



City of Harlingen HUC 10 Flood Protection Planning Study

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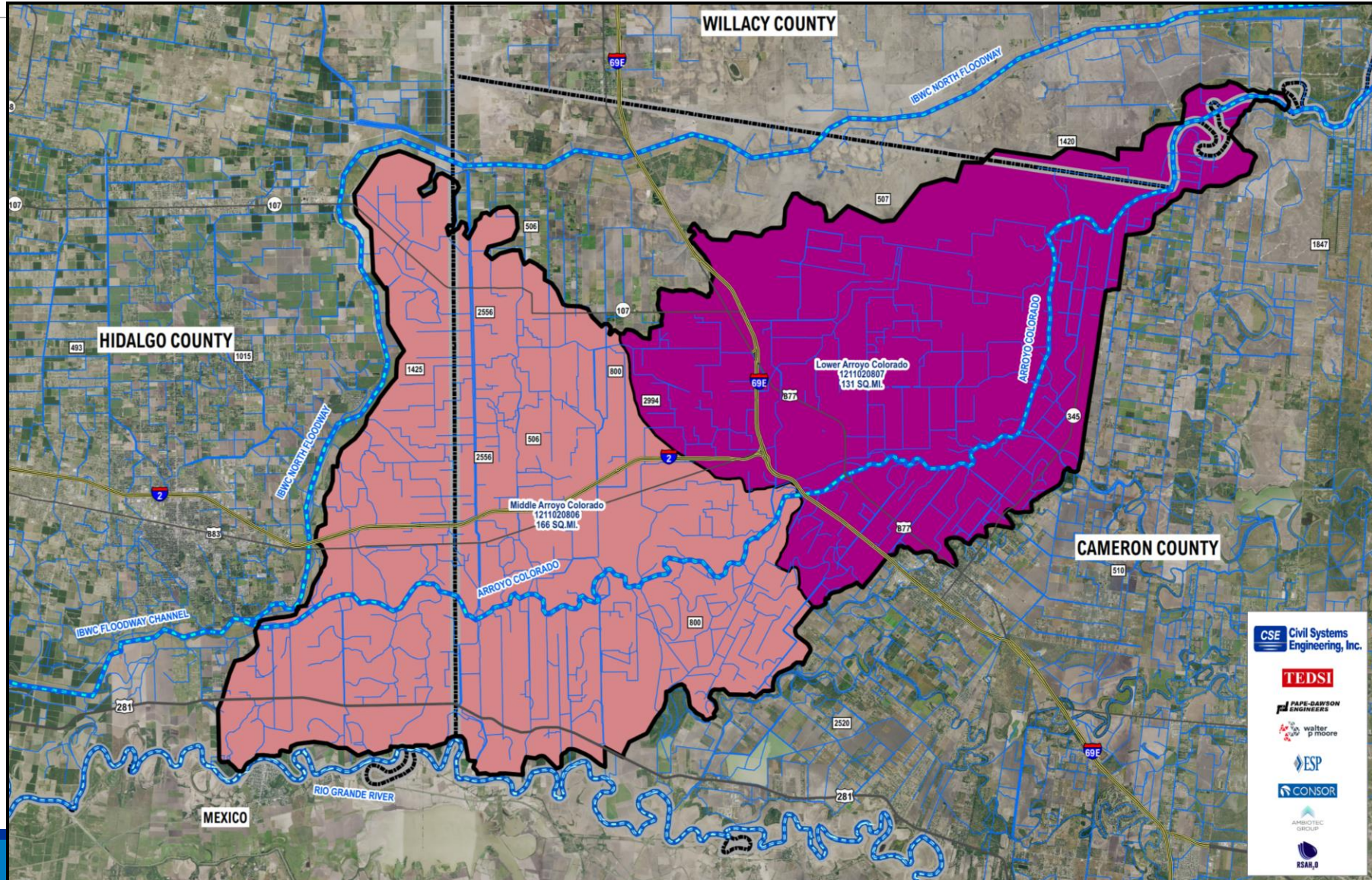
JUNE 10, 2022



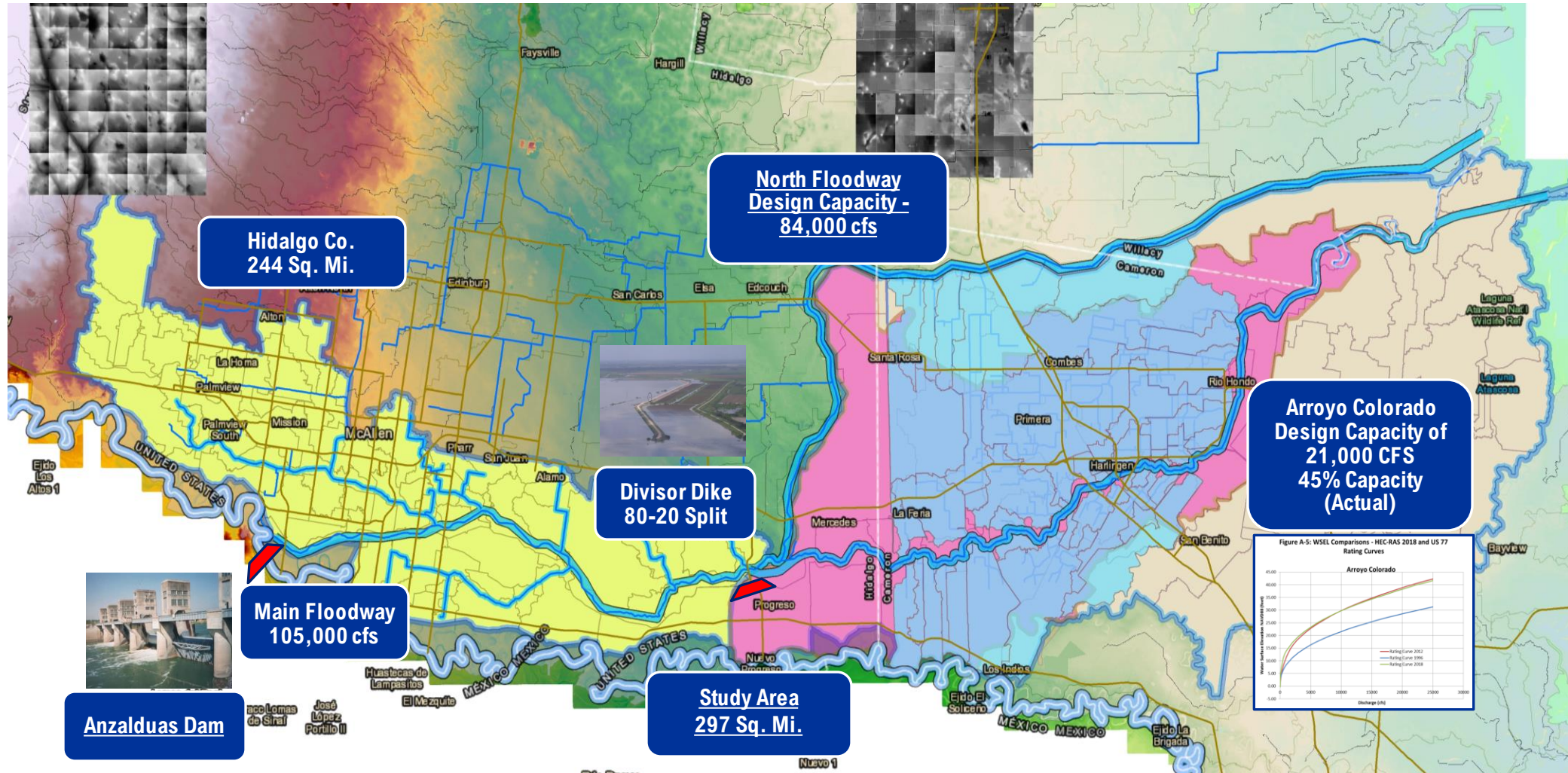
PROJECT TEAM



STUDY AREA



ARROYO COLORADO WATERSHED & HYDROLOGIC NETWORK



Existing, On-going, and Future Studies

- ✓ CCDD#5 Flood Protection Plan
- ✓ CCDD#3 Flood Protection Plan
- ✓ CCDD#6 Master Drainage Plan
- ✓ City of Primera – Future MDP
- ✓ Lower Rio Grande Valley Development Council (LRGVDC) Flood Planning Study
- ✓ Willacy County Watershed Study

- Ensure Consistency across Studies
- Ensure Product Optimization
- Avoid Duplication

Entities & Agencies

Local Cities & Counties

- Harlingen
- Mercedes
- La Feria
- San Benito
- Combes
- Primera
- Progreso
- Progreso Lakes
- Rio Hondo
- Santa Rosa
- Palm Valley
- Rangerville
- Cameron County
- Hidalgo County
- Willacy County

Local Planning Agencies & Drainage Districts

- City of Harlingen Engineering Department
- Harlingen Consolidated Independent School District (HCISD)
- Hidalgo County Drainage District No. 1 (HCDD1)
- Cameron County Drainage District No. 5 (CCDD5)
- Cameron County Drainage District No. 6 (CCDD6)
- Cameron County Drainage District No. 3 (CCDD3)
- LRGVDC – Regional Water Planning Group
- RGV MPO

State & Federal Agencies

- Texas Water Development Board (TWDB)
- Texas Division of Emergency Management (TDEM) -HMGP
- International Boundary Water Commission (IBWC)
- Federal Emergency Management Agency (FEMA)
- Texas Department of Transportation (TxDOT)
- Union Pacific Railroad (UPRR)
- Texas Parks and Wildlife Department (TPWD)
- Texas Commission on Environmental Quality (TCEQ)

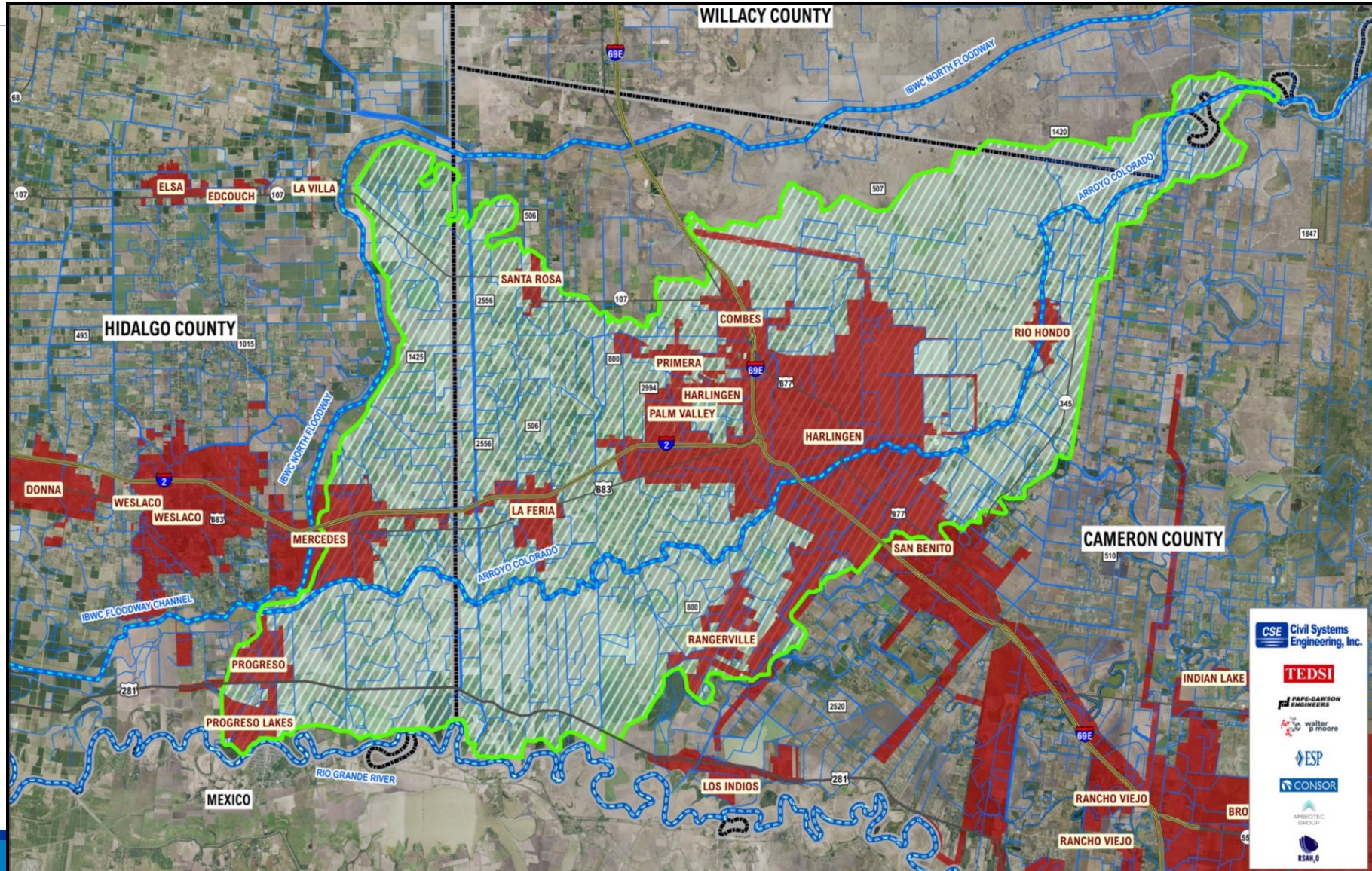
Irrigation Districts

- Harlingen Irrigation District Cameron County No. 1 (HID)
- Adams Garden ID#19 (AGID)
- Cameron County ID #2 (CCID2)
- Cameron County ID #19 (CCID19)
- Hidalgo & Cameron Co. ID#9
- La Feria ID #3 (LFID3)
- Hidalgo County ID #5
- Santa Maria ID #4
- Valley Acres ID

CITIES & COUNTIES STAKEHOLDERS

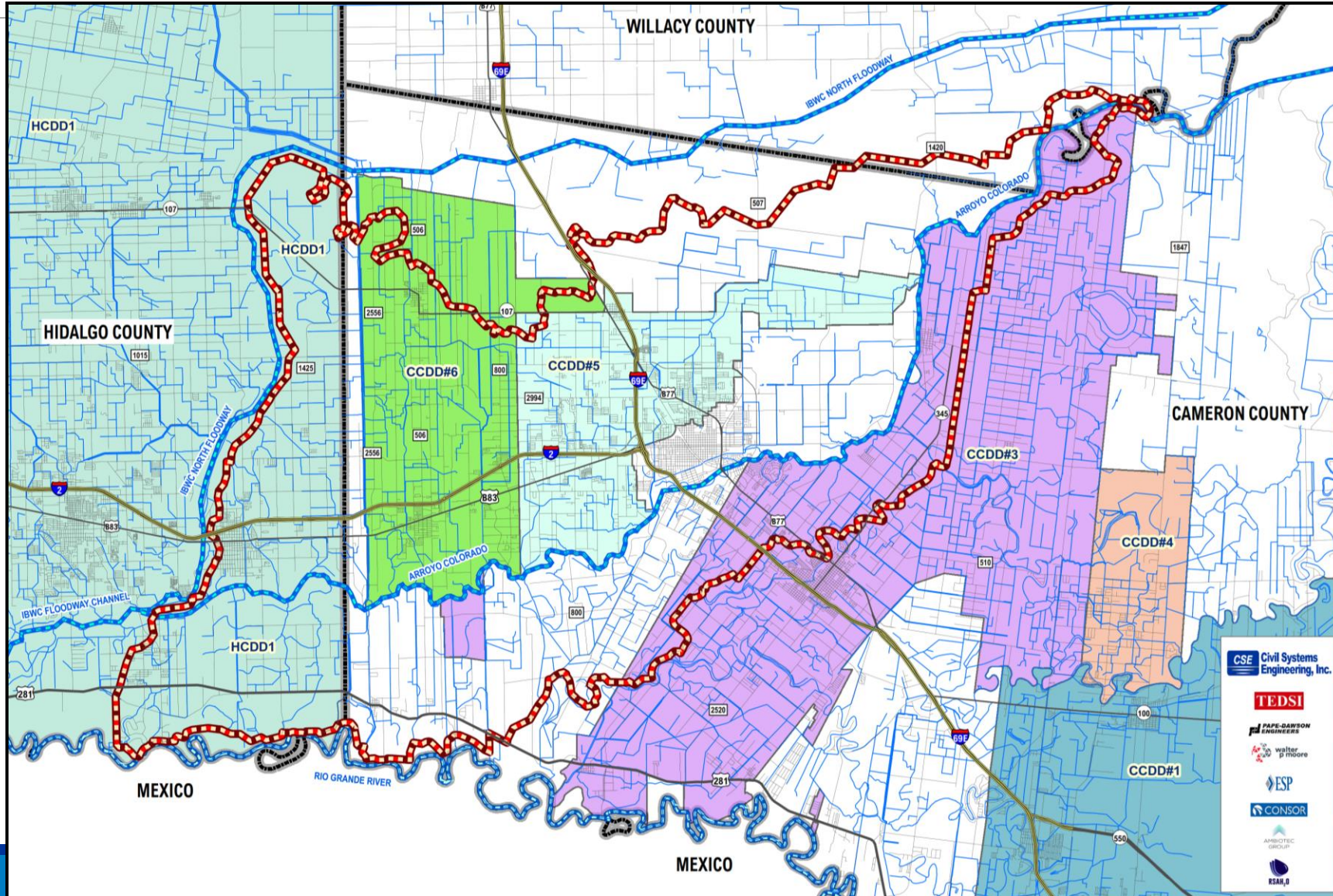
12 Cities

3 Counties



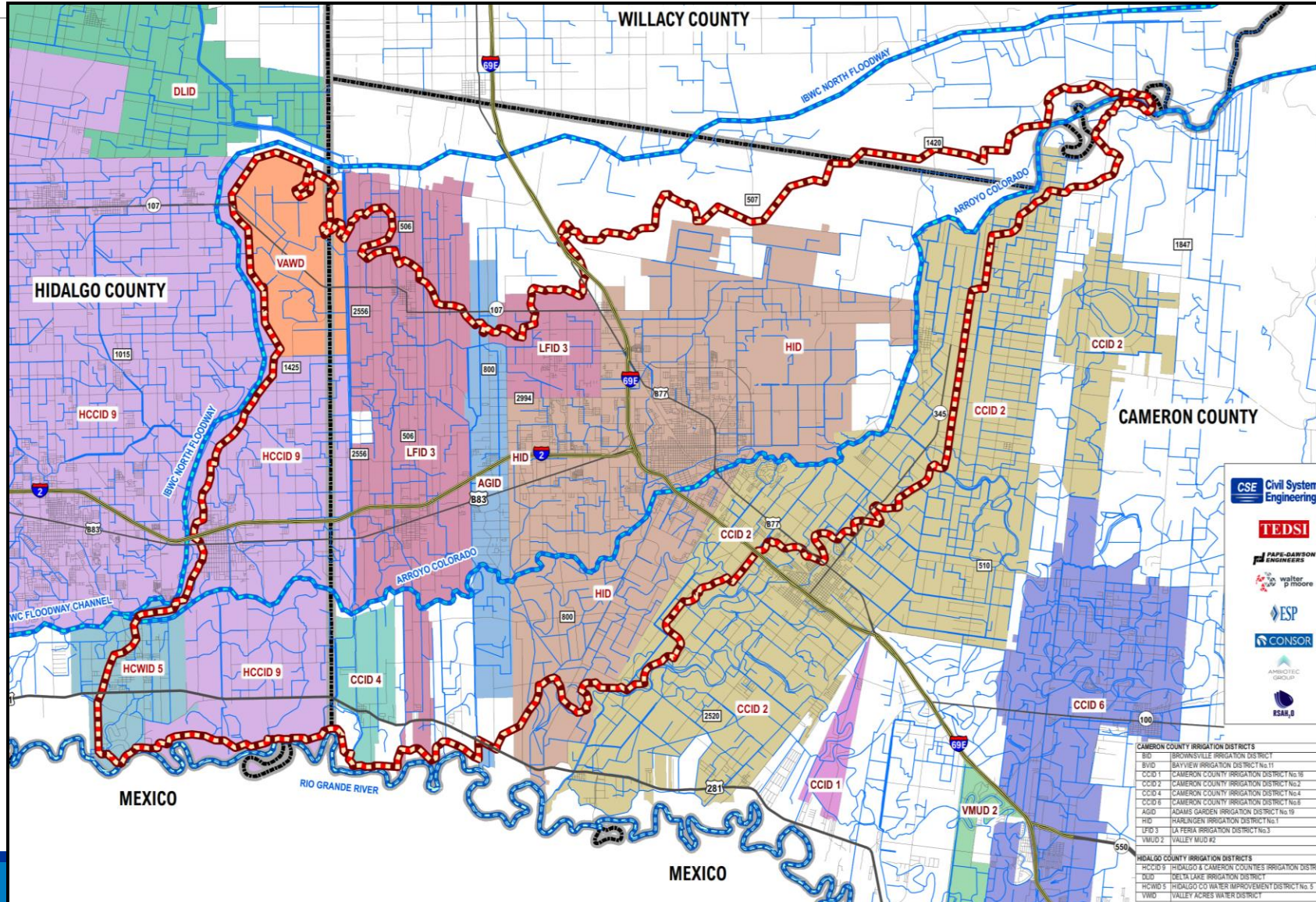
DRAINAGE DISTRICTS AND IBWC STAKEHOLDERS

4 Drainage Districts



IRRIGATION DISTRICT STAKEHOLDERS

9 Irrigation Districts



- ✓ Three (3) Public Outreach Meetings
- ✓ Present Project Status, Preliminary Findings, and Schedule
- ✓ Solicit Input/ Comments from Affected Public and Stakeholders
- ✓ Document Comments
- ✓ **Meetings in English and Spanish**

PURPOSE AND OBJECTIVES

- ✓ **Provide Higher Level Flood Protection to Reduce the Loss of Life, Property and Critical Infrastructure Damages**
- ✓ **Increase the Region's Resilience To Floodwaters**
- ✓ **Develop Watershed-Based Hydrologic & Hydraulic Models (1D/2D & Atlas 14)**
- ✓ **Identify Existing and Future Flood Risks**
- ✓ **Develop and Evaluate Alternative Mitigation Measures (Structural and Non-Structural)**
- ✓ **Develop Flood Risk Inundation Mapping**
- ✓ **Recommend Regional Drainage Criteria**
- ✓ **Identify Gage Stations for Early Flood Warning Systems**

EXISTING FLOOD/ DRAINAGE ISSUES

- ✓ Limited Outfall Channel System and Capacity
- ✓ Limited Storm Sewer System and Capacity
- ✓ Operation of IBWC North Floodway Gated Outlets
- ✓ Operation of IBWC Arroyo Colorado Backwater
- ✓ Decreased Arroyo Colorado Capacity
- ✓ IBWC Floodwater Diversion/ Operations at Mercedes
- ✓ Runoffs into IBWC System from Hidalgo County
- ✓ Potential Coastal Storm Surge of Arroyo Colorado and North Floodway System



LOCAL DRAINAGES CHALLENGES

- ✓ Frequent & Repetitive Flooding
- ✓ High Rainfall Intensity
- ✓ Tropical Storms & Hurricanes
- ✓ Flat Terrain
- ✓ Clay Soils
- ✓ Shallow Groundwater Level
- ✓ Elevated Irrigation Canals
- ✓ Rapid Economic/ Urban Expansion/
Increased Impervious Surface
- ✓ Resistance from Developers to
Provide Detention



POTENTIAL ALTERNATIVE MEASURES: STRUCTURAL

- ✓ Channel Widening
- ✓ New Outfall Channels
- ✓ Detention Basins
- ✓ Enlargement of Storm Sewers
- ✓ Modification of Hydraulic Crossings (Culverts/ Bridges)
- ✓ Inline Detention (Channel/ Storm Sewer)
- ✓ Upgrade Levee Outlet Structures
- ✓ Pump Stations (Permanent/ Mobile)
- ✓ Conversion of Original Agricultural Irrigation Ditches to Drainage Outfalls for Urbanized Areas
- ✓ Joint Usage Agreement of Irrigation Canal ROW
- ✓ Desilting/ Vegetation Clearing Operations

POTENTIAL ALTERNATIVE MEASURES: NON-STRUCTURAL

- ✓ **Enhanced Watershed/ Floodplain Management Policies & No Adverse Impact Criteria**
- ✓ **Regional Drainage Criteria Manuals & Uniform Modeling Standards**
- ✓ **IBWC Existing Floodway Operation Modification**
- ✓ **Regular Maintenance/ Inspection Schedule of Drainage Systems**
- ✓ **Update Flood Warning / Forecasting System**
- ✓ **Update Emergency Action Plan**
- ✓ **Property Buyouts**

- ✓ **Complete GIS Data Set**
- ✓ **Hydrologic, Hydraulic, Storm Sewer Models**
- ✓ **Mitigation Measure Technical Reports**
- ✓ **Comprehensive Final Report**
- ✓ **Recommended Regional Drainage Criteria Guidance**

QUESTIONS?

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