# Lower Rio Grande Flood Control Project

Lower Rio Grande Citizens Forum

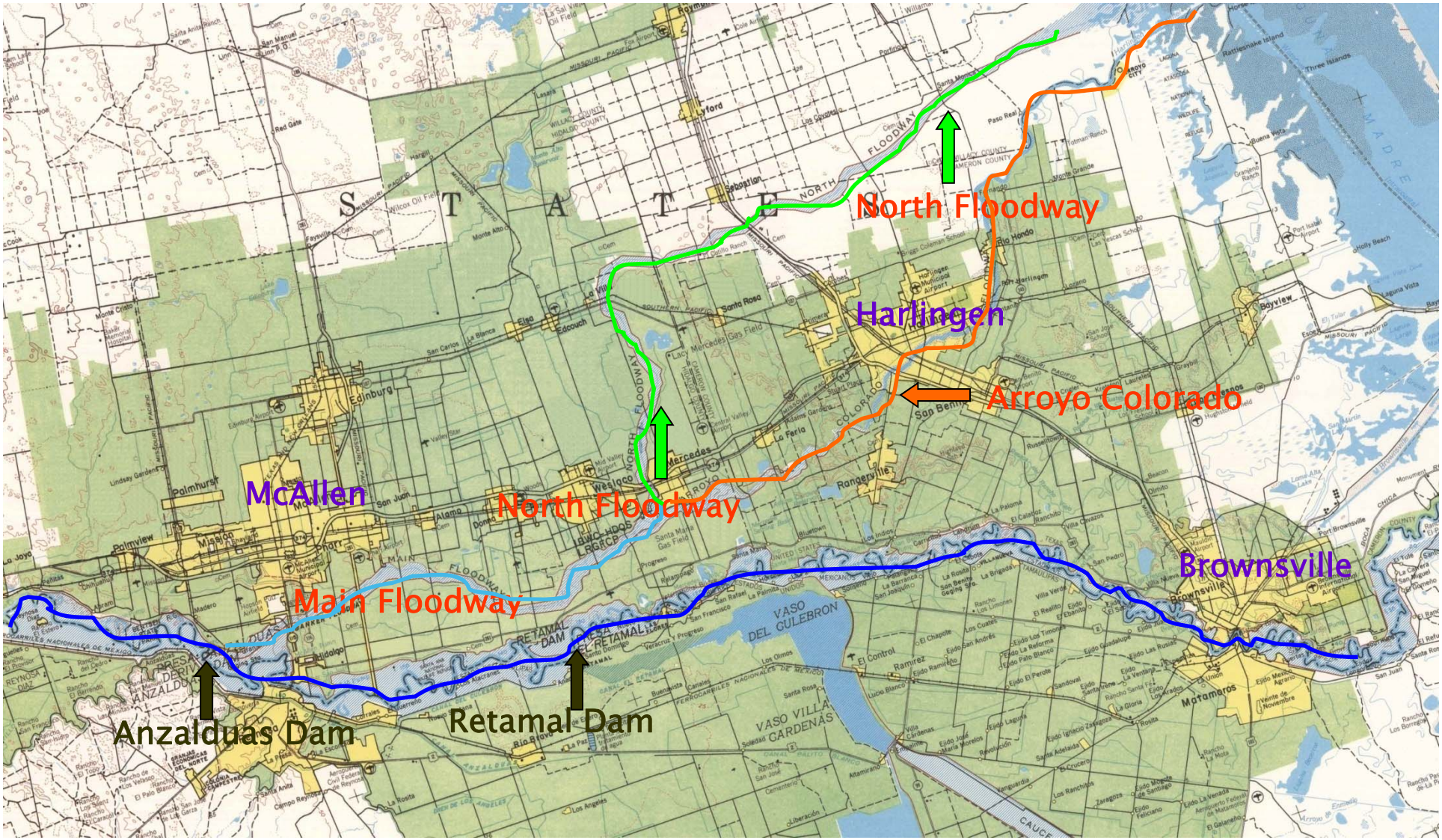
May 11, 2016

# LOWER RIO GRANDE FLOOD CONTROL PROJECT FEATURES

- 2 International Dams
- 270 miles of U.S. levees along the river and floodways
- 30,000 acres of interior floodway
- 64 miles of pilot channel
- U.S. floodway system includes Banker Floodway, Main Floodway, North Floodway, and Arroyo Colorado
- Retamal Dam – diverts Mexico's share of floodwaters into Mexico's interior floodway system

Retamal Dam

# LOWER RIO GRANDE FLOOD CONTROL PROJECT



# LOWER RIO GRANDE FLOOD CONTROL PROJECT FEATURES

Gaging station at Banker Weir Inlet

- Anzalduas Dam – diverts U.S. share of floodwaters into the U.S. interior floodway system
- Diversion of floodwaters into the U.S. interior floodways allows Commission to control flows in the Rio Grande at Brownsville-Matamoros
- 420 drain structures and 180 irrigation structures cross the levees
- Gaging stations to measure water flow

# DESIGN FLOOD

- Lower Rio Grande Flood Design Criteria
  - 250,000 cfs at Rio Grande City
  - 105,000 cfs into the U.S. floodway at Anzalduas Dam
    - 21,000 cfs in the Arroyo Colorado
    - 84,000 cfs in the North Floodway
  - 105,000 cfs in the Mexican floodway at Retamal Dam
  - Limit flows to 20,000 cfs at Brownsville-Matamoros

Arroyo Colorado

Harlingen, TX
8/18/10

# CURRENT OPERATIONS OF THE LOWER RIO GRANDE FLOOD CONTROL PROJECT

# Operation and Maintenance of Dams

## Yearly Maintenance

1. Maintenance of Gates #1 and #6 at Anzalduas Dam.

2. Maintenance of Gates at Retamal Dam.

# Anzalduas Dam Yearly Maintenance

# O&M of Project Facilities, Levees, and Structures

## Inspection and Rehabilitation of Structures

- All structures within IBWC floodways and levees are inspected on a yearly basis.
- Status of each gate is logged and submitted to supervisor.
- Critical issues on any of these structures are addressed immediately.
- Based on field reports replacement of structure gate and assemblies are planned – 20 per year.

## Levee Resurfacing & Repair

- Under MOA with DHS approximately 10 miles of levee roadway are resurfaced with new flex-base material each year on the river levee. DHS provides flex-base material and IBWC provides labor and equipment.
- IBWC will resurface the levee roadway in different areas on the North Floodway.

# Structure Inspection and Rehabilitation and Levee Resurfacing

# O&M of Project Facilities, Levees, and Structures

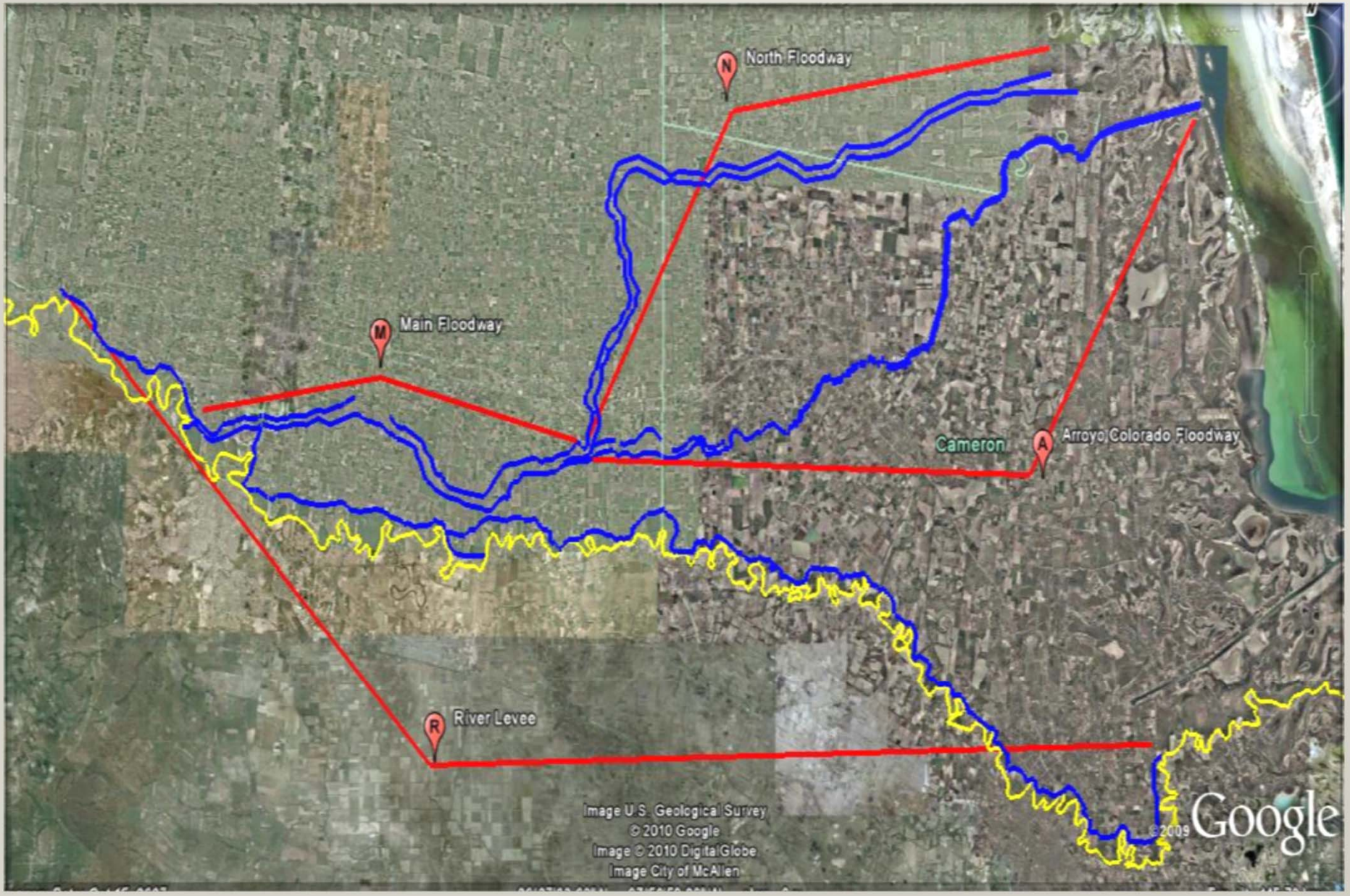
## Levee and Floodway Mowing

- A total of 8,500 acres are scheduled to be mowed every year.
- Crews have been trained to perform bird surveys during Migratory and Nesting Season.

## Channel and Drain Desilting

- Several lateral drains are currently being cleared of brush and desilted. These lateral drains allow for proper draining of water flows from the landside of the levees and into the pilot channel.

# Floodway Mowing



# Floodway Mowing

# Hydrology & Water Accounting

- It is the responsibility of Project personnel to assist the Water Accounting Division in the accounting of river flow data used to determine water ownerships of both countries.
- Hydrologic personnel are tasked with the operation and maintenance of river and off-river gaging stations. These stations are necessary to house equipment that is used to accurately measure flow in the river and interior floodways.

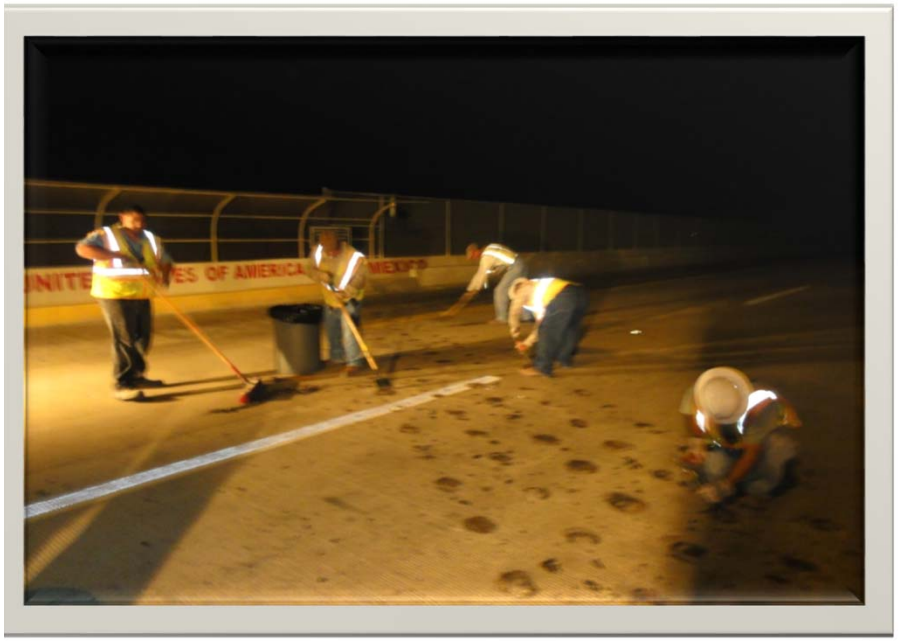
# Boundary Preservation

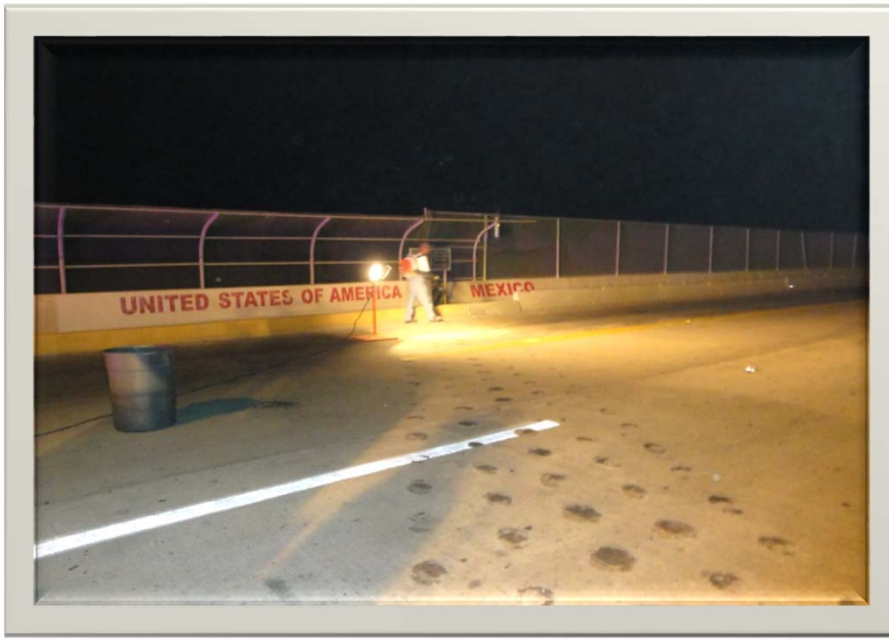
- LRGFCP personnel are required to perform 36 historical cross sections of the Rio Grande in accordance with the 1970 Treaty between the United States and Mexico. It is critical that these cross sections be performed in order to check for any possible boundary changes that might occur due to changes in the course of the river. Approximately 12 cross sections are performed a year of a three-year cycle.

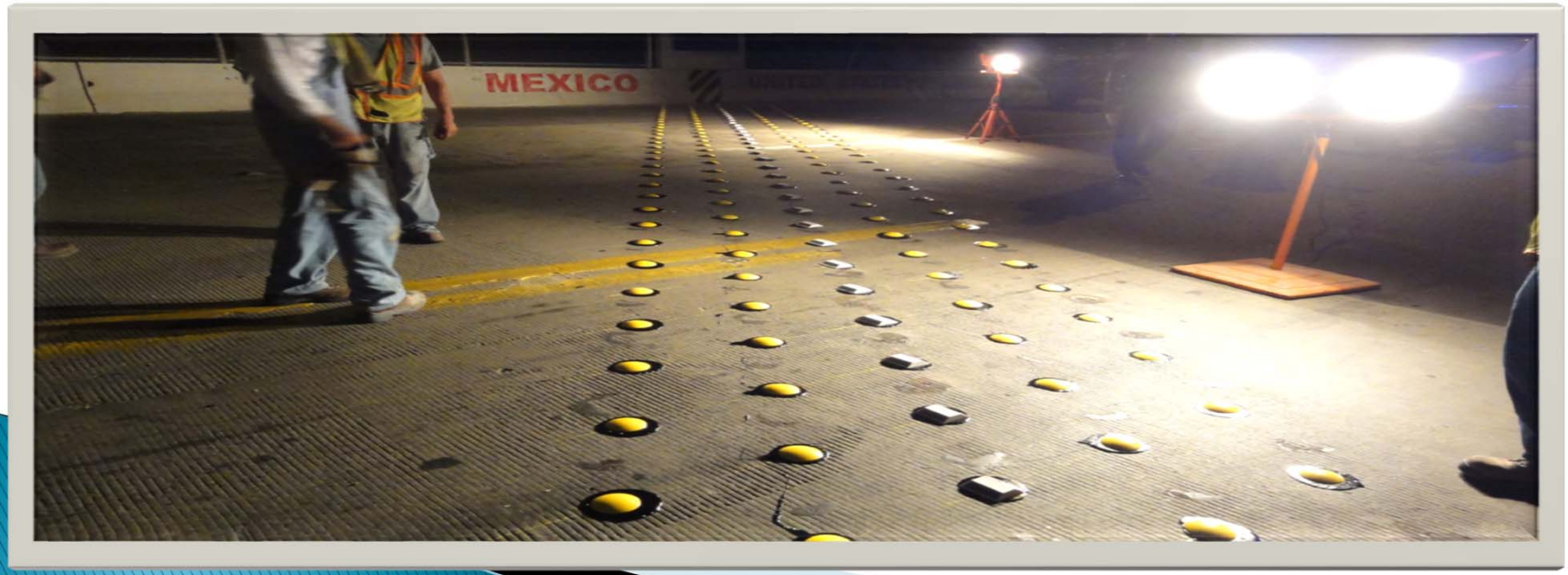
# Morillo O&M

- Under IBWC Minutes No. 223 and 303, the LRGFCP is charged with overseeing the operation and maintenance of the Morillo Drain Project.

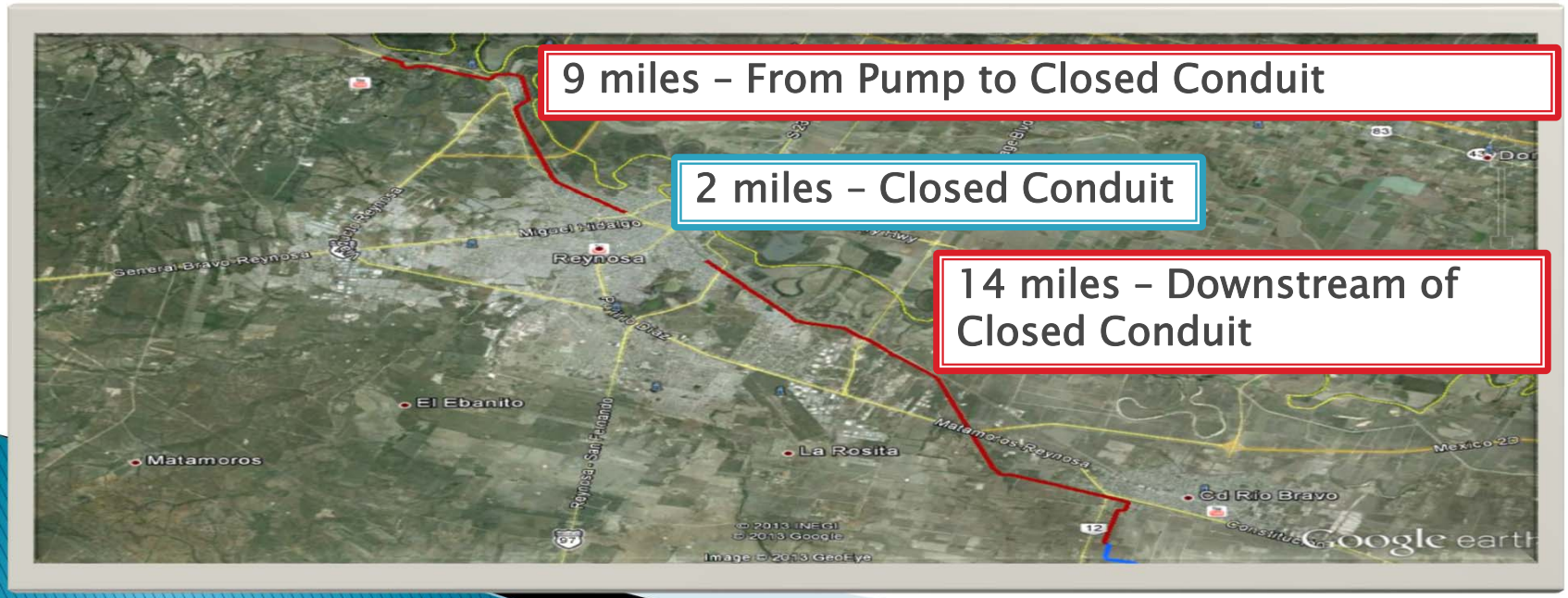
# Boundary Demarcation



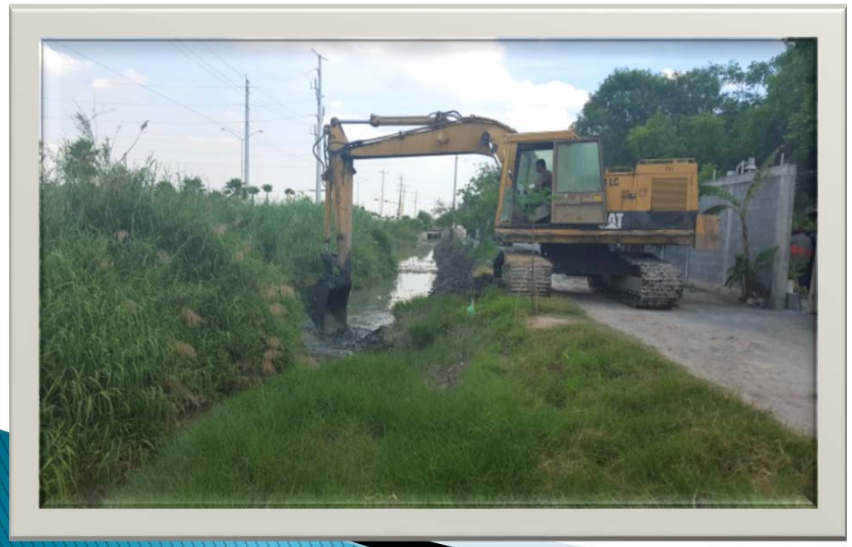


# Morillo Drain



# Morillo Diversion Canal Desilting



# Overview of USIBWC's Levee Rehabilitation within Lower Rio Grande Flood Control Project

# Background

- In 2005, FEMA sent USIBWC letter asking for the agency to certify our levees.
- The USIBWC began in house projects to begin working on the levees to meet these requirements both in the Lower Rio Grande and Upper Rio Grande Flood Control Projects.
- In 2009, the USIBWC was provided $220 million in funding for levee rehabilitation as part of the American Recovery and Reinvestment Act (2009)

# Background

- The USIBWC used the funding for design and construction of the required levee rehabilitation in several levee reaches of the agency's flood control projects.
- ARRA Funding was fully utilized by the agency and expired in September 2015.
- The USIBWC continues to fund the required design and construction of levee rehabilitation projects under its annual funding as approved by Congress.

# Background

- Over the last three years (Fiscal years 2014-2016), the USIBWC has received a total of $20.4 Million for the Rio Grande levee rehabilitation projects.

- The USIBWC has completed the submittals of several packages representing rehabilitated levee  segments to FEMA for levee accreditation.

# FEMA Accreditation

- Accredited Levee System – A FEMA accredited levee system is a levee system that meets the requirements of 44CFR65.10 and therefore is shown on the Flood Insurance Rate Map (FIRM) as providing protection from the 1-percent-annual-chance flood.

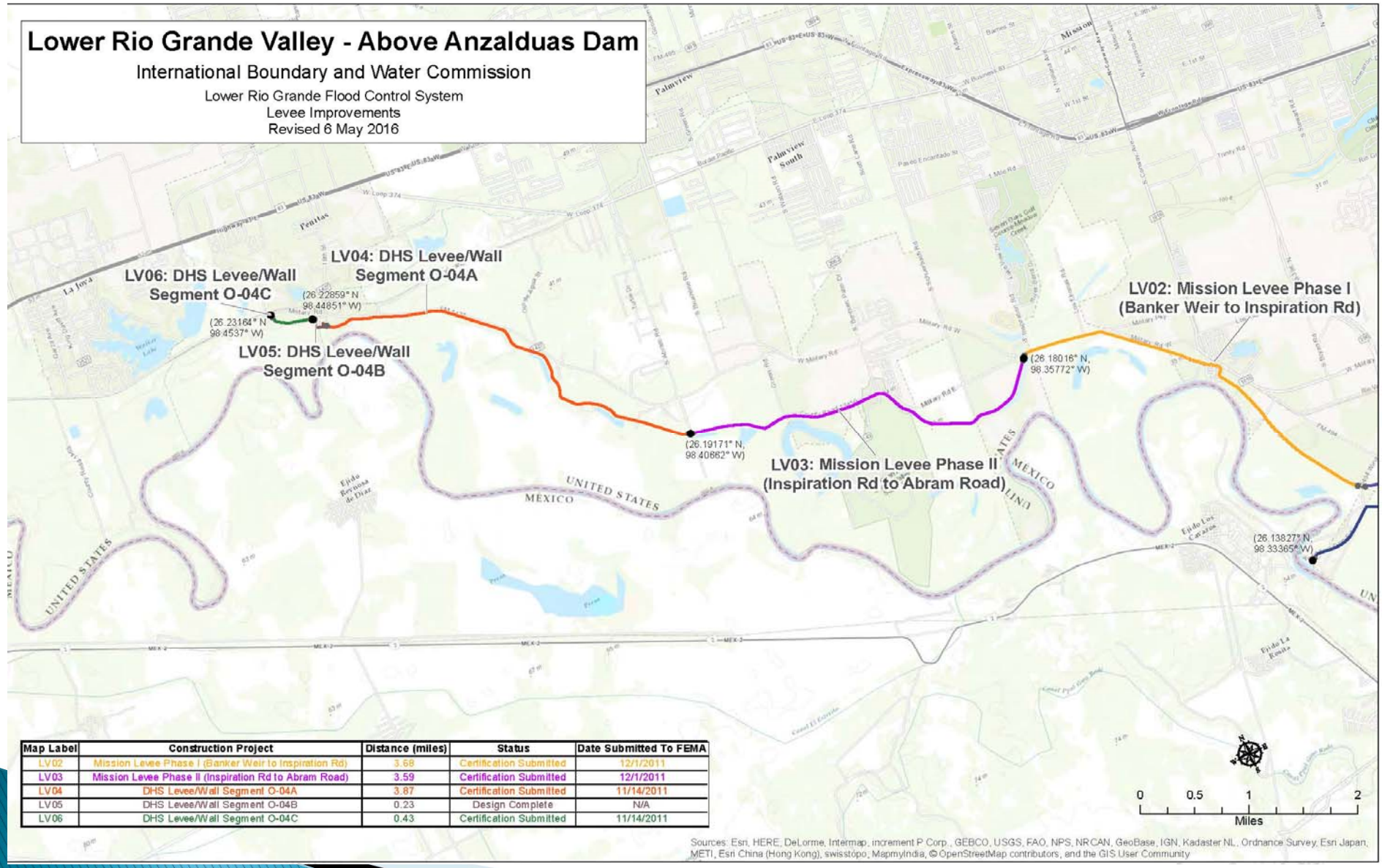
- FEMA does not own, operate, maintain, or inspect levee systems or develop certified levee-related data for accreditation purposes.

# FEMA Accreditation

- As the levee owner, USIBWC evaluates that the levees have been constructed to required design standards and are operated appropriately.

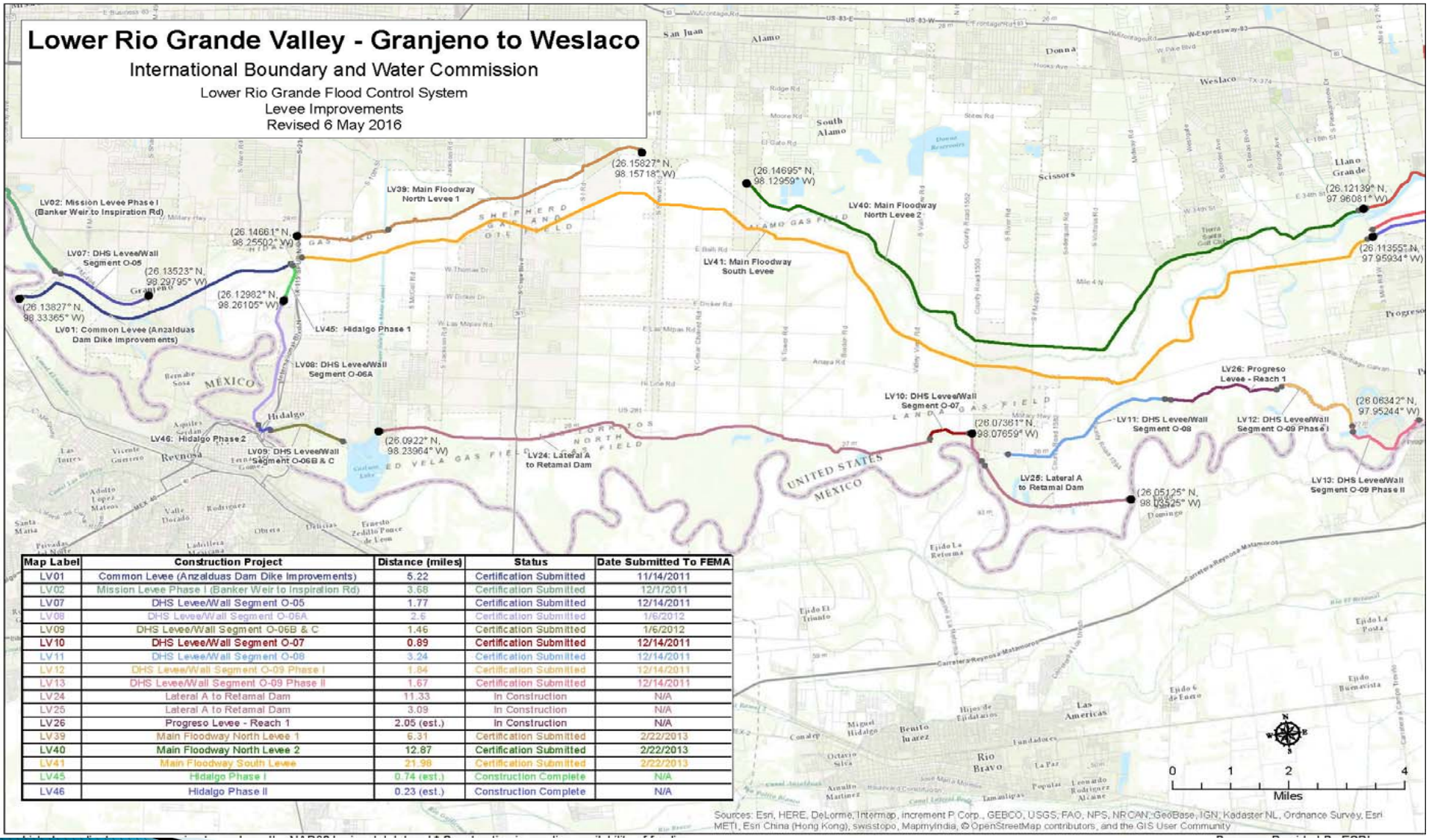
- For FEMA to accredit a levee system with 1%-annual-chance flood hazard reduction capability on a FIRM, the levee owner/local project sponsor must submit a package containing the required data and documentation to show that the levee system meets all design and operation requirements of 44CFR 65.10.

# LRGV FLOOD CONTROL PROJECT



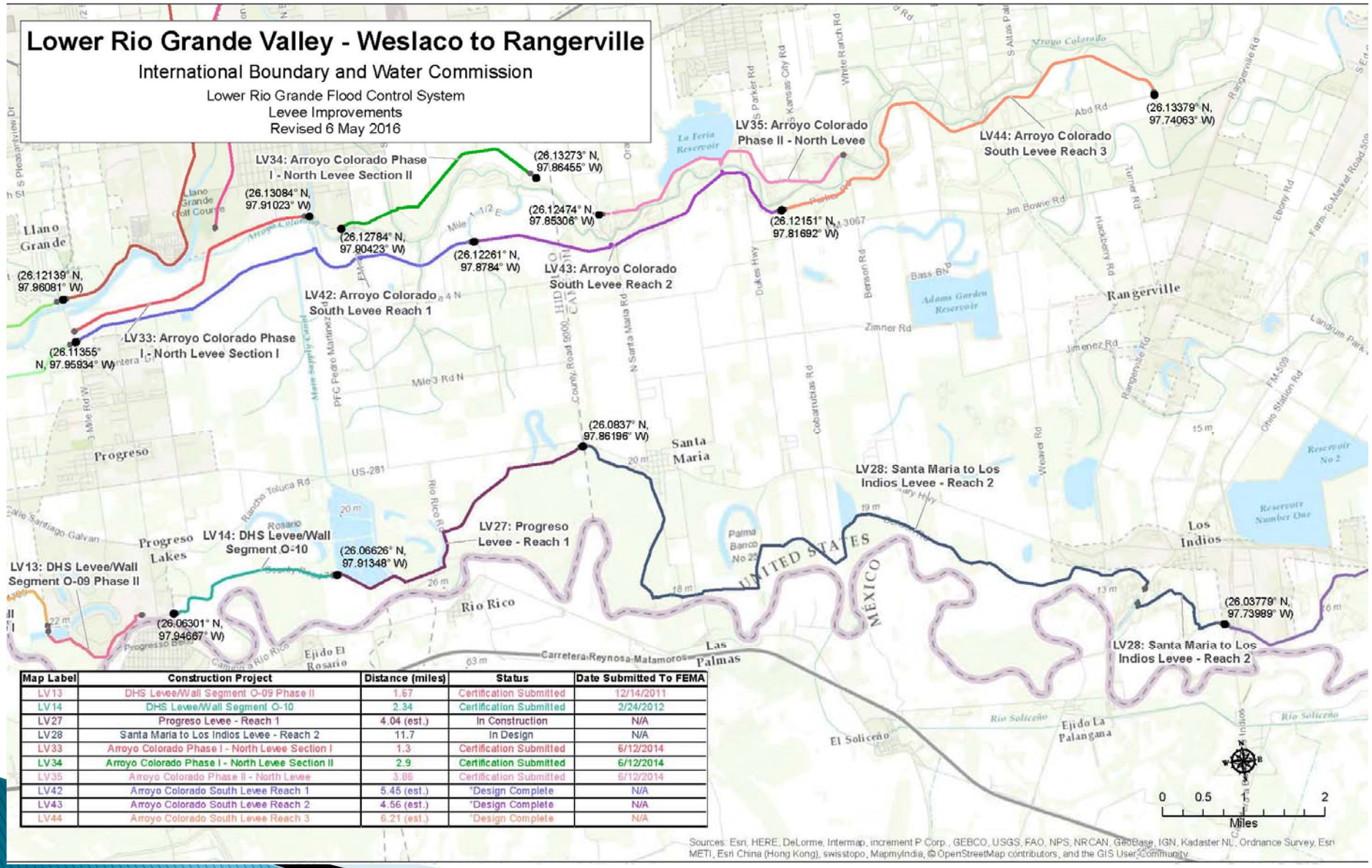

| Map Label | Construction Project | Distance (miles) | Status | Date Submitted To FEMA |
|---|---|---|---|---|
| LV02 | Mission Levee Phase I (Banker Weir to Inspiration Rd) | 3.68 | Certification Submitted | 12/1/2011 |
| LV03 | Mission Levee Phase II (Inspiration Rd to Abram Road) | 3.59 | Certification Submitted | 12/1/2011 |
| LV04 | DHS Levee/Wall Segment O-04A | 3.87 | Certification Submitted | 11/14/2011 |
| LV05 | DHS Levee/Wall Segment O-04B | 0.23 | Design Complete | N/A |
| LV06 | DHS Levee/Wall Segment O-04C | 0.43 | Certification Submitted | 11/14/2011 |

# LRGV FLOOD CONTROL PROJECT




| Map Label | Construction Project | Distance (miles) | Status | Date Submitted To FEMA |
|---|---|---|---|---|
| LV01 | Common Levee (Anzalduas Dam Dike Improvements) | 5.22 | Certification Submitted | 11/14/2011 |
| LV02 | Mission Levee Phase I (Banker Weir to Inspiration Rd) | 3.68 | Certification Submitted | 12/1/2011 |
| LV07 | DHS Levee/Wall Segment O-05 | 1.77 | Certification Submitted | 12/14/2011 |
| LV08 | DHS Levee/Wall Segment O-06A | 2.6 | Certification Submitted | 1/6/2012 |
| LV09 | DHS Levee/Wall Segment O-06B & C | 1.46 | Certification Submitted | 1/6/2012 |
| LV10 | DHS Levee/Wall Segment O-07 | 0.89 | Certification Submitted | 12/14/2011 |
| LV11 | DHS Levee/Wall Segment O-08 | 3.24 | Certification Submitted | 12/14/2011 |
| LV12 | DHS Levee/Wall Segment O-09 Phase I | 1.84 | Certification Submitted | 12/14/2011 |
| LV13 | DHS Levee/Wall Segment O-09 Phase II | 1.67 | Certification Submitted | 12/14/2011 |
| LV24 | Lateral A to Retamal Dam | 11.33 | In Construction | N/A |
| LV25 | Lateral A to Retamal Dam | 3.09 | In Construction | N/A |
| LV26 | Progreso Levee - Reach 1 | 2.05 (est.) | In Construction | N/A |
| LV39 | Main Floodway North Levee 1 | 6.31 | Certification Submitted | 2/22/2013 |
| LV40 | Main Floodway North Levee 2 | 12.87 | Certification Submitted | 2/22/2013 |
| LV41 | Main Floodway South Levee | 21.98 | Certification Submitted | 2/22/2013 |
| LV45 | Hidalgo Phase I | 0.74 (est.) | Construction Complete | N/A |
| LV46 | Hidalgo Phase II | 0.23 (est.) | Construction Complete | N/A |

# LRGV FLOOD CONTROL PROJECT




| Map Label | Construction Project | Distance (miles) | Status | Date Submitted To FEMA |
|---|---|---|---|---|
| LV13 | DHS Levee/Wall Segment O-09 Phase II | 1.67 | Certification Submitted | 12/14/2011 |
| LV14 | DHS Levee/Wall Segment O-10 | 2.34 | Certification Submitted | 2/24/2012 |
| LV27 | Progreso Levee - Reach 1 | 4.04 (est.) | In Construction | N/A |
| LV28 | Santa Maria to Los Indios Levee - Reach 2 | 11.7 | In Design | N/A |
| LV33 | Arroyo Colorado Phase I - North Levee Section I | 1.3 | Certification Submitted | 6/12/2014 |
| LV34 | Arroyo Colorado Phase I - North Levee Section II | 2.9 | Certification Submitted | 6/12/2014 |
| LV35 | Arroyo Colorado Phase II - North Levee | 3.86 | Certification Submitted | 6/12/2014 |
| LV42 | Arroyo Colorado South Levee Reach 1 | 5.45 (est.) | *Design Complete | N/A |
| LV43 | Arroyo Colorado South Levee Reach 2 | 4.56 (est.) | *Design Complete | N/A |
| LV44 | Arroyo Colorado South Levee Reach 3 | 6.21 (est.) | *Design Complete | N/A |

# LRGV LEVEE REHABILITATION PROJECTS

Recently Completed/Ongoing Projects

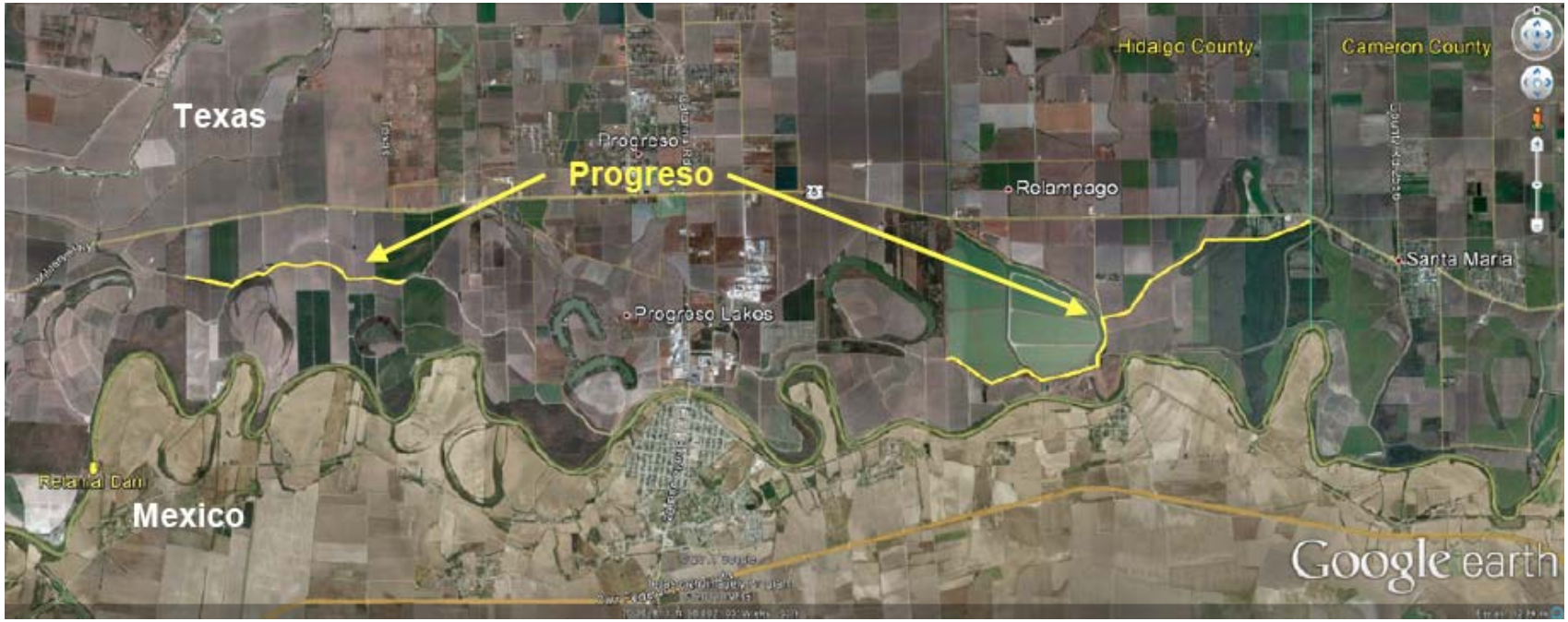
- Los Indios to San Pedro Levee Improvements- (Donna to Brownsville Reach #3)
- Progreso Levee Improvements (Donna to Brownsville Reach #1)

# LOS INDIOS TO SAN PEDRO LEVEE

- 11.9 levee miles.
- $11.7 million contract to LECON Inc.
- Project Substantially completed October 2015.
- Project administratively closed out January 2016.
- FEMA Package sent in March 2016.

# LOS INDIOS TO SAN PEDRO LEVEE

# PROGRESO LEVEE




- 6.0 levee miles total (west segment is 2.0 miles; east segment is 4.0 miles)
- $4.3 million contract awarded to Affolter Contracting Inc.
- Notice to Proceed issued July 16, 2015
- Anticipated completion September 20, 2016
- 42% Complete

# PROGRESO LEVEE

# FORTHCOMING LEVEE PROJECTS

## Edinburg Pump Levee Rehabilitation

- Approximately 710 feet of levee/floodwall improvements adjacent to the pump house.
- Closes gap in flood control project at Edinburg Pump House (also referred to as Segment O-04B).
- Construction contract to be awarded by September 30, 2016

# FORTHCOMING LEVEE PROJECTS

## Mercedes Railroad Floodgates (Union Pacific Railroad crossing at North Floodway Levees)

- Approximately 250 feet in levee improvements
- Requires agreement and coordination with Union Pacific Railroad and Rio Grande Valley Switching Company due to active track.
- Closes gap on the north and south levees of North Floodway between Business 83 and Interstate 2/83.
- Construction contract to be awarded by September 30, 2016

# FORTHCOMING LEVEE PROJECTS

## Union Pacific Railroad crossing at Brownville Levee

- Approximately 600 feet in levee improvements where railroad track recently decommissioned
- Closes gap on the Rio Grande levee within the Upper Brownsville Levee Reach
- Construction contract to be awarded by September 30, 2016

# FORTHCOMING LEVEE PROJECTS

Beyond Fiscal Year 2016

- Sebastian Railroad Floodgates
- Brownsville Levee Cracking Remediation

# LEVEE REHABILITATION SUMMARY

- 155 miles of levee improvements completed
  - ~ 91 miles on Interior Floodways levees in LRGV
  - ~ 64 miles on Rio Grande levees in LRGV

- Approximately $133 Million expended on Construction Contracts to include Construction Management in LRGV since 2009. This figure does not include costs for geotechnical investigations and design.

- 24 certification packages submitted to FEMA for LRGV

# UPDATES/INFORMATION

- Updates on levee reach status is provided on the USIBWC website.
- For the latest maps, visit http://www.ibwc.gov/GIS_Maps/levee-rehab-status_tabbed.html


Construction Project Inquiries
Isela Canava
Lead Civil Engineer
(915) 832-4748

FEMA Certification Inquiries
Dr. Apurba Borah
Lead Hydraulic Engineer
(915) 832-4712

# *QUESTIONS???*

Francisco Martinez
Asst. Area Operations Manager
Mercedes Field Office
(956)565-3159
E-mail:
francisco.martinez@ibwc.gov

Juan Uribe
Area Operations Manager
Mercedes Field Office
(956)565-3159
E-mail:
juan.uribe@ibwc.gov