

INTERNATIONAL BOUNDARY AND WATER COMMISSION, UNITED STATES AND MEXICO



Steve Smullen, Acting Principal Engineer

Rio Grande Citizens' Forum

May 2, 2007

Rio Grande Canalization Project

- Constructed 1938-1943
- Water delivery and flood control project
- 106 river miles from Percha Dam, NM to American Dam at El Paso, TX
- 130 miles of flood control levees



EIS – Canalization Project

- Rio Grande Canalization Project EIS analyzes alternatives for environmental restoration/enhancement and flood control
- Selection of an alternative/Record of Decision is on hold pending outcome of collaborative process between environmental groups and EBID
- Construction of environmental enhancements and levee improvements are subject to availability of federal appropriations

Levee Terminology

River side

Levee

Land side

Freeboard

Base Flood Elevation

(1% annual chance of occurrence) = 100yr event

Overtopping

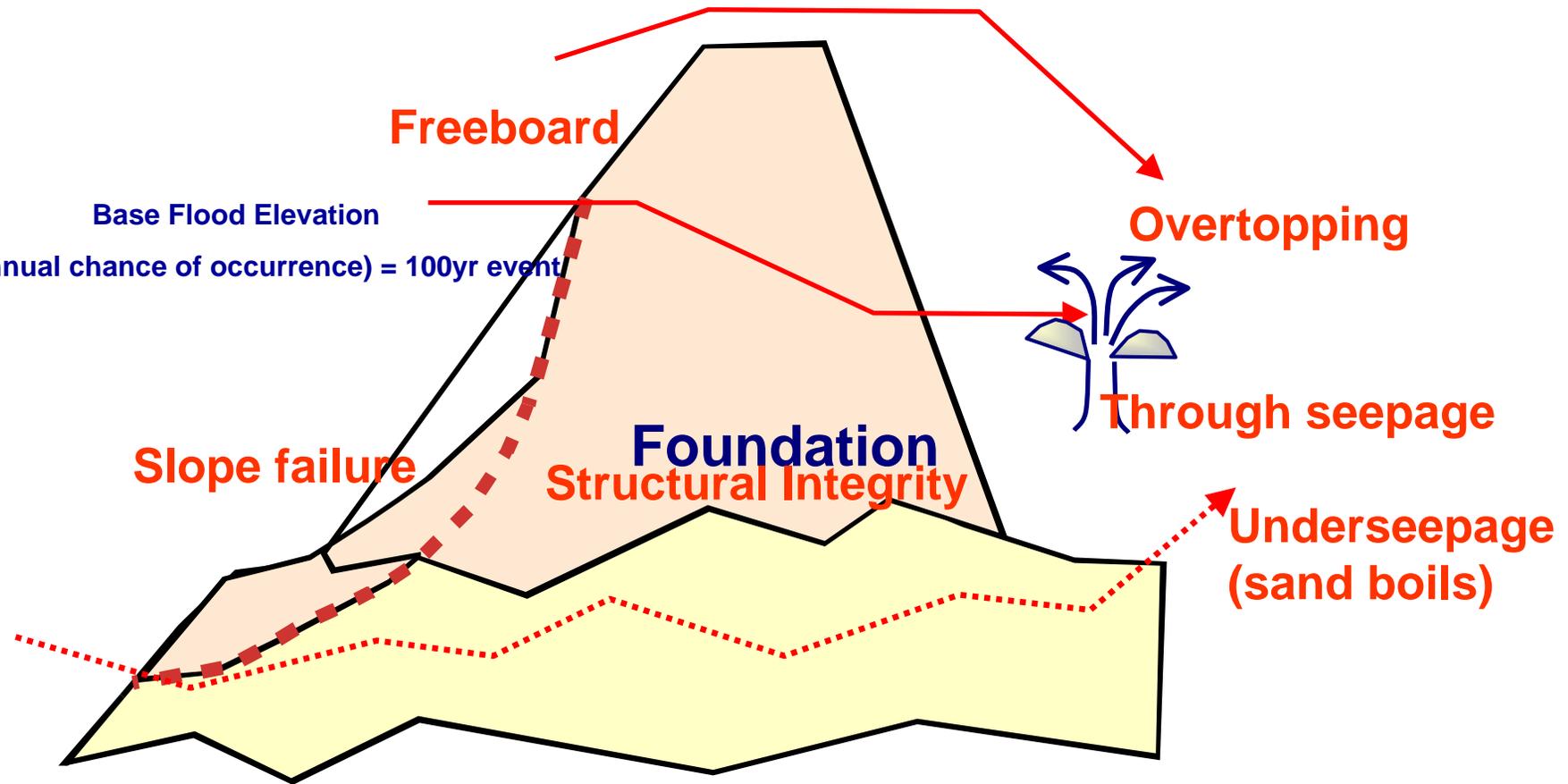
Slope failure

Foundation

Structural Integrity

Through seepage

Underseepage
(sand boils)



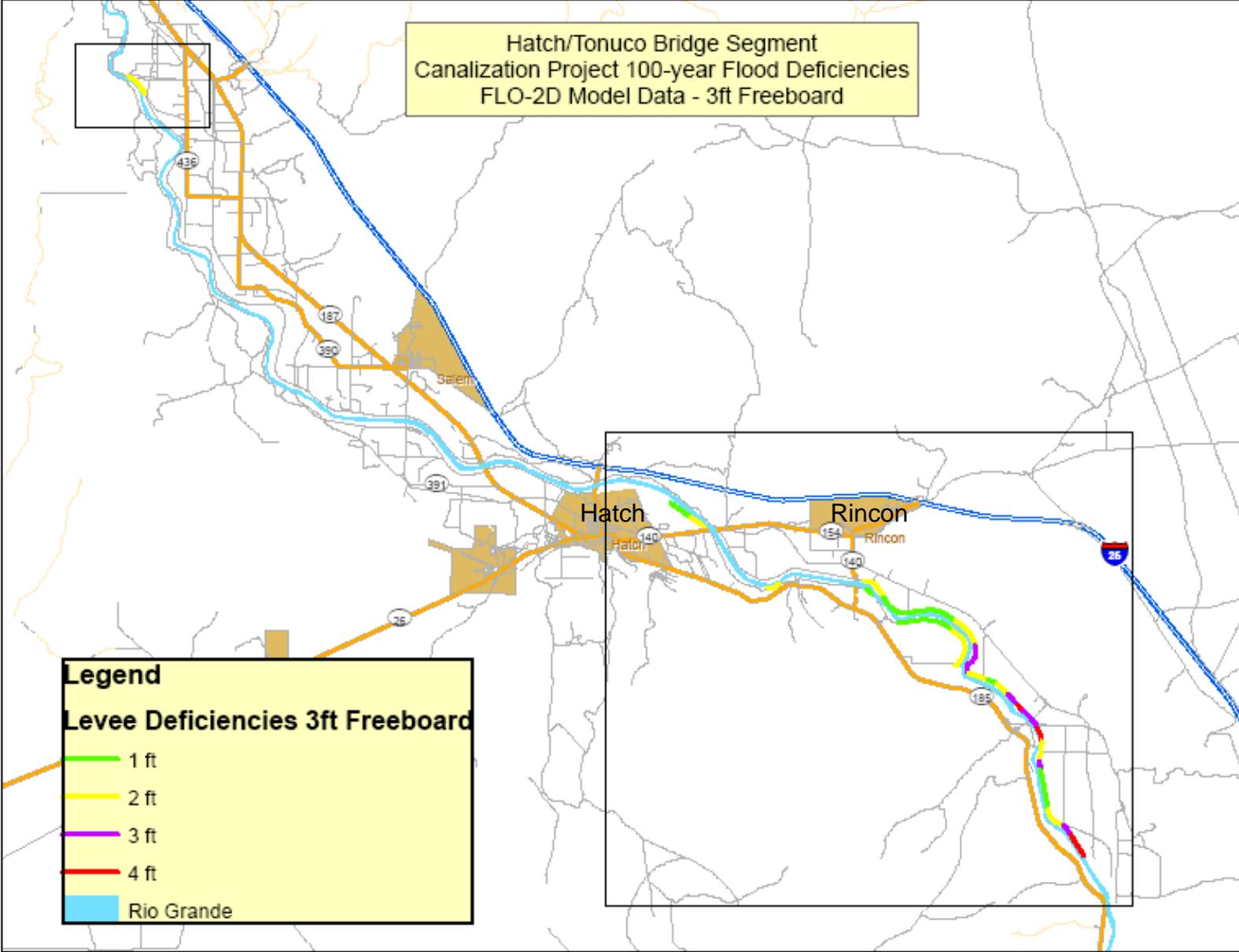
Levee Status – Doña Ana County

- Levee height is deficient for 38 miles in Doña Ana County – deficient means less than 3 feet of freeboard for the 100 year return frequency flow
- Based on results of recent FLO2D modeling done by Corps of Engineers to extend their Upper Rio Grande Water Operations Model from Caballo Dam to El Paso
- Approximately 8 miles of levee have zero freeboard and are subject to overtopping in the 100 year flood (Tonuco, Sunland Park)
- Cost to raise levees in Doña Ana County is estimated \$19.8 million

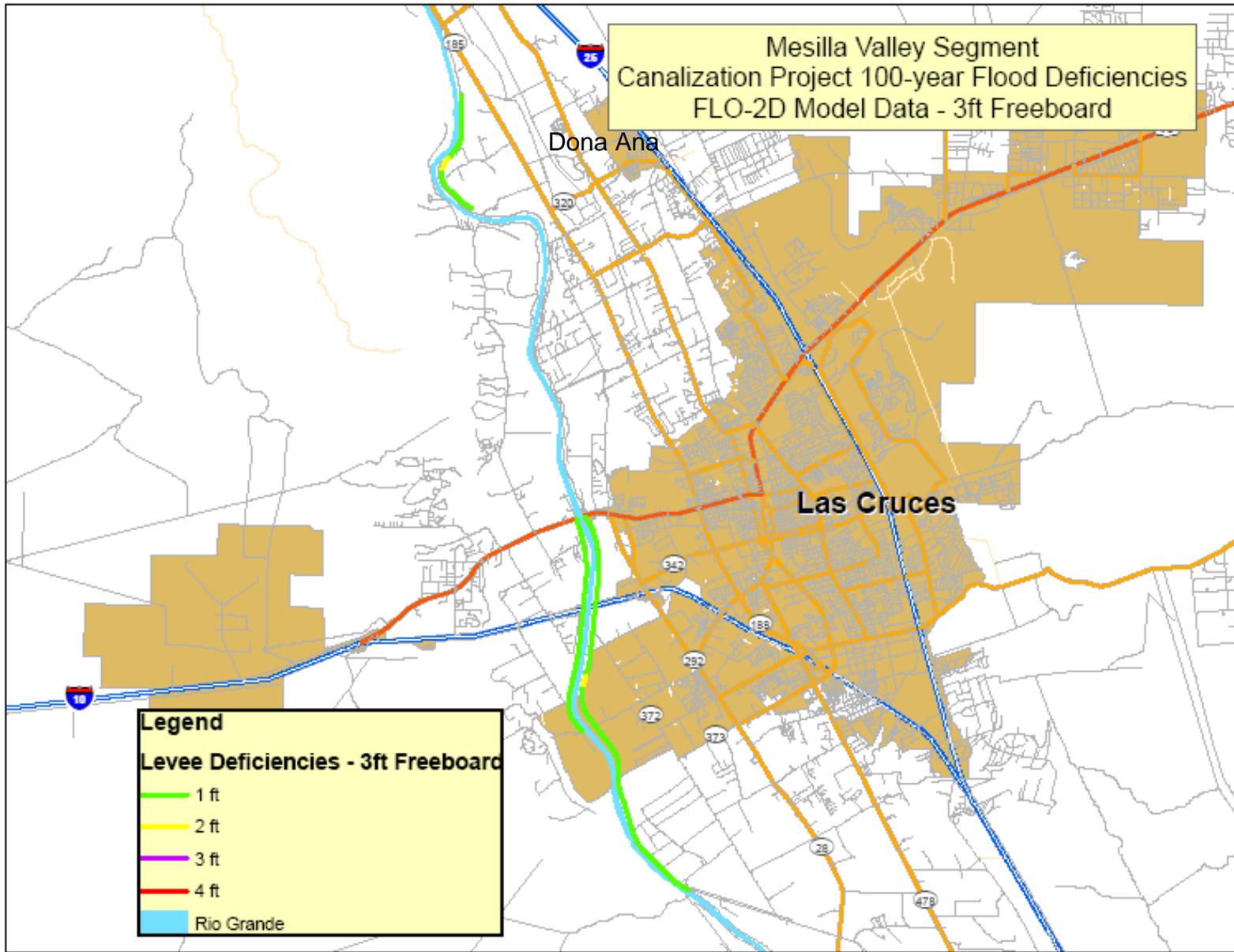
Hatch/Tonuco Bridge Segment
Canalization Project 100-year Flood Deficiencies
FLO-2D Model Data - 3ft Freeboard

Legend
Levee Deficiencies 3ft Freeboard

- 1 ft
- 2 ft
- 3 ft
- 4 ft
- Rio Grande



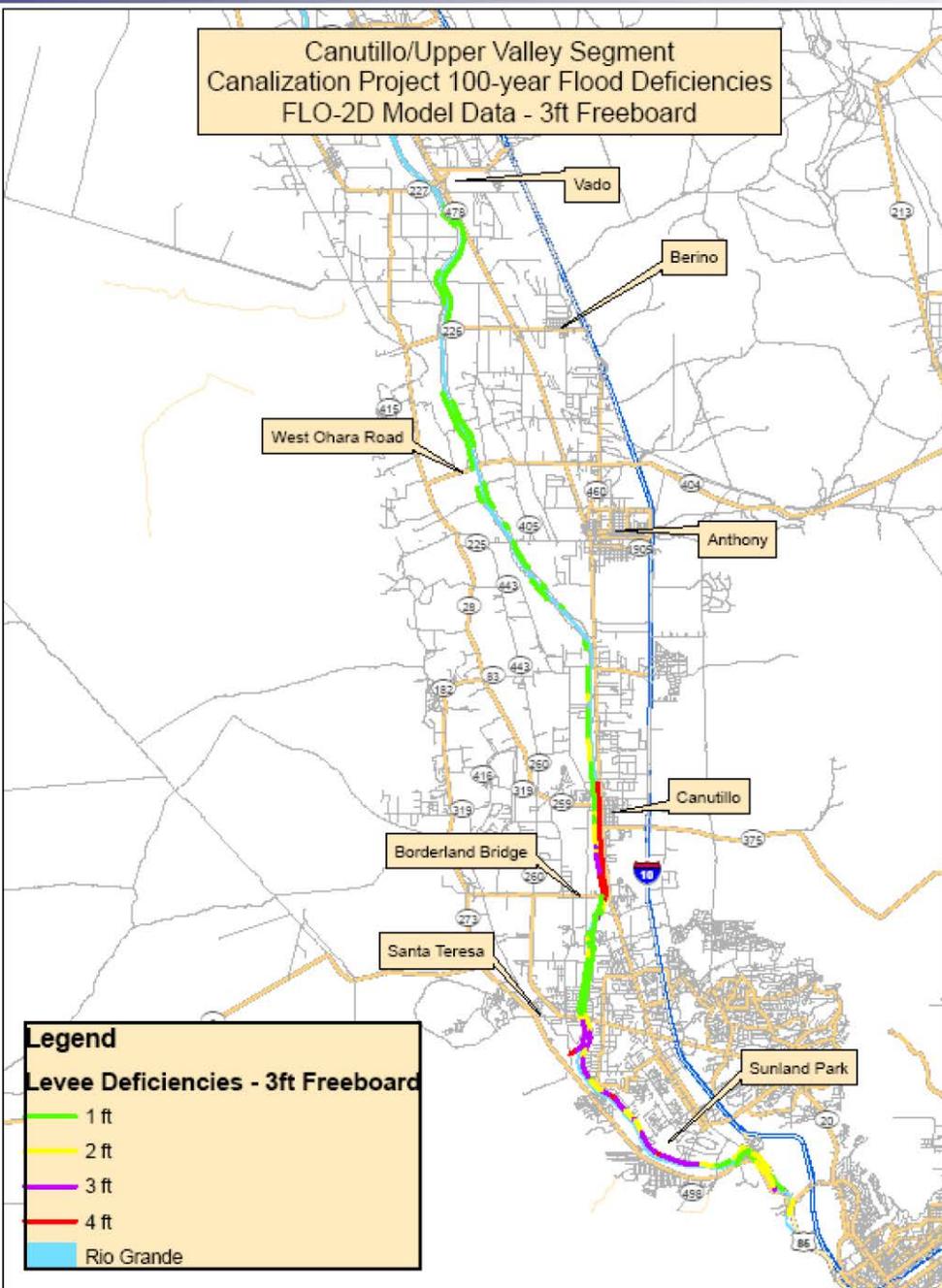
Mesilla Valley Segment
Canalization Project 100-year Flood Deficiencies
FLO-2D Model Data - 3ft Freeboard



Legend
Levee Deficiencies - 3ft Freeboard

- 1 ft
- 2 ft
- 3 ft
- 4 ft
- Rio Grande

Canutillo/Upper Valley Segment
Canalization Project 100-year Flood Deficiencies
FLO-2D Model Data - 3ft Freeboard



Legend
Levee Deficiencies - 3ft Freeboard

- 1 ft
- 2 ft
- 3 ft
- 4 ft
- Rio Grande

Levee Status – Doña Ana County

- USIBWC proposes to raise levees :
 - Hatch/Rincon/Tonuco Bridge area – 10.48 miles (\$6.5 million)
 - Mesilla Valley – 11.55 miles (\$4.3 million)
 - Vado to American Dam – 16.0 miles (\$8.9 million)

Levee Status – El Paso County within Canalization Project

- USIBWC proposes to raise levees :
 - Vado to American Dam –
 - 13 miles in Texas (\$6.5 million)
 - 6.6 miles levee, 1.5 mile floodwall at Canutillo - \$13.6 million

Flood Mapping

- FEMA is updating flood insurance rate maps
- Draft maps for Doña Ana County released April 2007
- Draft maps for El Paso County to be released shortly
- FEMA requires levees to contain the 100-year flood with 3 ft. freeboard
- USIBWC notified FEMA last year that it could not certify all levees as meeting this requirement
- USIBWC levees were not overtopped in 2006

Flood Mapping

- FEMA will map flood risk as if the levees did not exist at all
- FEMA has a public appeal and protest process
- USIBWC will propose additional state-of-the-art modeling to accurately map flood risk
- USIBWC believes FEMA's model may overestimate flood risk
- Simplified methodology does not take into account levees in place, volume of flow, attenuation due to infiltration, or the lower water surface which is present in a wider floodplain.

FIRM – Picacho Bridge / I-10



Dona Ana

FIRM – Mesquite / Vado



Dona Ana

Funding and Priorities–Doña Ana Co

- Priority are levee reaches subject to overtopping/failure in urban areas.
- USIBWC will work with FEMA and recommend map revisions based on FLO2D model – may require additional funding for further analysis
- Partial certification (Picacho to Mesilla Bridge) is being considered contingent on funding
- Sediment removal to be accomplished using annual O&M funding
 - completed in FY 06- 07 at Trujillo, Hershey, Placitas, & Thurman Arroyos, above Mesilla Dam and from Canutillo to American Dam
 - proposed for FY 08-10 at Rincon and Sibley Arroyos, Hatch and Salem Bridges

Rio Grande Rectification Project

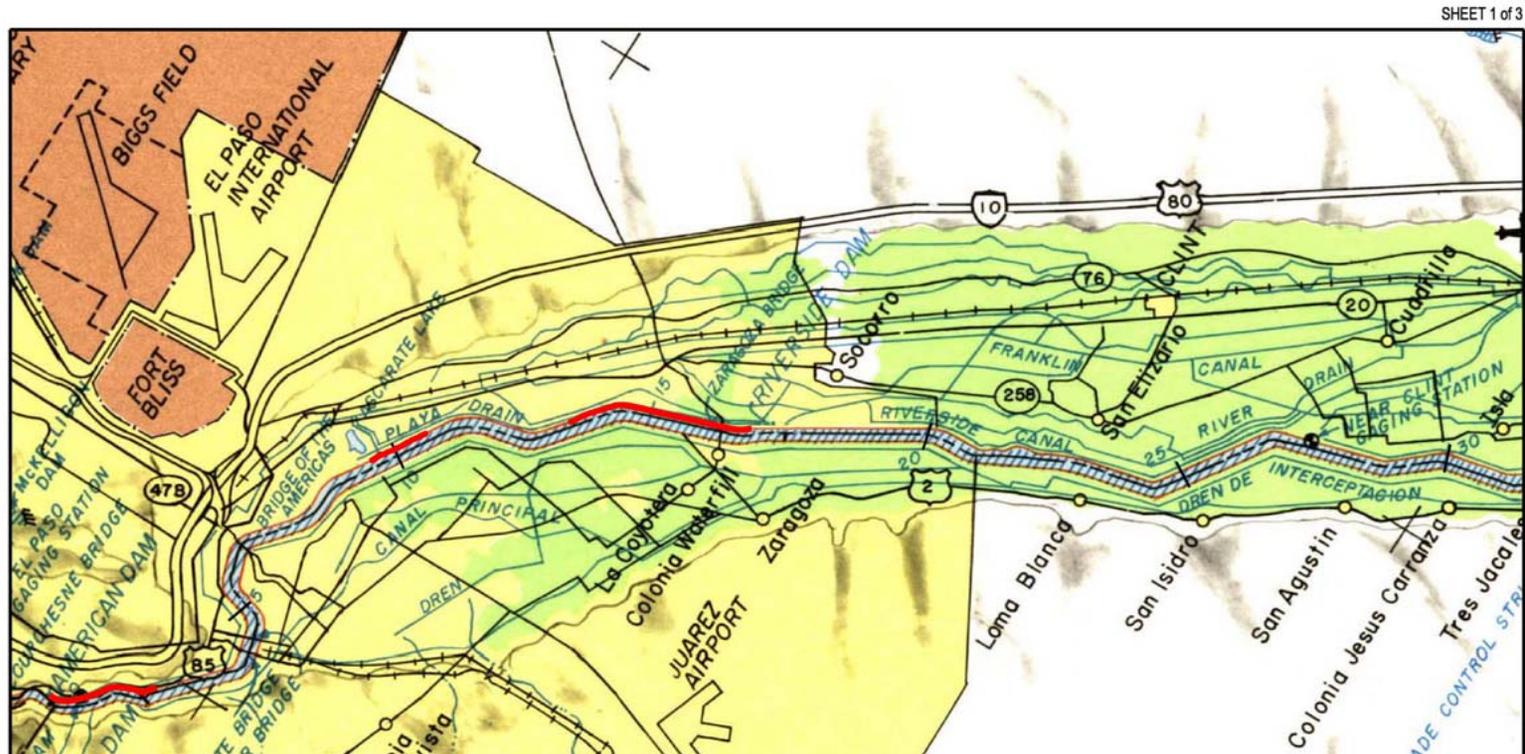
- Constructed in 1930s
- El Paso, TX-Cd. Juarez to Ft. Quitman, TX
- Boundary stabilization and flood control project
- 85 miles of U.S. levee



Levee Status – Rectification Project

- Levee height is deficient for 46 miles in El Paso and Hudspeth Counties, with approximately 11 miles of overtopping, mostly in the extreme lower reach
- Cost to raise levees in Rectification Project is estimated at \$34.4 million
- Corps of Engineers is extending URGWOM to Fort Quitman using FLO2D, completion scheduled for July 2007.

Rectification Project- Levee Deficiency

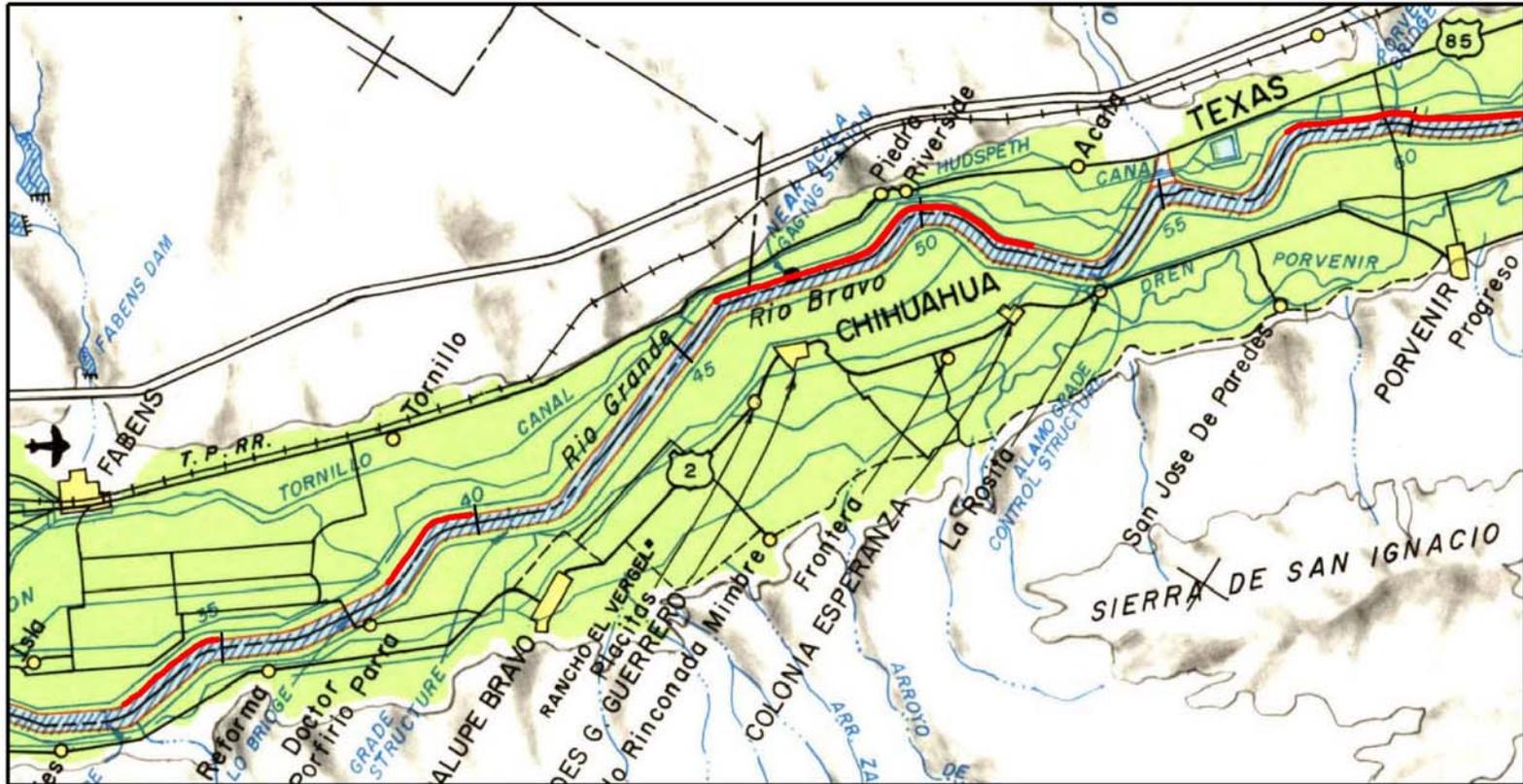


RECTIFICATION

 LEVEE WITH LESS THAN 3' FREEBOARD

Rectification Project - Levee Deficiency

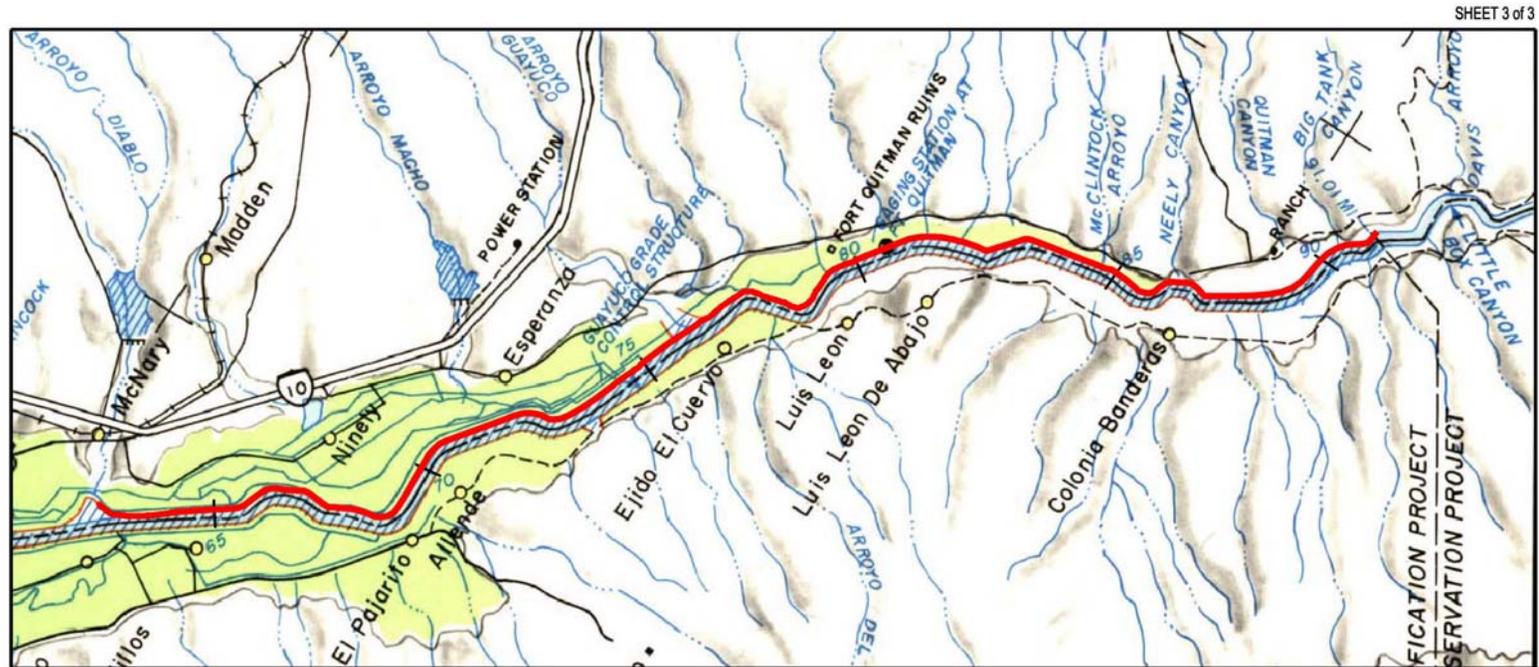
SHEET 2 of 3



RECTIFICATION

 LEVEE WITH LESS THAN 3' FREEBOARD

Rectification Project - Levee Deficiency



RECTIFICATION

 LEVEE WITH LESS THAN 3' FREEBOARD

Rectification Project Improvements

- American Dam to Beginning of Chamizal Channel - Freeboard encroachment for 2 miles – \$2.7M
- End of Chamizal to Old Riverside Dam (downstream of Ysleta-Zaragoza Bridge) – 7.4 miles of freeboard encroachment – \$1.5M (with US forces)
- Old Riverside Dam to Hudspeth County Line: 3 miles of freeboard encroachment. - \$1.2M
- Hudspeth County Line to Little Box Canyon (end of Project) -23 miles of freeboard encroachment - \$15.0M
- Hudspeth County Line to Little Box Canyon (end of Project) -11 miles of levee overtopping - \$14.0M

Rectification Project –Partial Certification

- USIBWC plans to certify Rectification levee from International Dam to Ysleta-Zaragoza Bridge area by early 2008.
- Affected Area:
 - .5 miles of improvements from International Dam to the beginning of the Chamizal
 - 7.4 miles of levee raising from end of Chamizal (upstream of Ascarate Park) to Ysleta-Zaragoza Bridge
- Estimated Completion – 9 months for 7.9 miles for 3 ft. of freeboard
- Estimated Cost - \$1.5 million
- Funding available in current fiscal year

Rectification Project – Environmental Considerations

- Draft Environmental Assessment completed April 2007 (FONSI) for International Dam to Ysleta-Zaragoza Bridge reach
 - Burrowing owl survey and relocation completed in April
 - Construction to begin mid May 2007
- Release of Draft Programmatic EIS in May 2007

Sediment Removal – Chamizal Project

- 200,000 cubic yards.
- Estimated cost: \$1.5 million.
- Funding available to initiate a limited effort during FY 07.
- The U.S. Section and the Mexican Section are developing a joint plan for sediment removal and levee improvements in the international reach of the Rio Grande. CONAGUA is providing the funding for the work by Mexico.

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U.S. Section

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