

INTERIOR DRAINAGE HYDROLOGIC AND HYDRAULIC ANALYSIS FOR EL PASO, TX

International Dam to Riverside Weir

URS



Background



The International Boundary and Water Commission (IBWC) has performed rehabilitation work on the Rio Grande levee to provide adequate freeboard for 100-year flows



FEMA

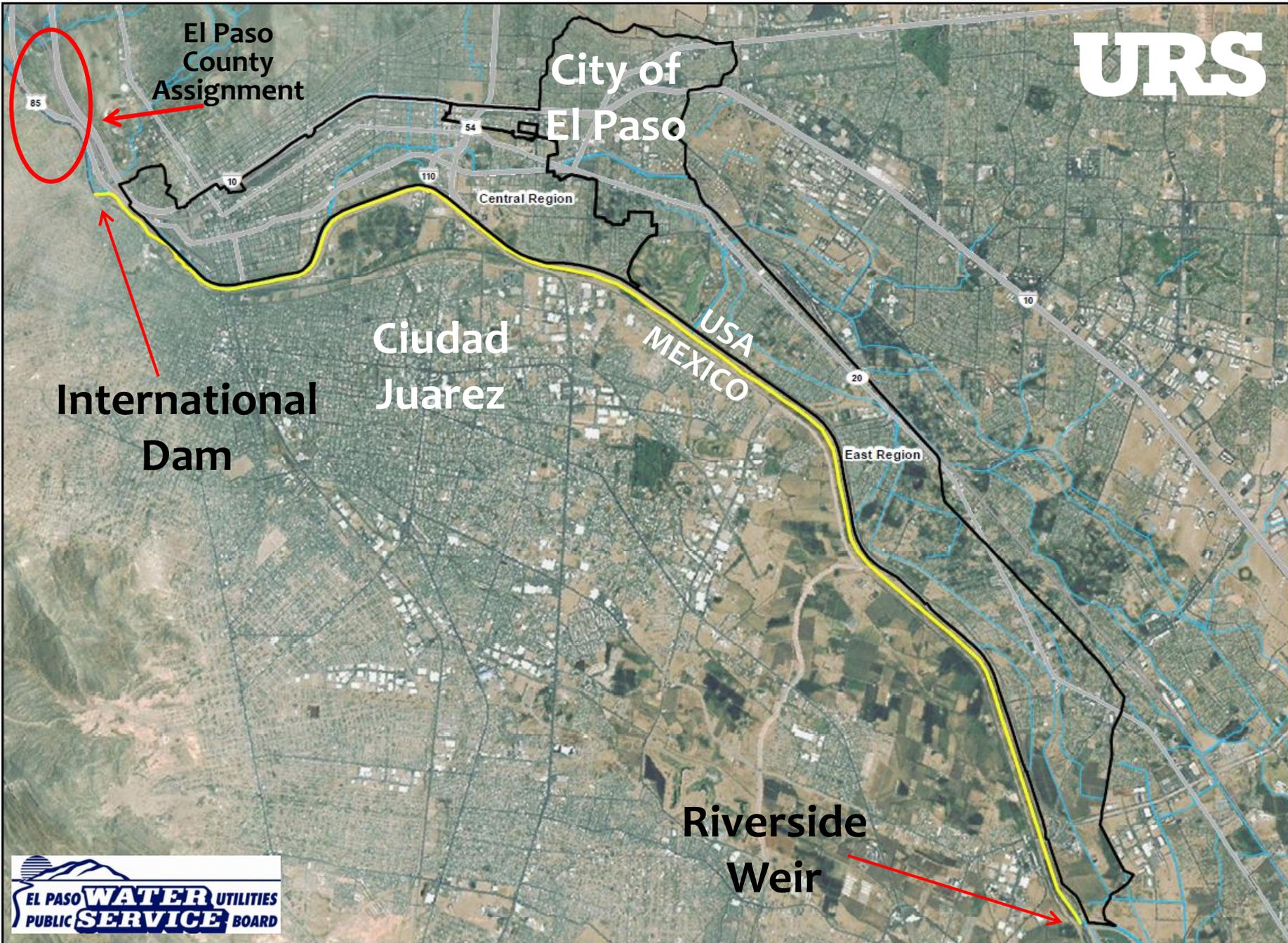


FEMA levee certification of the levee improvements require a drainage analysis for the interior side of the City of El Paso



Master Planning History

- * 2006 Flood
- * 2009 – City of EL Paso Stormwater Master Plan – EPWU / URS
 - * **Significant Stormwater Infrastructure Improvements**
- * 2010 – El Paso County Stormwater Master Plan – El Paso County / URS
- * 2014 – City of El Paso Interior Drainage Study – EPWU / City of El Paso / FEMA / URS / USIBWC/



El Paso
County
Assignment

City of
El Paso

Central Region

East Region

USA
MEXICO

International
Dam

Ciudad
Juarez

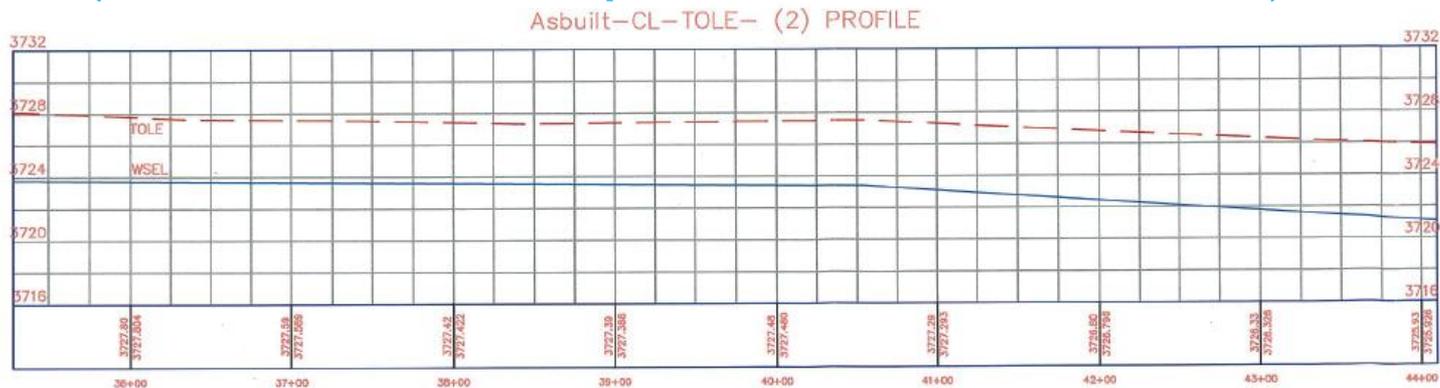
Riverside
Weir



Rio Grande Rehabilitation



Freeboard (distance between the top of levee and the water surface)



Interior Drainage Study

- * What is the purpose?
 - * To determine the effects of the Rio Grande at different stages (High and Low) on the Levee and the interior drainage systems.

Levee Condition	River Storm	Interior Storm	Drainage Outfall Condition
Prior to levee improvements	Base flow	100-year	Outfall gates open
Prior to levee improvements	100-year storm	100-year	Outfall gates closed
Post levee improvements	Base flow	100-year	Outfall gates open
Post levee improvements	100-year storm	100-year	Outfall gates closed

Complex Modeling

- * Hydrologic Modeling
 - * Amount of Stormwater
- * Hydraulic Modeling
 - * Surface Flow – 2D (Over Streets)
 - * Sub-Surface (Conduits)
 - * Pump Stations
 - * Flap Gates at Rio Grande
- * FEMA Compliant

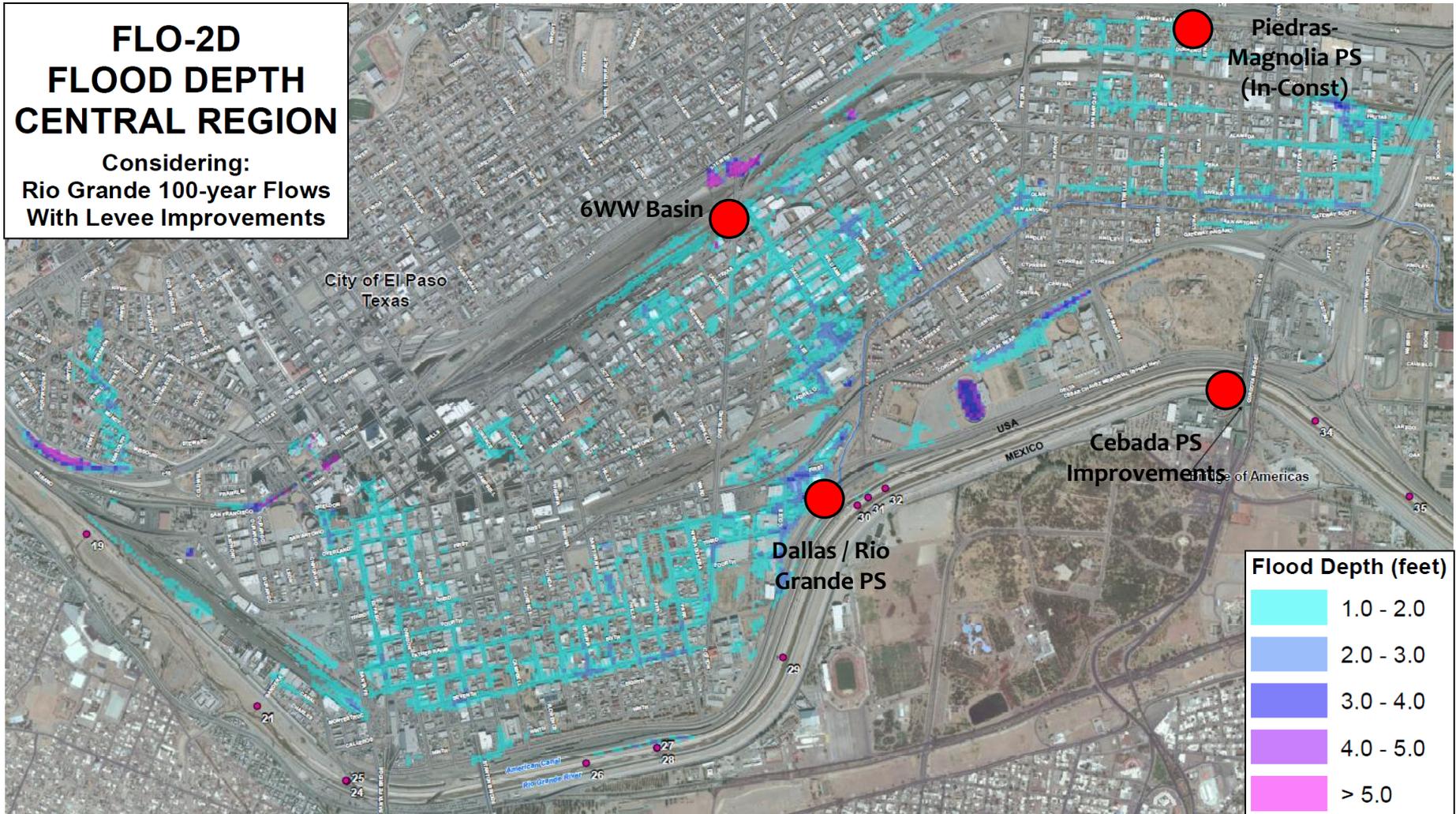
**This level of
Analysis not
Possible in 2006**

FLO-2D Results – Flood Depths

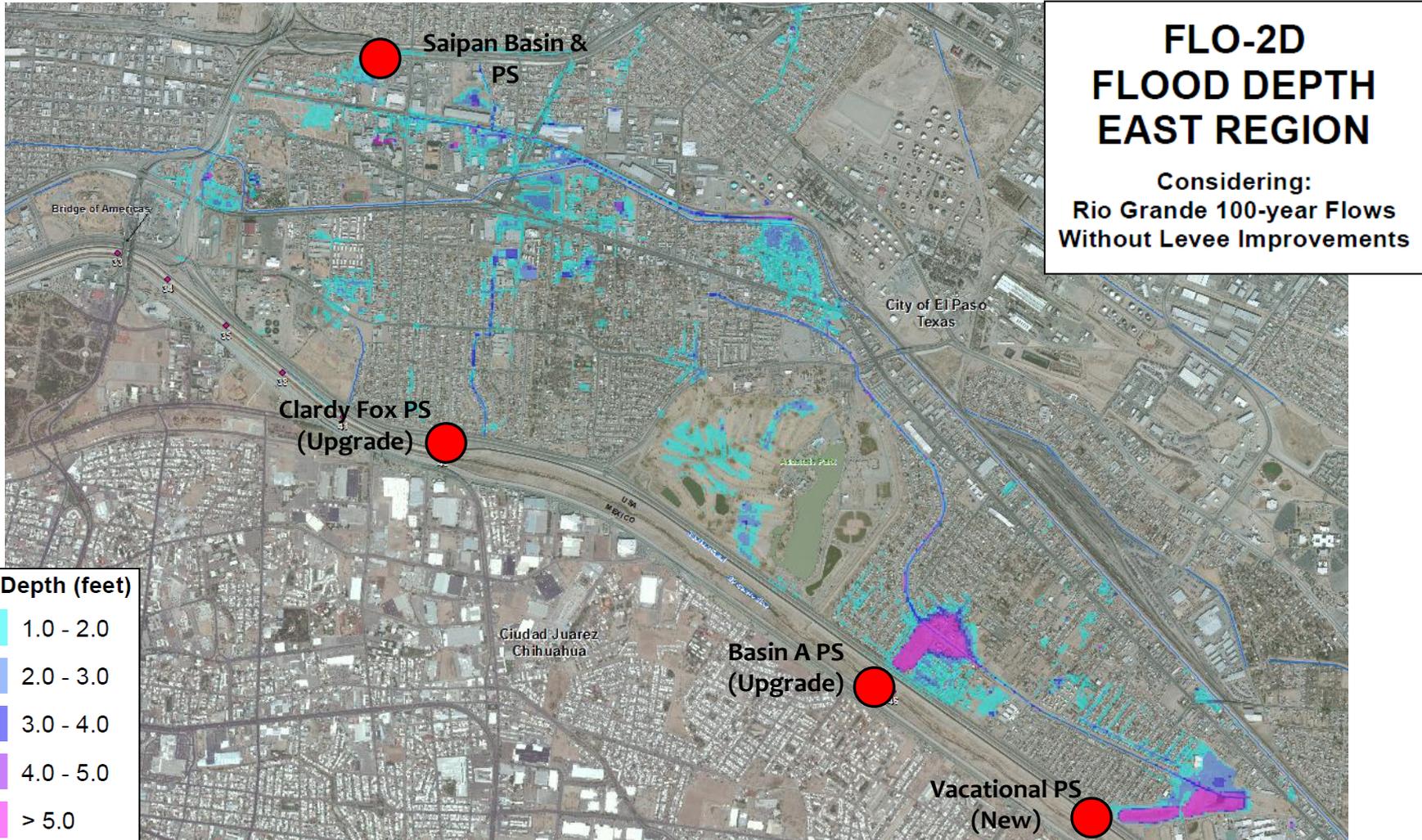


FLO-2D FLOOD DEPTH CENTRAL REGION

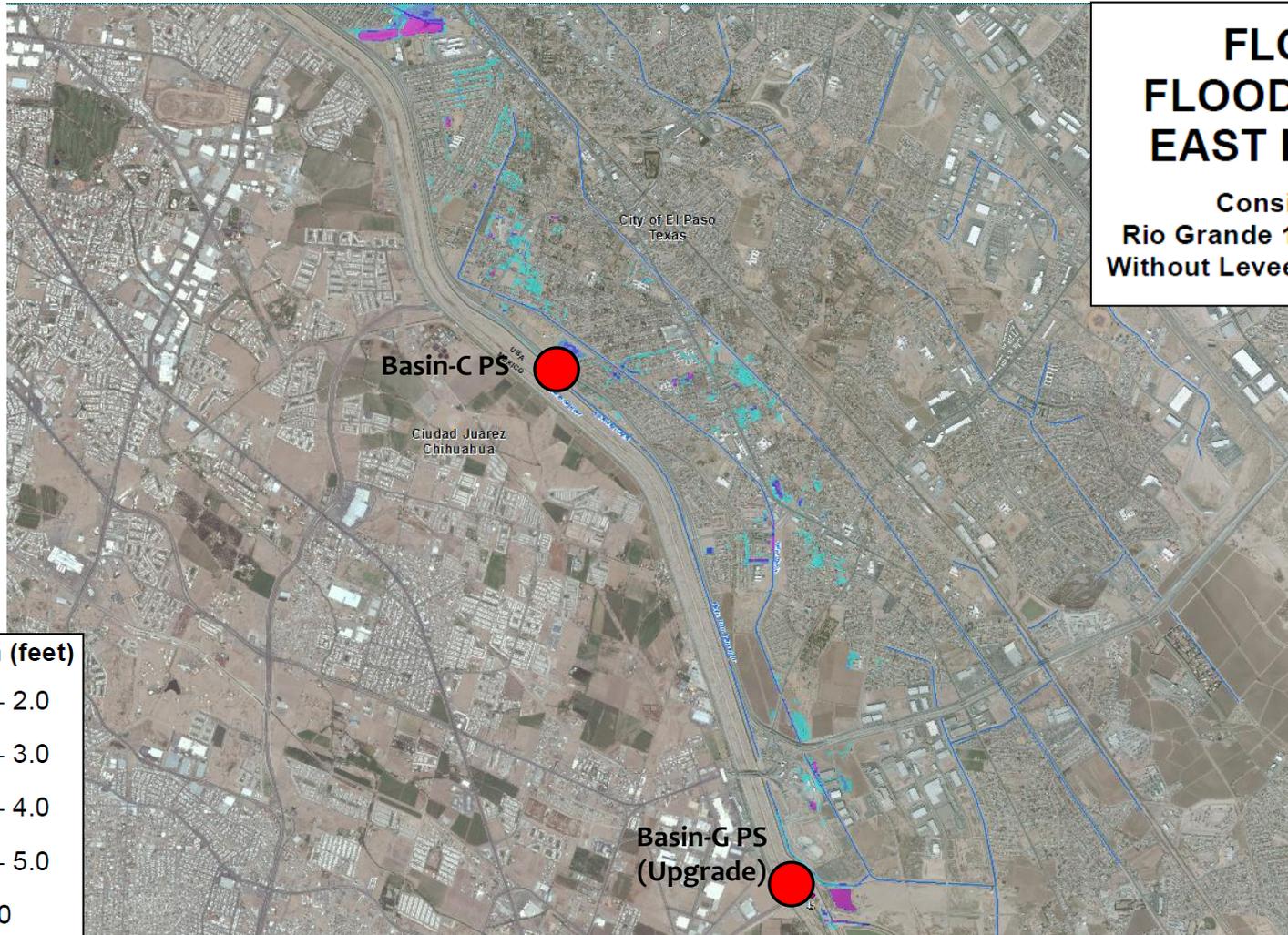
Considering:
Rio Grande 100-year Flows
With Levee Improvements



FLO-2D Results – Flood Depths



FLO-2D Results – Flood Depths



FLO-2D FLOOD DEPTH EAST REGION

Considering:
Rio Grande 100-year Flows
Without Levee Improvements

Flood Depth (feet)

	1.0 - 2.0
	2.0 - 3.0
	3.0 - 4.0
	4.0 - 5.0
	> 5.0

Planning Tool for El Paso Residents

- * Determine Flood Risk in Urban Areas
 - * Timing of Flood
 - * Depth of Flooding
 - * Velocity of Flooding
- * Development of Operations Protocols
- * Improved CIP Development

Great Planning Tool

Questions?

Thank you for attending
our presentation.