Solutions

- ❖ Each Potential Solution meets the FEMA minimum levee freeboard requirements
 - ❖ Potential multi-use enhancements are identified, but not essential for certifying levees
- 



III. Potential Solutions: Compton Creek Flow Mitigation at Los Angeles River





III. Potential Solutions: Compton Creek Flow Mitigation at Los Angeles River

- ❖ Needed storage capacity = 17,032 acre-feet
- ❖ Estimated Cost: \$6.59 billion
- Existing LACFCD spreading grounds facilities = 21,442 acre-feet
 - Rio Hondo Coastal Spreading Grounds
 - Storage capacity = 3,694 acre-feet
 - Area = 570 acres
 - Requires a basin over 4.5x the size of Rio Hondo Coastal Spreading Grounds

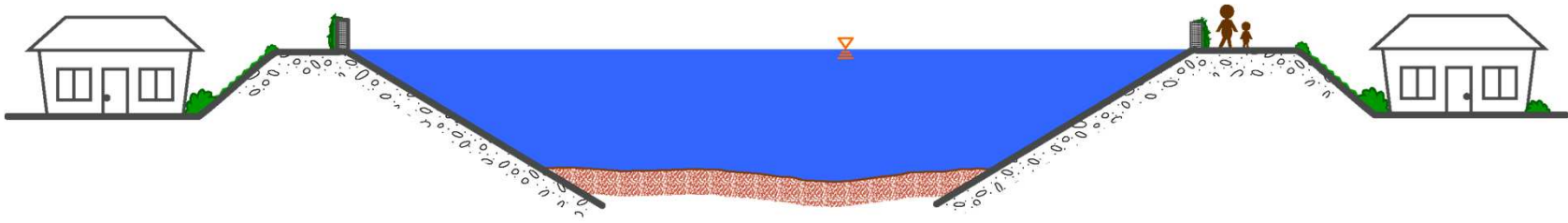
III. Potential Solutions: Compton Creek

Constraint: Downstream Water Surface Elevation at Confluence with the Los Angeles River

- ❖ Parapet Wall
- ❖ Detention/Retention Basins with Parapet Walls
- ❖ Parcel Level Flood Detention with Parapet Walls



III. Potential Solutions: Compton Creek Parapet Walls



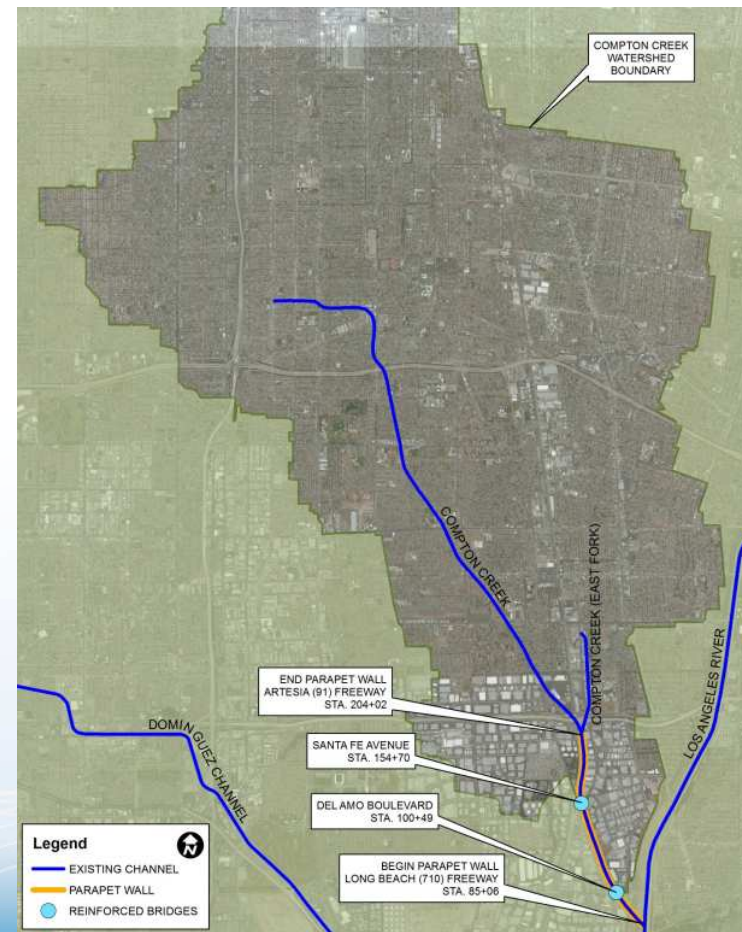
❖ 2-4 foot parapet walls along levee



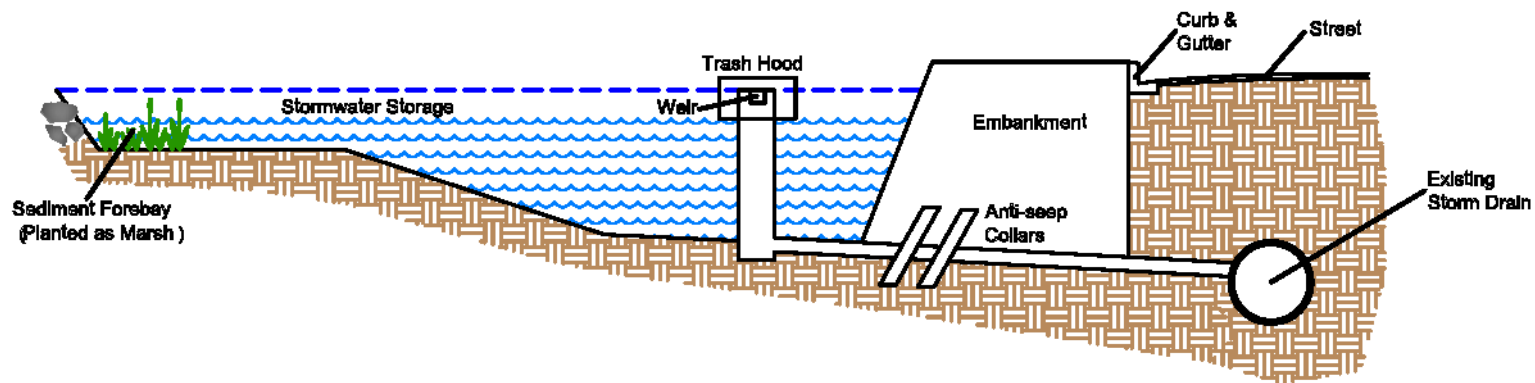
- Walls for freeboard purposes only
- Potential opportunity for multi-use

III. Potential Solutions: Compton Creek Parapet Walls

- ❖ 2.4 miles of channel improvements
- ❖ Implementation Time: 5-6 years
- ❖ Estimated Cost: \$32.4 million



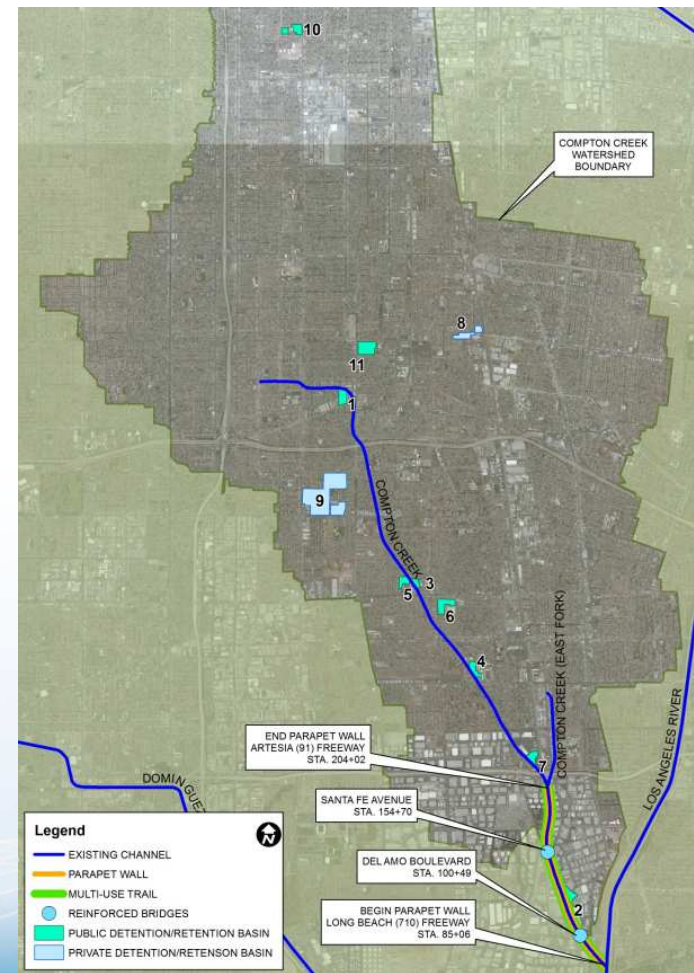
III. Potential Solutions: Compton Creek Detention/Retention Basins with Parapet Walls



- ❖ 11 project sites
 - Reduce 100-year peak channel flow by 4,430 cfs
 - Provide opportunities for multi-use benefits
- ❖ 2-3 parapet walls along levee

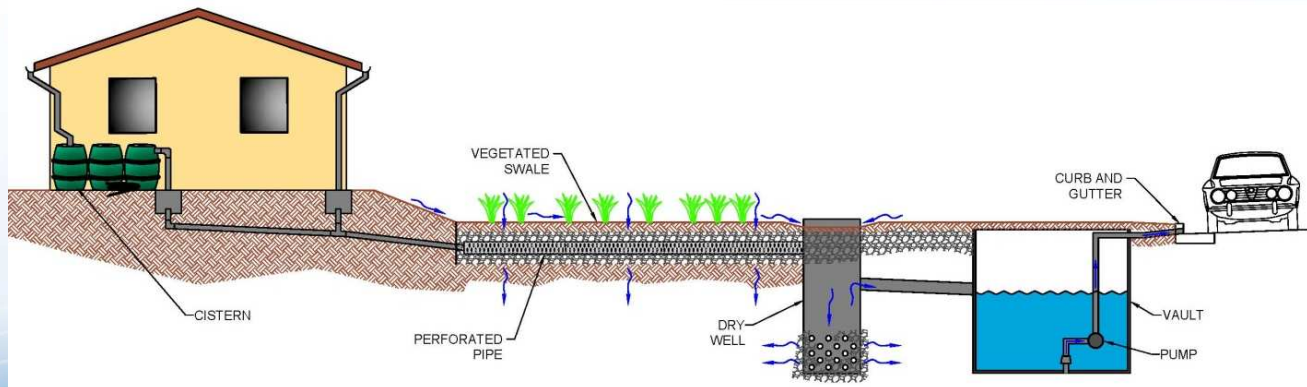
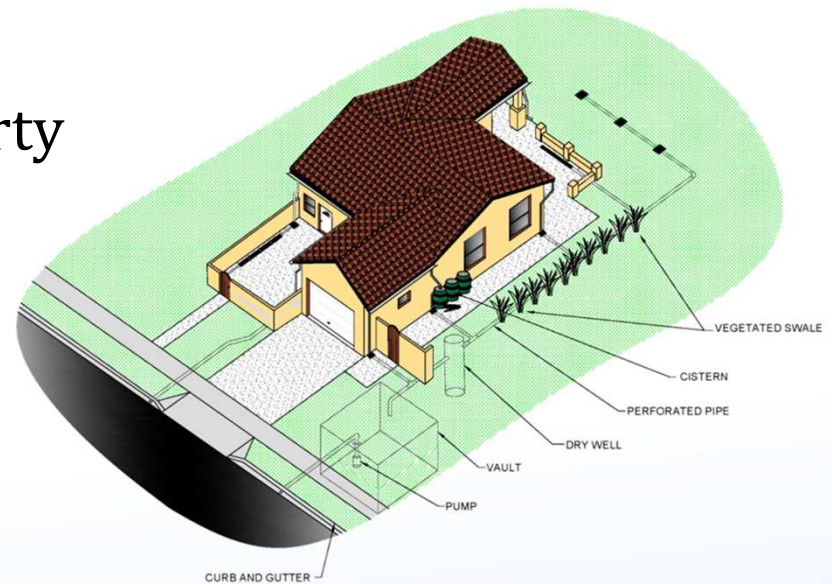
III. Potential Solutions: Compton Creek Detention/Retention Basins with Parapet Walls

- ❖ 11 basin sites
- ❖ 2.4 miles of channel improvements
- ❖ Implementation Time:
8-10 years
- ❖ Estimated Cost:
\$400 million
 - Basins Cost: \$370 million
 - Parapet Walls Cost: \$30 million



III. Potential Solutions: Compton Creek Parcel Level Flood Detention with Parapet Walls

- ❖ PLFD installed on each property
 - Reduce 100-year peak channel flow by 4,430 cfs
 - Runoff detained onsite
- ❖ 2-3 parapet walls along levee



III. Potential Solutions: Compton Creek Parcel Level Flood Detention with Parapet Walls


- ❖ PLFD on every parcel
- ❖ 2.4 miles of channel improvements
- ❖ Implementation Time: Unknown
- ❖ Estimated Cost:
 - \$4.698 billion
 - PLFD Cost: \$4.668 billion
 - Parapet Walls Cost: \$30 million





III. Potential Solutions: Compton Creek

Other Solutions Considered and Investigated

- ❖ Channel Geometry
 - ❖ Dams
 - ❖ Relief Drains
 - ❖ Wetlands
- 

III. Potential Solutions: Compton Creek Summary

Existing Channel	
100-year Peak Flow	17,250 cfs
Necessary Reduction to Meet FEMA Title 44	N/A
Additional Levee Height Required	3-4 Feet
Constraint	Water Surface in Los Angeles River

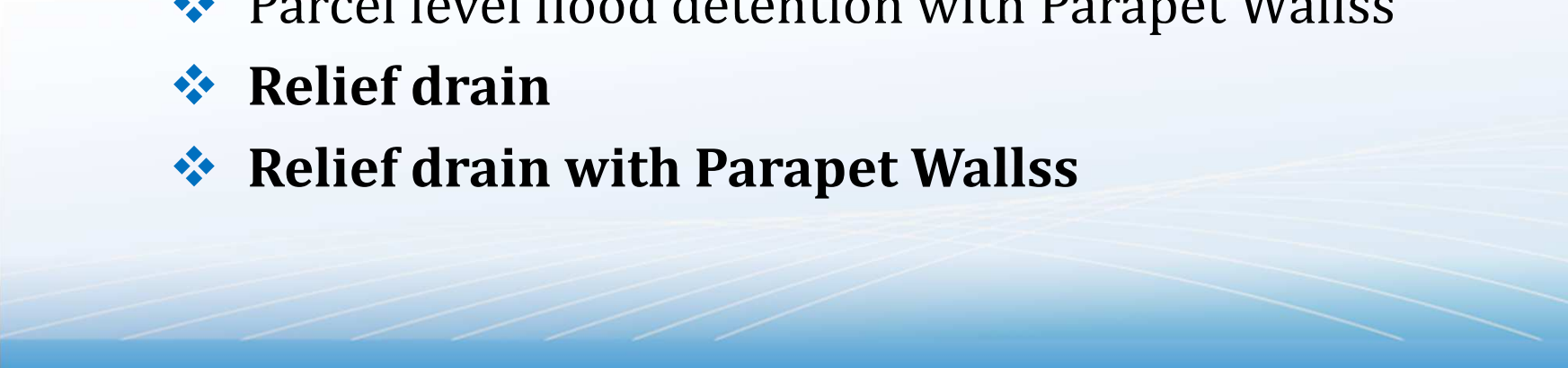
Solution	Years to Implement	Increased Capacity With:	Flow Reduction	Cost
Parapet Wall (PW)	5-6 years	2-4 Foot Vertical PW	--	\$32.4 Million
Basin and PW	8-10 years	2-3 Foot Vertical PW	4,430 cfs	\$400 Million
PLFD and PW	Unknown	2-3 Foot Vertical PW	4,430 cfs	\$4.968 Billion

*PW: Parapet Wall

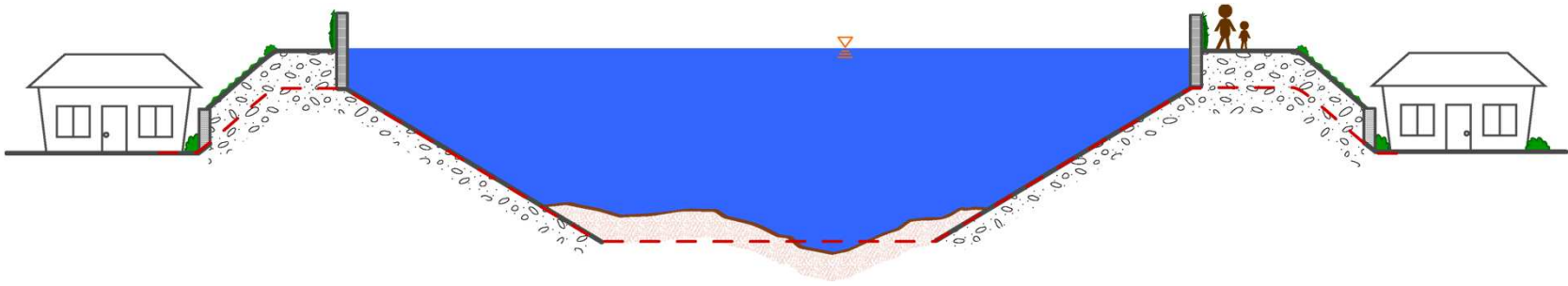


III. Potential Solutions: Dominguez Channel

Constraint: Channel Capacity (mitigate 14,075 cfs)

- ❖ Parapet walls
 - ❖ **Modified channel geometry**
 - ❖ Detention/retention basins
 - ❖ Detention/retention basins with Parapet Wallss
 - ❖ Parcel level flood detention
 - ❖ Parcel level flood detention with Parapet Wallss
 - ❖ **Relief drain**
 - ❖ **Relief drain with Parapet Wallss**
- 

III. Potential Solutions: Dominguez Channel Parapet Walls



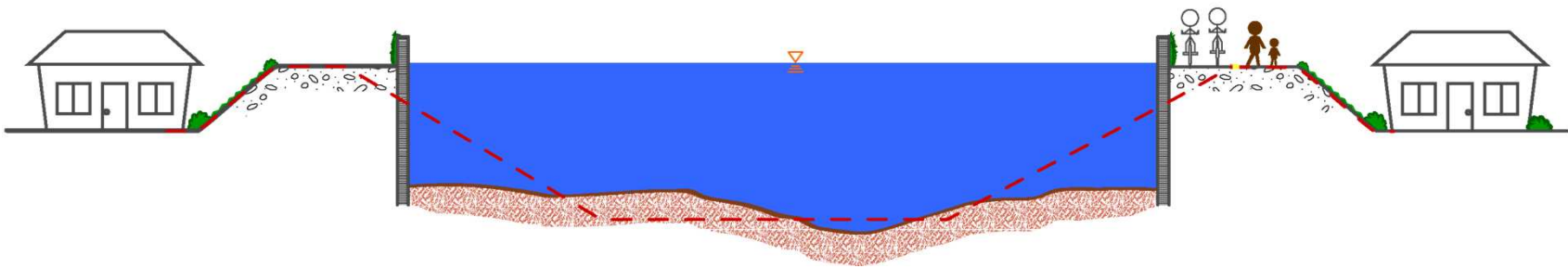
- ❖ 6-8 foot parapet walls along levee
 - Potential opportunity for multi-use
 - Increased water surface elevation
 - Removal and replacement of 15 road bridges and 23 utility bridges

III. Potential Solutions: Dominguez Channel Parapet Walls

- ❖ 8.5 miles of channel improvements
- ❖ Implementation Time: 6-8 Years
- ❖ Estimated Cost: \$655 million



III. Potential Solutions: Dominguez Channel Modified Channel Geometry



- ❖ 150 foot-wide rectangular section
 - Potential opportunity for multi-use
 - No increase water surface elevation
 - No removal or replacement of road and utility bridges

- Estimated cost:
\$513 million



III. Potential Solutions: Dominguez Channel Detention/Retention Basins

- ❖ Minimum of 29 basins
 - Reduce 100-year peak channel flow by 14,075 cfs
 - Provide opportunities for multi-use benefits

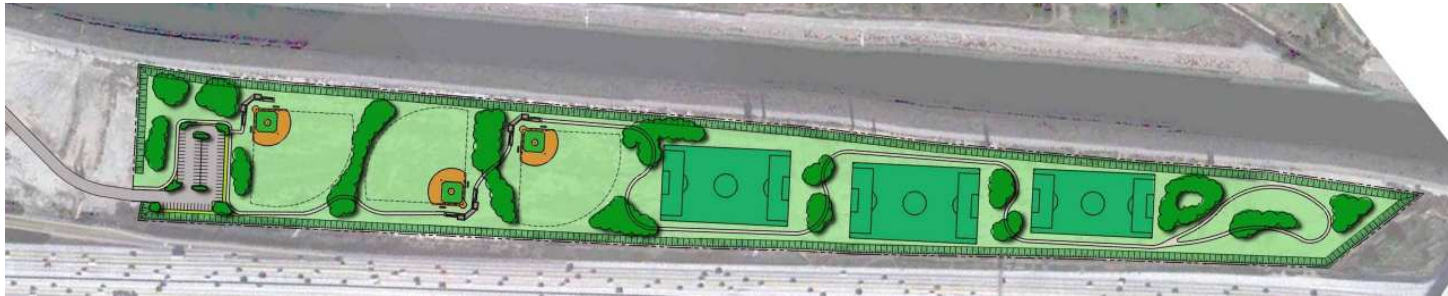


III. Potential Solutions: Dominguez Channel Detention/Retention Basins



- ❖ Implementation Time: 10-12 years
- ❖ Estimated Cost: \$1.972 billion

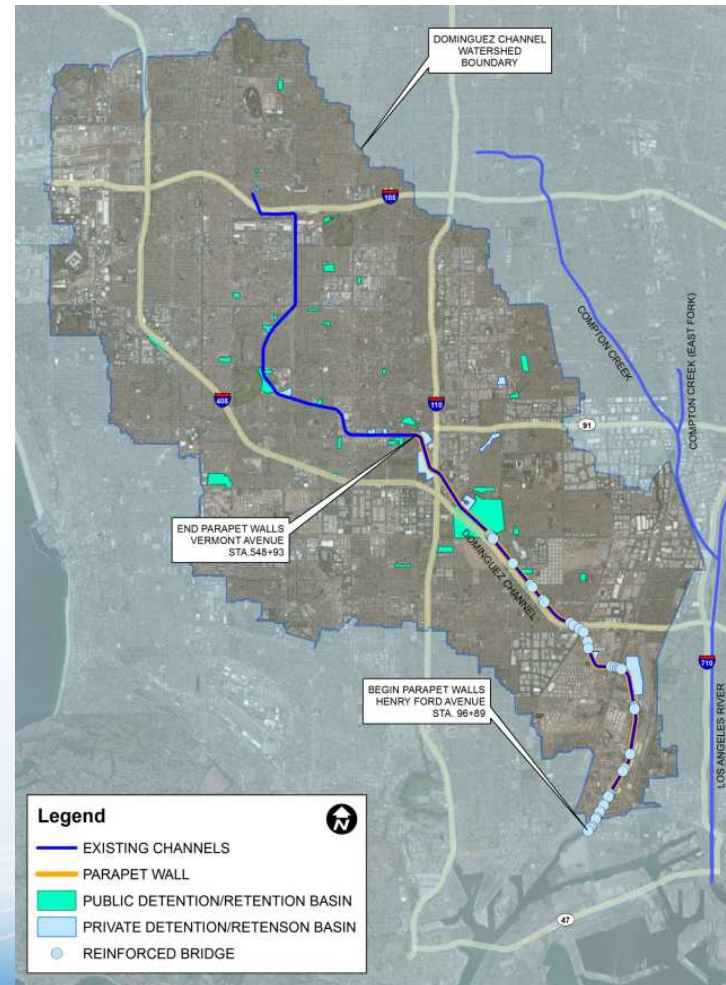
III. Potential Solutions: Dominguez Channel Detention/Retention Basins with Parapet Walls



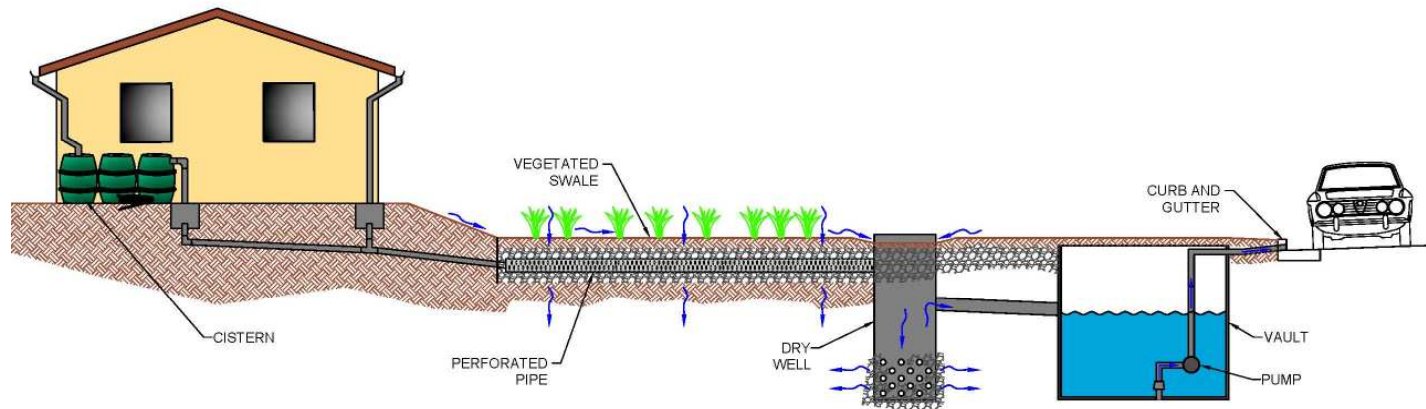
- ❖ Minimum of 25 basins
 - Reduce 100-year peak channel flow by 8,900 cfs
 - Provide multi-use and water quality benefits
- ❖ 3-4 foot parapet walls along levee
 - Increase channel capacity by 5,175 cfs

III. Potential Solutions: Dominguez Channel Detention/Retention Basins with Parapet Walls

- ❖ 8.5 miles of channel improvements
- ❖ Implementation Time: 10-12 Years
- ❖ Estimated Cost:
 - Basin Cost: \$1.249 billion
 - Parapet Cost: \$49 million




III. Potential Solutions: Dominguez Channel Parcel Level Flood Detention



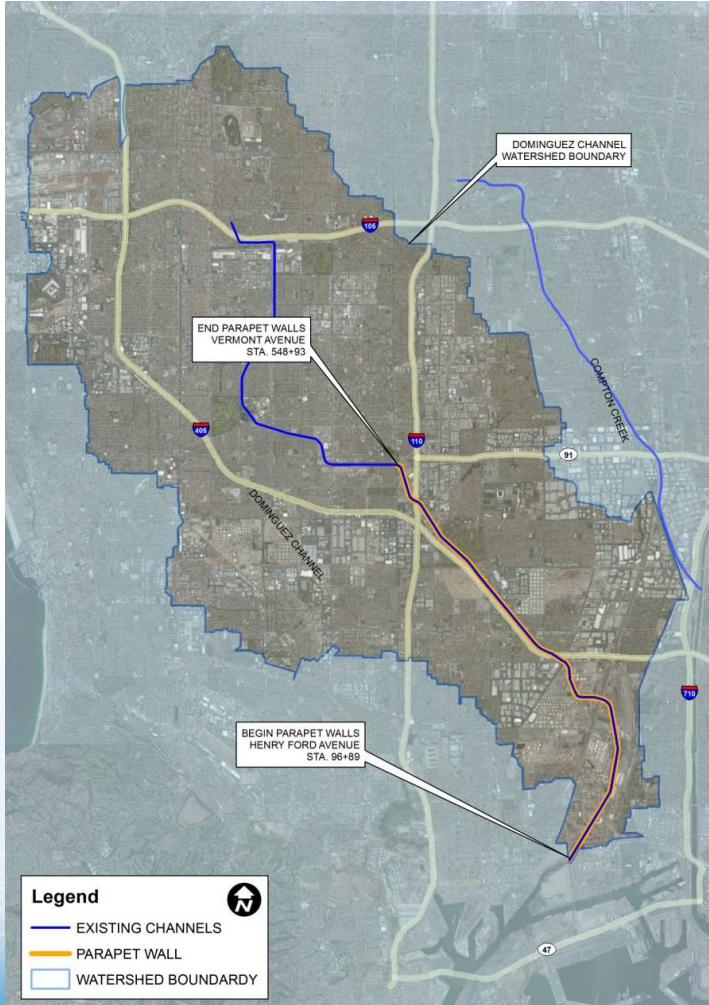
- ❖ PLFD installed on each property
 - Reduces 100-year peak channel flow by 14,075 cfs
 - Runoff detained on-site
- ❖ Implementation Time: Unknown
- ❖ Estimated Cost: \$14.883 billion



III. Potential Solutions: Dominguez Channel Parcel Level Flood Detention with Parapet Walls

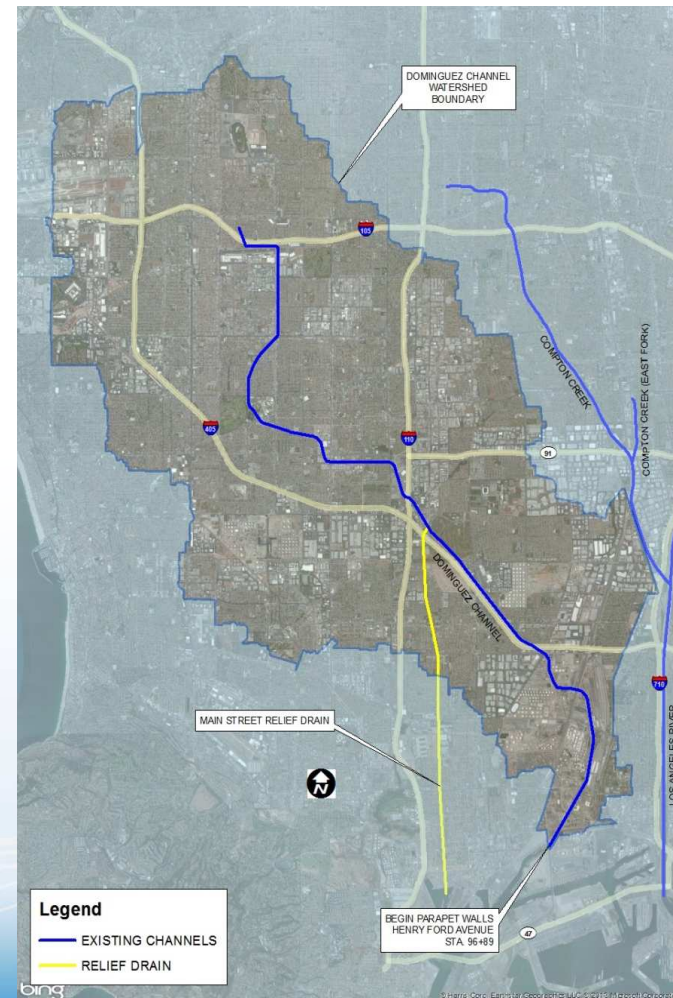
- ❖ PLFD installed on each property
 - Reduce 100-year peak channel flow by 8,900 cfs
 - Runoff detailed onsite
 - ❖ 3-4 foot parapet walls along levee
 - Increase channel capacity by 5,175 cfs
- 

- PLFD Cost: \$10.883 billion
- Parapet Cost: \$49 million



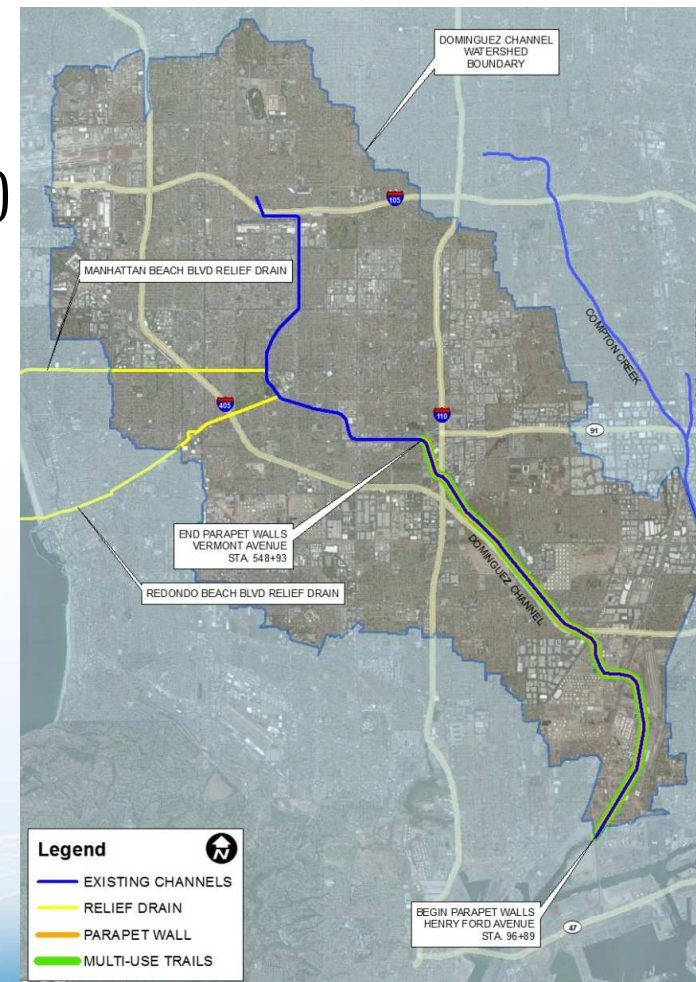
III. Potential Solutions: Dominguez Channel Relief Drain

- ❖ 37-foot diameter relief drain
 - Main Street (6.3miles)
 - Divert 14,075 cfs
- ❖ Implementation Time:
8-12 Years
- ❖ Estimated Cost:
\$1.216 billion



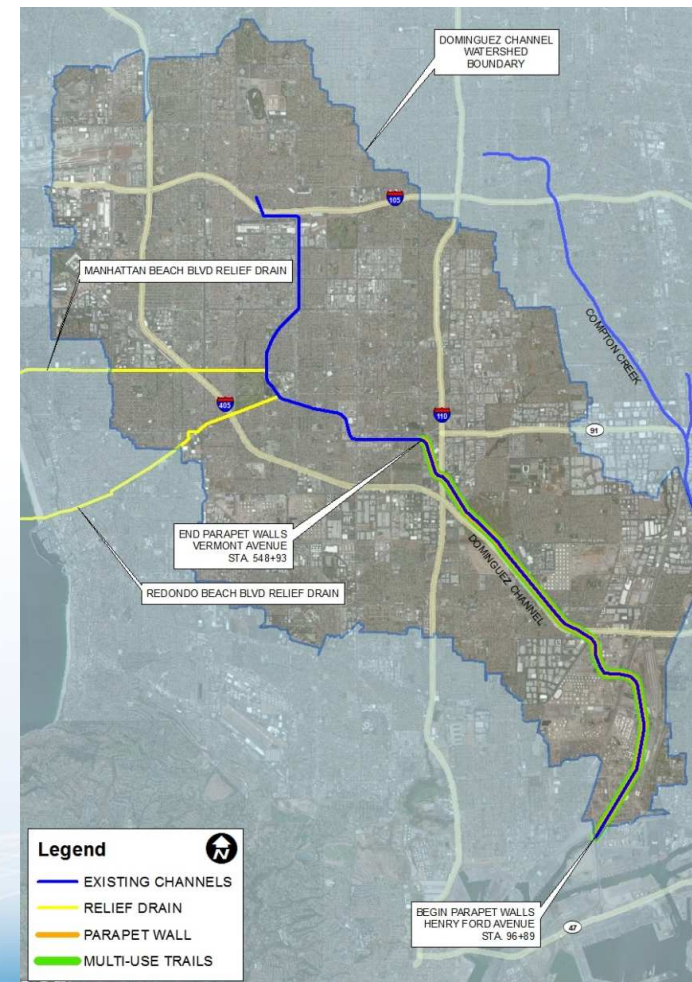
III. Potential Solutions: Dominguez Channel Relief Drain with Parapet Walls

- ❖ 26-foot diameter relief drain
 - Manhattan Beach Blvd (4.7 miles)
 - Redondo Beach Blvd (4.7 miles)
 - Diverts 8,900 cfs
- ❖ 8.5 miles of channel improvements
 - Increase channel capacity by 5,175 cfs



III. Potential Solutions: Dominguez Channel Relief Drain with Parapet Walls

- ❖ 8.5 miles of channel improvements
- ❖ Implementation Time:
8-12 years
- ❖ Estimated Cost:
\$ 710 million
 - Relief Drain Cost: \$661 million
 - Parapet Cost: \$49 million





III. Potential Solutions: Dominguez Channel

Other Solutions Considered and Investigated

- ❖ Channel Modifications
 - ❖ Depth
 - ❖ Slope
 - ❖ Dams
 - ❖ Wetlands
- 

III. Potential Solutions: Dominguez Channel

Summary

Existing Channel	
100-year Peak Flow	28,000 cfs
Necessary Reduction to Meet FEMA Title 44	14,075 cfs
Additional Levee Height Required	6-8 Feet
Constraint	Channel Capacity

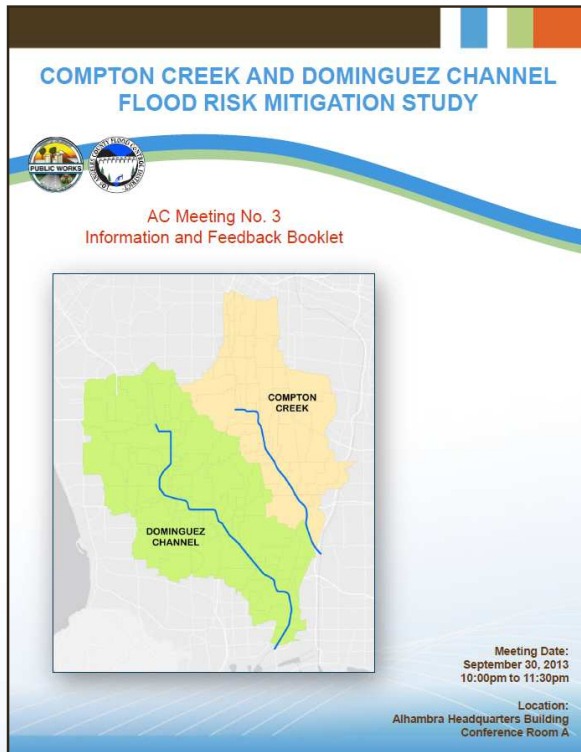
Solution	Years to Implement	Increased Capacity With:	Flow Reduction	Cost
Parapet Wall (PW)	6-8 years	6-8 Feet Vertical PW	--	\$655 Million
Channel Geometry	6-8 years	150' Rectangular Section	--	\$513 Million
Basins	10-12 years	--	14,075 cfs	\$1.972 Billion
Basins & PW	10-12 years	3-4 Foot Vertical PW	8,900 cfs	\$1.298 Billion
PLFD	Unknown	--	14,075 cfs	\$14.883 Billion
PLFD & PW	Unknown	3-4 Foot Vertical PW	8,900 cfs	\$10.932 Billion
Relief Drain	8-12 years	--	14,075 cfs	\$1.216 Billion
Relief Drain & PW	8-12 years	3-4 Foot Vertical PW	8,900 cfs	\$710 Million

IV. Next Steps

- ❖ Share draft potential solutions with community
- ❖ Finalize the Alternatives Study



V. Input from Advisory Committee



- ❖ Comments on schedules, project impacts, and costs
- ❖ Additional elements to the solutions
- ❖ Solution(s) you favor

VI. Questions and Answers



???



Contact Information

MARK A. LOMBOS, P.E.

Los Angeles County Department of Public Works
Watershed Management Division

(626) 458-7143

mlombos@dpw.lacounty.gov

