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Project name:
Upper Rio Grande 2023 Regional Flood Plan

Project ref:
60660436

From:
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Date:
January 7, 2022

To:
Texas Water Development Board
(TWDB)

Cc: Upper Rio Grande Regional Flood
Planning Group (RFPG)

Memo

Subject: Upper Rio Grande Regional Flood Plan Technical Memorandum (Task 4c)

AECOM is providing engineering services for the Rio Grande Council of Governments (RGCOG) as part of the Region 14 Upper Rio Grande Regional Flood Plan (RFP), administered by the Texas Water Development Board (TWDB). This regional flood plan will be incorporated into the first planning cycle of the 2024 State Flood Plan for Texas.

The primary objective of the Upper Rio Grande RFP is to identify specific flood risks within the region and identify, evaluate, and recommend potential solutions to mitigate and manage these risks in alignment with the region's short-term and long-term goals. These solutions may include Flood Management Evaluations (FMEs), Flood Management Strategies (FMSs), and Flood Mitigation Projects (FMPs), as defined below:

- Flood Management Evaluation (FME) - a proposed flood study of a specific, flood-prone area that is needed in order to assess flood risk and/or determine whether there are potentially feasible FMSs or FMPs,
- Flood Mitigation Project (FMP) - a proposed project, either structural or non-structural, that has non-zero capital costs or other non-recurring cost and when implemented will reduce flood risk, mitigate flood hazards to life or property, and
- Flood Management Strategy (FMS) - a proposed plan to reduce flood risk or mitigate flood hazards to life or property.

This Technical Memorandum for the Upper Rio Grande RFP is prepared in accordance with the TWDB RFP Scope of Work (SOW) Task 4c, which requires a concise summary of work regarding the following elements of the RFP. The italicized bullet items listed below refer to items for which TWDB has issued an extended deadline and will be provided in a follow-up submittal due to TWDB on March 7, 2022:

- A list of political subdivisions within the FPR that have flood-related authorities or responsibilities;

- A list of previous flood studies considered by the RFPG to be relevant to development of the Regional Flood Plan;
- *A geodatabase and associated maps in accordance with TWDB Flood Planning guidance documents that the RFPG considers to be best representation of the region-wide 1% annual chance flood event and 0.2% annual chance flood event inundation boundaries, and the source of flooding for each area, for use in its risk analysis, including indications of locations where such boundaries remain undefined;*
- *A geodatabase and associated maps in accordance with TWDB Flood Planning guidance documents that identifies additional flood-prone areas not described in previous bullet based on location of hydrologic features, historic flooding, and/or local knowledge;*
- *A geodatabase and associated maps in accordance with TWDB Flood Planning guidance documents that identifies areas where existing hydrologic and hydraulic models needed to evaluate FMSs and FMPs are available;*
- A list of available flood-related models that the RFPG considers of most value in developing its plan;
- The flood mitigation and floodplain management goals adopted by the RFPG per §361.36;
- The documented process used by the RFPG to identify potentially feasible FMSs and FMPs;
- A list of potential FMEs and potentially feasible FMSs and FMPs identified by the RFPG, if any; and
- A list of FMSs and FMPs that were identified but determined by the RFPG to be infeasible, including the primary reason for it being infeasible.

The Upper Rio Grande RFP Technical Memorandum is arranged by SOW task with each of the items above summarized under its associated task. It is intended to comply with the SOW and all applicable rules and statute requirements governing state flood planning under *Title 31 of the Texas Administrative Code (TAC) Chapters 361 and 362*. In addition, the accompanying geodatabase contains spatial files representing data collected and developed as part of the RFP in accordance with the TWDB Exhibit D Data Submittal Guidelines. Reference tables (**Table A1** through **Table A11**) are provided as an attachment with this memorandum for additional information and supporting documentation for the four SOW tasks presented below.

During a public meeting held on December 16, 2021, and in accordance with the *TAC Chapter 31 Section 361.21(h)* notice requirements, AECOM presented a draft version of this Technical Memorandum to the URGRFPG for discussion and comment. URGRFPG voted to authorize AECOM to make non-substantial edits and submit the final Technical Memorandum with non-substantial edits to TWDB. Documentation of this process is provided as an attachment at the end of this memorandum.

Task 1 – Planning Area Description

Task 1 includes a summary of the Region 14 flood planning area as it relates to flood management, flood history, population, economic activity, land use, resources, flood studies, natural flood features, and flood infrastructure.

The planning area for Region 14 follows the Upper Rio Grande in West Texas along the US-Mexico border from the City of El Paso to the Amistad Reservoir in Val Verde County. This region is the largest of the fifteen state flood planning regions by area, covering more than 43,000 square miles across three overall river basins – the Upper Rio Grande, the Pecos River, and the Devils River.

The Upper Rio Grande region represents 23 counties, 30 municipalities (incorporated places), and 31 unincorporated (census-designated) places. In addition to these entities, the region includes three river authorities – the Upper Colorado River Authority, Lower Colorado River Authority, and the Nueces River Authority – as well as other political subdivisions and state or national areas. **Table A1** lists the entities within the FPR that have flood-related authorities or responsibilities, while **Table A2** summarizes the existing floodplain management practices for community jurisdictions throughout the region.

Where available, the RFP will incorporate information from previous flood studies, including results, models, proposed projects, and cost estimates. To compile this information, AECOM consulted with stakeholders and the RFPG and conducted a detailed stakeholder survey between September and October 2021. These studies were determined to be relevant to the Regional Flood Plan through review and discussion with the RFPG. **Table A3** lists previous flood studies relevant to the development of the Regional Flood Plan, **Table A4** lists all identified proposed or ongoing flood mitigation projects within the region, and **Table A11** lists a summary of existing flood infrastructure by type and location.

Task 2 – Existing and Future Condition Flood Risk Analyses

Task 2 of the Regional Flood Plan includes the identification and analysis of flood risks across the region for the 1% and 0.2% annual chance flood events. In reviewing the studies described in the previous section, flood-related models were identified and obtained. These models will be used to complete the Task 2 exposure and vulnerability analyses, identify data gaps in the existing and future condition flood hazard layers, and evaluate flood reduction impacts from potential FMSs and FMPs.

Table 1 below lists flood-related models most relevant to the Upper Rio Grande RFP.

Table 1: Relevant Flood-Related Models

| # | Location | Modeling Software | Source |
|----|--|--|--|
| 1 | El Paso County, within the Rio Grande Natural Valley Floodplain | FLO-2D, HEC-HMS, and HEC-RAS 2D | El Paso County Interior Drainage Study (El Paso Water and El Paso County, 2021) |
| 2 | El Paso County | HEC-HMS and HEC-RAS 2D | Preliminary FEMA El Paso County Mapping Study (FEMA, 2019) <i>(Note: as of November 2021, preliminary models are being adjusted to address appeals submitted during the appeal process – no current timeline is available for completion)</i> |
| 3 | Rio Grande – through Doña Aña County, NM and El Paso County, TX to Fort Quitman in Hudspeth County, TX | FLO-2D | El Paso County Natural Valley Analysis Pre-LAMP Report (FEMA RiskMAP, October 2016) |
| 4 | City of El Paso | HEC-HMS and HEC-RAS 1D | City of El Paso Stormwater Master Plan (EPWU, 2009) |
| 5 | El Paso County | HEC-HMS, HEC-RAS 1D, and CulvertMaster | El Paso County Stormwater Master Plans (El Paso County, 2010 and 2021) |
| 6 | Rio Grande from Anthony, New Mexico to American Dam in El Paso | HEC-RAS 1D | “Evaluation of Reduced Flow Capacity of the Rio Grande” Phase 1 report (Joint Committee on Rio Grande Project Flood Risk, 2019) |
| 7 | Rio Grande from just upstream of American Dam in El Paso to Little Box Canyon, in Hudspeth County, TX | HEC-RAS 1D, not georeferenced | USIBWC (2003) |
| 8 | Texas, statewide | Fathom 2D models | TWDB/Fathom (October 2021) |
| 9 | Canalization Reach of the Rio Grande, from Percha Diversion Dam to American Dam in El Paso | HEC-HMS and HEC-RAS | USIBWC <i>(expected to be available August 2022)</i> |
| 10 | Americas Ten Dam in El Paso | HEC-HMS and HEC-RAS 2D | Decommissioning Americas Ten Dam because of maintenance access issues (El Paso Water, 2010) |
| 11 | City of El Paso High Hazard Dams | HEC-HMS | Probable Maximum Precipitation Update (El Paso Water, 2018) |
| 12 | City of El Paso High Hazard Dams | HEC-HMS, FLO-2D, SITES | Emergency Action Plan for City of El Paso High Hazard Dams (COEP and EPWU, 2010) |

| # | Location | Modeling Software | Source |
|----|--|--|--|
| 13 | SH 20 (Mesa Street) From Doniphan Drive to Texas Avenue | HEC-HMS, EPA SWMM | Drainage Study for SH 20 (Mesa Street) From Doniphan Drive to Texas Avenue (TXDOT, 2019) |
| 14 | FM 170 (Mesa Street) From Candelaria to US-67 | HEC-HMS, HEC-RAS 1D | Drainage Study for FM 170 From Candelaria to US-67 (TXDOT, 2020) |
| 15 | Rio Grande Interior Drainage, from International Dam to Riverside Weir | HEC-HMS, StormCAD, FLO-2D, CulvertMaster, FlowMaster | Interior Drainage H&H Analysis for El Paso, TX International Dam to Riverside Weir (EPWU and USIBWC, 2016) |

Task 3 – Floodplain Management Practices & Goals

Task 3 includes an evaluation of the role of floodplain management and land use practices on existing and future flood risk throughout the Upper Rio Grande region. Through this task, the RFP will address the following key SOW items outlined by TWDB:

- “Recommend forward-looking floodplain management and land use recommendations, and economic development practices and strategies, that should be implemented by entities within the FPR” (Task 3A, §361.35), and
- “Identify specific and achievable flood mitigation and floodplain management goals along with target years by which to meet those goals for the FPR” (Task 3B, §361.36).

To develop and refine these recommendations and goals, the Upper Rio Grande RFPG and AECOM formed Subcommittee 1 to focus on Tasks 3A and 3B, which also included conducting four separate public meetings during Fall 2021:

- **September 30, 2021** – Introduction to floodplain management standards, practices, and goals
- **October 21, 2021** – Interactive goal development session and target years
- **November 4, 2021** – Presentation and discussion of draft floodplain management goals
- **November 11, 2021** – Presentation of draft region-specific recommendations and refinement of specific measurable goal targets and subcommittee recommendations to the RFPG

These meetings were posted and held in accordance with the relevant provisions and guiding principles of Title 31 of the Texas Administrative Code (TAC) Chapters 361 and 362. The four Task 3 subcommittee meetings included:

The recommendations and goals for RFPG adoption described in this memorandum were developed based on input received from the RFPG during the Subcommittee 1 meetings as well as input from other regional stakeholders provided through the stakeholder survey process.

Task 3A – Region 14 Floodplain Management and Land Use Recommendations

The following region-specific floodplain management and land use recommendations should be implemented by entities within the FPR and are categorized as either *recommendations for minimum standards* or *general recommendations*:

- *Recommendations for minimum standards* include minimum floodplain management standards required for communities to participate in the National Flood Insurance Program (NFIP). In future Planning Cycles, these minimum standards recommendations may be adopted as minimum requirements by the RFPG which entities must meet to include flood needs (FMEs, FMSs, FMPs) in the Regional Flood Plan. These minimum requirements will not apply to the first planning cycle of the 2023 Region/2024 State Flood Plan.
- *General recommendations* include all other region-specific recommendations which entities should implement apart from the NFIP minimum standards. While these general recommendations are strongly encouraged, the RFPG does not anticipate adopting them as minimum standards in future planning cycles.

Subcommittee 1 recommends to the RFPG the following region-specific *recommendations for minimum standards*:

- Participate (and maintain active status) in the National Flood Insurance Program (NFIP)
- Require development permits for all proposed construction to determine whether such construction is proposed within flood-prone areas and will be reasonably safe from flooding (44 CFR § 60.3a[1 -4])
- Require new and replacement sanitary sewage and water supply systems within flood prone areas to be designed to minimize or eliminate infiltration of flood waters into the systems (44 CFR § 60.3a[1 -5])
- Require additional minimum standards for flood-prone areas associated with designated special flood hazard areas (Zone A and AE) (44 CFR § 60.3b-d)
- Require additional minimum standards associated with mudslide (i.e. mudflow)-prone areas (44 CFR § 60.4)
- Require additional minimum standards associated with flood-related erosion-prone areas (44 CFR § 60.5)

In addition to the *recommendations for minimum standards*, Subcommittee 1 recommends to the RFPG the following region-specific general recommendations:

- Establish local flood outreach and awareness programs (addressing flood risk, resiliency, and mitigation), including providing access to FEMA informational resources
- Coordinate with TxDOT and NWS to use flood warning signs, traffic message boards, and other media (TV, radio, social media) to communicate flood warnings
- Conduct public outreach to identify ongoing flood needs (data gaps, flood management strategies, and flood mitigation projects)
- Develop and maintain local stormwater asset management plans
- Adopt higher-than-NFIP-minimum standards (e.g., higher freeboard) and participate in the TFMA Higher Standards Survey
- Enroll in CRS Program for reduction in flood insurance premiums and flood risk
- Consider and incorporate nature-based practices in flood mitigation projects where possible

These recommendations were approved by the Upper Rio Grande RFPG during the General Meeting on November 30, 2021.

Task 3B – Flood Mitigation and Floodplain Management Goals

The Flood Plan Task 3B Scope of Work requires the RFPG to adopt both Short-Term (10-year) and Long-Term (30-year) flood mitigation and floodplain management goals. These goals help to establish the RFPG's objectives and priorities for the first-cycle flood plan. With input from the Upper Rio Grande RFPG discussed during Subcommittee 1 meetings, 27 individual goals were identified with the following objectives:

- Improve floodplain management practices and design standards (Goals 01001, 01002, 02001, 02002, 02003, and 03001)
- Increase flood protection of unaccredited levees (Goal 04001)
- Increase availability of flood gages (Goal 05001)
- Improve region-wide flood warning and communication (Goals 06001 and 06002)
- Increase community flood awareness and Flood Plan participation (Goals 07001, 07002, and 07003)
- Improve coverage of flood hazard data through flood mapping (Goals 08001 and 08002)

- Reduce flood risk to structures and low water crossings (Goals 09001, 09002, 09003, 09004, 10001, and 10002)
- Increase use of regional stormwater detention (Goal 11001),
- Increase use of nature-based practices (Goal 12001),
- Increase use of dual-use flood mitigation/water supply structures (Goal 13001),
- Increase communities with stormwater asset management plans (Goal 14001), and
- Increase communities with new and/or dedicated flood funding sources (Goals 15001 and 15002).

For each of the identified goals, the RFPG defined the goal term (short-term or long-term), target year (2033 for short-term goals or 2053 for long-term goals), goal application area (region-wide or specific HUC-8 watersheds), and method of measuring future progress against the goal. Additionally, AECOM identified residual risk, associated goal identification numbers, and consistency with overarching goals from the Guiding Principles outlined in TAC Chapter 362. A list of the 27 Short-Term and Long-Term goals is presented in **Table A5** and were adopted by the Upper Rio Grande RFPG during the General Meeting on November 30, 2021.

Task 4 – Identification and Evaluation of FMEs, FMSs, FMPs

All FMPs and FMSs that are identified as potentially feasible flood reduction projects will require the use of detailed hydrologic and hydraulic (H&H) models to quantify flood risk reductions to structures and populations, including residential properties, agricultural land, and critical facilities. Furthermore, FMSs and FMPs must be evaluated to adhere to General Mapping and Modeling Guidelines (defined in Section 3.5 of the Technical Guidelines) and ensure that no negative impacts are received by neighboring areas.

Any FMSs or FMPs which are identified to be potentially feasible through the processes described in this section of the Memorandum will be further evaluated as part of Task 4B to determine whether they have sufficient H&H modeling data to be analyzed for project impacts and benefits. The FMP flow chart from Section 2.4B of the Technical Guidelines will be implemented as part of this screening process. If best available H&H models are deemed insufficient for quantifying project benefits and impacts, or if negative impacts are estimated for neighboring areas, those potentially feasible FMSs and FMPs will be categorized instead as potential FMEs. The general scope items associated with those FMEs would include:

- Development of detailed H&H models,
- Evaluating alternatives to define flood mitigation projects resulting in no negative impacts,
- Quantifying project impacts and benefits, and
- Estimating project costs.

The process described in the following sections would then be re-applied to the potentially feasible FMSs and FMPs to be considered for recommendation in either the amended RFP for this cycle, or for the next RFP cycle.

Status of Detailed H&H Models in the Planning Region

All or portions of the following 23 Texas counties are represented in the Upper Rio Grande Region: Brewster, Crane, Culberson, El Paso, Hudspeth, Jeff Davis, Loving, Pecos, Presidio, Reeves, Terrell, Ward, Andrews, Crockett, Ector, Edwards, Midland, Reagan, Schleicher, Sutton, Upton, Val Verde, and Winkler. Most of the region has relatively older regulatory FEMA floodplain mapping compared to the rest of the state, and 4 counties (Andrew, Winkler, Reeves, and Pecos) do not have regulatory FEMA floodplain maps or models.

At this point in time, El Paso County is the only County in Region 14 identified to have detailed H&H models, which could potentially be used to quantify project impacts and benefits for a prioritized list of projects documented in local Stormwater Master Plans (SWMPs). However, even within El Paso, certain types of FMSs or FMPs may not have sufficiently defined project parameters or detailed hydraulic models necessary to be fully evaluated and recommended in this first cycle of the RFP.

Process for Identification of Potential FMEs and Potentially Feasible FMSs

A subcommittee of the RFPG was formed to identify and evaluate potential FMEs and potentially feasible FMSs (Subcommittee 3 for Task 4B, a-b). This subcommittee developed recommendations to define the process used to identify potential FMEs and potentially feasible FMSs, which were then voted on by the subcommittee, presented to the RFPG, and ultimately approved by the RFPG.

► *Identification via Review of Historic Events*

The recommended process for identification of potential FMEs and potentially feasible FMSs includes these steps:

- Selection of recent historic storms that would serve as the basis for identification of needs. Relation of experiences to problems encountered by flood management agencies and the public are a means to ensure identification of major issues. The relation of anecdotal experience would promote committee- and RFPG-wide appreciation of broader issues that could be addressed by an FME or FMS.
- Within a series of subcommittee meetings:
 - Presentation by stakeholders of experience during the selected events that describes flood-related problems,
 - In public discussion, develop a short description of each problem that defines a need,
 - In public discussion propose FMEs and FMSs to address the need,
 - The subcommittee votes on how to proceed with each FMS and FME identified and makes a recommendation to the RFPG for approval, and
 - The RFPG votes on whether to approve the subcommittee's recommendation.

► *Selection of recent historic storms.*

Storms are identified either by stakeholders or the public during the General RFPG Meetings, Subcommittee Meetings, or via the public survey process. Storms that have been identified to date include:

- August 2006 storm. This multi-day storm centered over west and northwest El Paso County dropped large volumes of rain, leading to overtopping of Interstate (IH)-10, and sediment/debris flows from Franklin mountain arroyos into the city drainage infrastructure in west/ northwest El Paso and in northeast El Paso. The resulting blockage of drainage infrastructure led to extensive property damage. The high stage in the Rio Grande coupled with limited drainage structure/ pump station capacity led to extensive flood damage in several locations within the flat riverine terrace adjacent to the Rio Grande.
- August 2021 storm. This short, intense, extreme storm overwhelmed drainage infrastructure in east central El Paso. Several small flood control structures had major releases from emergency spillways, IH-10 was overtopped, and numerous neighborhoods and streets experienced short term flooding.
- September-October 2008 storm. This storm, centered over the Rio Conchos watershed in Mexico, sent a massive flood down the Rio Conchos into the Rio Grande. Flooding occurred along the Rio Grande from the confluence with the Rio Conchos to Amistad Reservoir. This flood breached and/or overtopped both US and Mexican levees at locations along the Rio Conchos and the Rio Grande. Flooding in Presidio itself was averted by the levee in the immediate area of the city. This portion of the Rio Grande levee did not overtop and held back the flood.

► *Presentation by the RFPG members and the public of flood experience.*

Presenters are briefed at the beginning of Subcommittee 3 meetings to structure their experience of historic flooding as follows: (1) for each storm event discussed, give a tour of the general or specific locations of the experienced damages/ issues; (2) a map is presented during the presentation showing locations as discussed; and (3) notes are taken by RFPG consultant staff describing in brief terms the flood-related problem(s) experienced for each storm and location. Following the presentation, RFPG consultant staff query the presenter to discuss and note each of the following broader issues:

- Primary public concerns
- Adequacy of early warning
- Issues with emergency route/ critical facility access
- Post-flood cleanup issues

- Issues with agency coordination

As of the publication date of this memorandum, background information on historic floods has been presented to the subcommittee by:

- Active stormwater professionals at El Paso Water (EPWater)
- Retired staff from City of El Paso (COEP) and EPWater
- El Paso County Engineer
- Staff at El Paso County Water Improvement District No.1 (EPCWID No. 1)
- Current and former staff from the US International Boundary and Water Commission (USIBWC)
- Staff at Hudspeth County
- In the event that a flood experience or potential need is identified by the general public or a stakeholder within the region who cannot present their experiences or describe their flood-related issue in a subcommittee meeting, AECOM or a subcommittee member will present to the subcommittee on behalf of that person. In addition, any flood damage centers that are identified by AECOM through a desktop analysis, but which have not been identified by the public or by stakeholders, will be presented to the subcommittee by AECOM (see "Secondary Process..." section of this Memorandum below). Following the presentation to Subcommittee 3, the subcommittee will decide whether to recommend the FME or FMS to the RFPG for approval.

► *Develop a short description of each problem that defines a need.*

In public discussion, the notes from each presentation are reviewed by the subcommittee and public attending the subcommittee meeting. The noted problems are reformulated as needs relevant to the region.

► *Propose FMEs and FMSs to address the need.*

During the public meetings, drainage issues and challenges are discussed along with identifying potential FMEs and FMSs.

Process for Identification of Potentially Feasible FMPs

A subcommittee was formed to identify and evaluate potentially feasible FMPs (Subcommittee 2 for Task 4B, c). "Potentially feasible FMPs" comprise the subset of the full list of regional FMPs that are to be carried forward for technical evaluation and considered for recommendation in the RFP. This subcommittee proposed a process for identifying and selecting potentially feasible FMPs, which was then voted on by the subcommittee, presented to the RFPG, and approved by the RFPG. A recommended process was developed for each of two scenarios:

1. FMPs that are currently listed in an active SWMP. An active SWMP is defined as current planning for future funding of selected storm water infrastructure projects, where the projects have been identified, planned (i.e. undergone concept design and cost estimation), and prioritized via a public process.
2. Other potential FMPs identified by the RFPG process and the public

► *Identification of Potentially Feasible FMPs via an active SWMP*

To date, the RFPG has identified two SWMPs: a list of 95 storm water mitigation projects developed by El Paso Water for the City of El Paso, and a list of 66 storm water mitigation projects developed by El Paso County. The recommended process for identifying potential FMPs from these two SWMPs is:

- Address all projects within each SWMP as a separate group.

- The subcommittee will review and modify the existing SWMP project ranking system and modify per public discussion within a subcommittee meeting.
- The subcommittee will review the list of projects following re-ranking per the revised ranking system and choose an option for selecting which projects (“Potentially Feasible FMPs”) will undergo further evaluation. It is expected that project scores used in ranking will be used to limit the number of projects carried forward into the evaluation phase.

As of the date of this memorandum, the subcommittee has reviewed and approved, with minor alterations, the ranking systems used in the City of El Paso and El Paso County SWMPs.

► *Identification of Potentially Feasible FMPs not included in an active SWMP*

The recommended process for identifying “potentially feasible FMPs” from the identified full list of projects not included in an active SWMP is:

- Create a list of regional projects not included in an active SWMP.
- Develop FMP scoring method in a subcommittee meeting
- Apply FMP scoring method to score each project in the regional list
- Via subcommittee consensus, select “Potentially Feasible FMPs” from the list using the developed project scores

► *Create a list of regional projects not included in an active SWMP.*

To date, the RFPG has identified potential FMPs developed outside of a SWMP process by these entities:

- USIBWC
- EPCWID No. 1
- US Army Corps of Engineers (USACE)
- Texas Department of Transportation (TXDOT)
- Others (3 counties, and a water supply project by El Paso Water)

► *Develop FMP scoring method in a subcommittee meeting.*

The following two lists of project scoring categories have been recommended to the RFPG by Subcommittee 2 and were voted upon and approved by the RFPG on 12/16/21. These lists were recommended by Subcommittee 2 based on a comparison of these lists to the finalized Flood Mitigation and Floodplain Management Goals developed in Tasks 3A and 3B of the RFP. These lists derive from similar lists of categories used in the City of El Paso SWMP, with added categories available through information provided to the RFPG by the TWDB.

The first list, shown below in **Table 2**, is a list of project benefits to be qualitatively compared between projects. These categories were assigned a range of potential scoring points per subcommittee judgement of the relative importance of each category.

Table 2: Proposed Benefit Categories and Data Sources

| Source | Benefit Category | Current Data Source | Range of Potential RFPG Scoring Points | |
|----------------------|--|--|--|------------------|
| | | | No Benefit | Provides Benefit |
| City of El Paso SWMP | Increase Dam Safety | National Inventory of Dams, Chapter 299 TWC | 0 | 4 |
| | Reduce Flooding of Property | Best available risk maps, TWDB structure inventory | 0 | 3-4 |
| | Remove 100+ Properties from the Flood Zone | Best available risk maps, TWDB structure inventory | 0 | 4 |
| | Reduce Flooding of IH-10 | FMP location versus IH-10 | 0 | 1-3 |
| | Reduce Flooding of Major Arterial Roadways | Road classification database | 0 | 3 |
| | Reduce the Risk Associated with Debris Flow | Review of aerial photography to ID mobile bed arroyo | 0 | 3-4 |
| | Reduce Maintenance | Review of aerial photography to ID mobile bed arroyo | 0 | 1-4 |
| | Reduce Nuisance Flooding | Review of likely flat terrain-related routine flooding | 0 | 2 |
| TWDB | Reduce # of low water crossings in floodplain | TWDB dataset | 0 | 1-3 |
| | Reduce # of vulnerable buildings in floodplain | TWDB dataset | 0 | 1-3 |
| | Reduce # of critical buildings in floodplain | TWDB dataset | 0 | 1-4 |

The second list, shown below in **Table 3**, is of federal, state, and local agencies with potential permit authority. The difficulty of obtaining an agency permit for each project will be qualitatively judged, adding a positive or negative score adjustment to each project.

Table 3: Agencies with Permit Authority

| Permit Agency | |
|---|---|
| Railroad Permit | Texas Parks and Wildlife |
| IBWC | Historic District / Archaeologic |
| TCEQ | Land Acquisition |
| USACE | Street, Utility and Amenities Reconstruction |
| EPCWID #1 / EBID Permit | Environmental Impacts |
| TxDOT Permit | Other Ordinances (Parks, Unexploded Ordinances, Open Space) |
| Fort Bliss Permit | |
| <i>Scoring Adjustments for Permit Required: Yes (-1), No (0)</i> | |
| <i>Scoring Adjustments for Permit Complexity: Easy (+1), Normal (0), Difficult (-1), Unknown (-2)</i> | |

► Apply FMP scoring method to score each project in the regional list.

For each project, the scoring method will consider:

- Total scored benefits from **Table 2**
- Total score adjustments from **Table 3**

- The total score when adding the scored benefits from **Table 2** to the score adjustments from **Table 3**
- After scoring of each project, the list of projects is sorted in order of descending score value.

► *Select Potentially Feasible FMPs based on Project Scores.*

The last step in the process is via subcommittee consensus, select “Potentially Feasible FMPs” from the sorted list using the developed project scores.

Secondary Process for Identification and Selection of Potential FMEs, FMSs, and FMPs

The estimation of region-wide 1% AC flood risk has identified a number of regional locations outside of El Paso County with high numbers of estimated structures-at-risk. In general, the data collection process for the RFP has identified few incorporated and unincorporated areas outside of El Paso County with stakeholders who have presented awareness of or plans for addressing this risk. The more significant areas of risk will be discussed with each appropriate local stakeholder, potentially expanding the list of already-planned regional FMPs.

If no FMP or FMS has been previously identified by Subcommittees 2 and 3 for areas at risk of 1% AC flooding, or if the best available H&H models lack sufficient detail to allow for evaluations of FMPs or FMSs, then an FME to develop detailed H&H models and evaluate flood mitigation alternatives will be selected for the at-risk areas. Subcommittee 3 for Task 4B, a-b will review the higher risk areas identified by Task 2A and assign FMEs for these areas, so that these FMEs can be performed at a later date to identify potential FMSs and FMPs in the amended RFP or for future RFP cycles. Based upon recommendations from Subcommittee 3, the RFPG will vote for approval of the potential FMEs.

List of Potential FMEs, FMSs, and FMPs

FMEs, FMSs, and FMPs identified for further evaluation in the Upper Rio Grande RFP are listed in **Table A6**, **Table A7**, and **Table A8**, respectively (reference the Attachments section). These flood reduction actions were identified based on needs defined through stakeholder coordination via subcommittee meetings, phone calls, and/or planning documents provided to AECOM. Before detailed evaluations of flood reduction actions are performed, the applicable subcommittees and RFPG will approve the potential FMEs and potentially feasible FMPs and FMSs via the processes described in this Tech Memo. Note that these initial listings precede RFPG actions which will materially alter their final content:

- The needs defined by Subcommittee 3 based on discussion of recent flood experience in the subcommittee meeting held November 10, 2021 have not been addressed in these tables. In future Subcommittee 3 meeting(s) that subcommittee will develop FMEs and FMSs, and FMPs to address the needs identified in the November 10, 2021 meeting.
- The initial listing in **Table A8** of FMPs in the SWMPs for the City of El Paso and El Paso County was substantially reduced after review and screening by Subcommittee 2 to identify priority of projects for evaluation as part of the RFP. The reduced list of FMPs, provided in

- **Table A9** and **Table A10** are prioritized to facilitate order of technical evaluation for the El Paso County SWMP and the City of El Paso SWMP, respectively. The City and County of El Paso will have the opportunity to revise these lists moving forward. In addition, AECOM will have the opportunity to consider the time and budget needed to evaluate projects in the lists to reduce them further as needed.
- At this time, the RFPG has not voted to characterize any FMEs, FMSs, or FMPs as infeasible.

Attachments

Table A1: Entities with Flood-Related Authorities or Responsibilities¹

| Entity | Entity Type | Political Subdivision (Y/N) |
|-------------------|--------------|-----------------------------|
| Andrews County | County | Y |
| Brewster County | County | Y |
| Crane County | County | Y |
| Crockett County | County | Y |
| Culberson County | County | Y |
| Ector County | County | Y |
| Edwards County | County | Y |
| El Paso County | County | Y |
| Hudspeth County | County | Y |
| Jeff Davis County | County | Y |
| Loving County | County | Y |
| Midland County | County | Y |
| Pecos County | County | Y |
| Presidio County | County | Y |
| Reagan County | County | Y |
| Reeves County | County | Y |
| Schleicher County | County | Y |
| Sutton County | County | Y |
| Terrell County | County | Y |
| Upton County | County | Y |
| Val Verde County | County | Y |
| Ward County | County | Y |
| Winkler County | County | Y |
| Alpine, city of | Municipality | Y |

¹ Acronyms: FWSD (Fresh Water Supply District), MMD (Municipal Management District), MUD (Municipal Utility District), SHS (State Historic Site), SNA (State National Area), SP (State Park), WCID (Water Control and Improvement District), WID (Water Improvement District), WSD (Water Supply District), WMA (Wildlife Management Area)

| Entity | Entity Type | Political Subdivision (Y/N) |
|------------------------|--------------|-----------------------------|
| Anthony, town of | Municipality | Y |
| Balmorhea, city of | Municipality | Y |
| Barstow, city of | Municipality | Y |
| Clint, town of | Municipality | Y |
| Crane, city of | Municipality | Y |
| Dell City, city of | Municipality | Y |
| El Paso, city of | Municipality | Y |
| Fort Stockton, city of | Municipality | Y |
| Grandfalls, town of | Municipality | Y |
| Horizon City, town of | Municipality | Y |
| Iraan, city of | Municipality | Y |
| Kermit, city of | Municipality | Y |
| Marfa, city of | Municipality | Y |
| McCamey city | Municipality | Y |
| Monahans city | Municipality | Y |
| Pecos, city of | Municipality | Y |
| Presidio, city of | Municipality | Y |
| Pyote, town of | Municipality | Y |
| Rankin, city of | Municipality | Y |
| San Elizario, city of | Municipality | Y |
| Socorro, city of | Municipality | Y |
| Sonora, city of | Municipality | Y |
| Thorntonville, town of | Municipality | Y |
| Toyah, town of | Municipality | Y |
| Valentine, town of | Municipality | Y |
| Van Horn, town of | Municipality | Y |
| Vinton, village of | Municipality | Y |

| Entity | Entity Type | Political Subdivision (Y/N) |
|---|-----------------|-----------------------------|
| Wickett, town of | Municipality | Y |
| Wink, city of | Municipality | Y |
| Lower Colorado River Authority | River Authority | Y |
| Nueces River Authority | River Authority | Y |
| Upper Colorado River Authority | River Authority | Y |
| Butterfield Trail MUD 1 | Other | Y |
| Butterfield Trail MUD 2 | Other | Y |
| City of El Paso MMD 1 | Other | Y |
| Concho Valley Council of Governments | Other | Y |
| Crane County Water District | Other | Y |
| Crockett County WCID 1 | Other | Y |
| El Paso County MUD 3 | Other | Y |
| El Paso County MUD 4 | Other | Y |
| El Paso County Tornillo WID | Other | Y |
| El Paso County Water Improvement District 1 | Other | Y |
| El Paso County WCID 4 | Other | Y |
| El Paso Downtown Management District | Other | Y |
| Esperanza FWSD 1 of Hudspeth County | Other | Y |
| Fort Hancock WCID | Other | Y |
| Haciendas Del Norte Water Improvement District | Other | Y |
| Horizon Regional MUD | Other | Y |
| Hudspeth County Conservation & Reclamation District 1 | Other | Y |
| Hudspeth County WCID 1 | Other | Y |
| Loving County Water Improvement District 1 | Other | Y |
| Lower Valley Water District | Other | Y |
| Middle Rio Grande Development Council | Other | Y |
| Montecillo MMD 1 | Other | Y |

| Entity | Entity Type | Political Subdivision (Y/N) |
|--|-------------|-----------------------------|
| Paseo Del Este MUD 1 | Other | Y |
| Paseo Del Este MUD 10 | Other | Y |
| Paseo Del Este MUD 11 | Other | Y |
| Paseo Del Este MUD 2 | Other | Y |
| Paseo Del Este MUD 3 | Other | Y |
| Paseo Del Este MUD 4 | Other | Y |
| Paseo Del Este MUD 5 | Other | Y |
| Paseo Del Este MUD 6 | Other | Y |
| Paseo Del Este MUD 7 | Other | Y |
| Paseo Del Este MUD 8 | Other | Y |
| Paseo Del Este MUD 9 | Other | Y |
| Pecos County WCID 1 | Other | Y |
| Pecos County WID 2 | Other | Y |
| Pecos County WID 3 | Other | Y |
| Permian Basin Regional Planning Commission | Other | Y |
| Presidio County Water Improvement District 1 | Other | Y |
| Reagan County WSD | Other | Y |
| Red Bluff Water Power Control District | Other | Y |
| Reeves County Water Improvement District 2 | Other | Y |
| Rio Grande Council of Governments | Other | Y |
| Terrell County WCID 1 | Other | Y |
| Tornillo Management District | Other | Y |
| Upton County Water District | Other | Y |
| Val Verde County WCID-Comstock | Other | Y |
| Ward County Irrigation District 1 | Other | Y |
| Ward County Water Improvement District 2 | Other | Y |
| Ward County Irrigation District 3 | Other | Y |

| Entity | Entity Type | Political Subdivision (Y/N) |
|-----------------------------------|-------------|-----------------------------|
| West Pecos Management District | Other | Y |
| Amistad National Park | Other | N |
| Balmorhea SP | Other | N |
| Big Bend National Park | Other | N |
| Big Bend Ranch SP | Other | N |
| Black Gap WMA | Other | N |
| Chamizal National Park | Other | N |
| Chinati Mountains SNA | Other | N |
| Davis Mountains SP | Other | N |
| Devils River SNA - Big Satan Unit | Other | N |
| Devils River SNA - Del Norte Unit | Other | N |
| Elephant Mountain WMA | Other | N |
| Fort Bliss, U.S. Army | Other | N |
| Fort Davis National Historic Site | Other | N |
| Fort Leaton SHS | Other | N |
| Franklin Mountains SP | Other | N |
| Guadalupe Mountains National Park | Other | N |
| Hueco Tanks SP & SHS | Other | N |
| Monahans Sandhills SP | Other | N |
| Rio Grande National Park | Other | N |
| Seminole Canyon SP & SHS | Other | N |
| Sierra Diablo WMA | Other | N |

Table A2: Existing Floodplain Management Practices

| Entity | Floodplain Management Regulations (Yes/No/ Unknown) | Adopted minimum regulations pursuant to Texas Water Code Section 16.3145? (Yes/No) | NFIP Participant (Yes/No) | Higher Standards Adopted (Yes/No) |
|--------------------|---|--|---------------------------|-----------------------------------|
| Alpine city | Yes | Yes | Yes | No |
| Andrews County | Yes | No | No | No |
| Anthony town | Yes | Yes | Yes | No |
| Balmorhea city | Yes | Yes | Yes | No |
| Barstow city | Unknown | No | No | No |
| Brewster County | Yes | Yes | Yes | No |
| Clint town | Yes | Yes | Yes | No |
| Crane city | Yes | Yes | Yes | No |
| Crane County | Yes | Yes | Yes | No |
| Crockett County | Yes | Yes | Yes | No |
| Culberson County | Yes | Yes | Yes | No |
| Dell City city | Yes | Yes | Yes | No |
| Ector County | Yes | Yes | Yes | No |
| Edwards County | Yes | No | No | No |
| El Paso city | Yes | Yes | Yes | Yes |
| El Paso County | Yes | Yes | Yes | No |
| Fort Stockton city | Yes | Yes | Yes | No |
| Grandfalls town | Yes | Yes | Yes | No |
| Horizon City city | Yes | Yes | Yes | No |
| Hudspeth County | Yes | Yes | Yes | No |
| Iraan city | Yes | Yes | Yes | No |
| Jeff Davis County | Yes | Yes | Yes | No |
| Kermit city | Unknown | No | No | No |
| Loving County | Yes | Yes | Yes | No |
| Marfa city | Yes | Yes | Yes | No |
| McCamey city | Yes | Yes | Yes | No |
| Midland County | Yes | Yes | Yes | No |
| Monahans city | Yes | Yes | Yes | No |
| Pecos city | Yes | Yes | Yes | No |

| Entity | Floodplain Management Regulations (Yes/No/ Unknown) | Adopted minimum regulations pursuant to Texas Water Code Section 16.3145? (Yes/No) | NFIP Participant (Yes/No) | Higher Standards Adopted (Yes/No) |
|--------------------|---|--|---------------------------|-----------------------------------|
| Pecos County | Unknown | No | No | No |
| Presidio city | Yes | Yes | Yes | No |
| Presidio County | Yes | Yes | Yes | No |
| Pyote town | No | No | No | No |
| Rankin city | Unknown | No | No | No |
| Reagan County | Yes | Yes | Yes | No |
| Reeves County | Yes | No | No | No |
| San Elizario city | Yes | Yes | Yes | No |
| Schleicher County | Yes | Yes | Yes | No |
| Socorro city | Yes | Yes | Yes | No |
| Sonora city | Yes | Yes | Yes | No |
| Sutton County | Yes | Yes | Yes | No |
| Terrell County | Yes | Yes | Yes | No |
| Thorntonville town | Unknown | No | No | No |
| Toyah town | Yes | Yes | Yes | No |
| Upton County | Yes | Yes | Yes | No |
| Val Verde County | Yes | Yes | Yes | No |
| Valentine town | Unknown | No | No | No |
| Van Horn town | Yes | Yes | Yes | No |
| Vinton village | Yes | Yes | Yes | No |
| Ward County | Yes | Yes | Yes | No |
| Wickett town | Unknown | No | No | No |
| Wink city | Unknown | No | No | No |
| Winkler County | Unknown | No | No | No |

Table A3: Relevant Existing Planning Documents

| Study ID | Title | Prepared By | Prepared For | Publication Date |
|----------|--|---|---|------------------|
| 1 | Federal Flood Assessment Conference Recommendations and Proceedings | Dr. Ari Michelsen, El Paso Agricultural Research Center, Texas Agricultural Experiment Station, Texas A&M University | 16th Congressional District of Texas | 9/6/2006 |
| 2 | Meteorological Aspects of the 2006 El Paso Texas Metropolitan Area Floods, Vol 33, No 1, National Weather Digest | Joseph Rogash, et al, NOAA, National Weather Service, Santa Teresa, NM/El Paso, TX | NOAA, National Weather Service, Weather Forecast Office | 8/1/2009 |
| 3 | DRAFT EPCWID Incident Report, Arroyo Flow and Flooding into Mesa Spur Drain Near Mankato Road, July 22, 2017 @ 4 pm | EPCWID No. 1 | EPCWID No. 1 | July 2017 |
| 4 | Final - Evaluation of Reduced Flow Capacity of the Rio Grande and the Impacts on the Operations of the Rio Grande Project Leasburg Dam to American Dam, Phase I - Main Channel and Floodways - Anthony, NM to American Dam | Joint Committee on Rio Grande Project Flood Risk | Elephant Butte Irrigation District, City of El Paso EPWater/Stormwater, and El Paso County Water Improvement District No. 1 | 11/26/2019 |
| 5 | Building Resilience to Drought in Big Bend Creeks Through Stream Flow Harvesting and Reforestation, Chihuahuan Desert Conservation Partnership Field Trip, Fall 2021 | Jeff Bennett, Rio Grande Joint Venture; Philip Boyd, Dixon Water Foundation | Chihuahuan Desert Conservation Partnership | Fall 2021 |
| 6 | The Role of Feedback Mechanisms in Historic Channel Changes of the Lower Rio Grande in the Big Bend Region | David J. Dean, John C. Schmidt, Dept of Watershed Sciences, Utah State Univ., Logan, UT | Elsevier, GEOMOR-03223 | 3/9/2010 |
| 7 | The Geomorphic Effectiveness of a Large Flood on the Rio Grande in the Big Bend Region: Insights on Geomorphic Controls and Post-Flood Geomorphic Response | David J. Dean, John C. Schmidt, Dept of Watershed Sciences, Utah State Univ., Logan, UT | Elsevier, Geomorphology 201 (2013) | 6/28/2013 |
| 8 | Atlas-14 Precipitation Research and Analysis for the City of El Paso | Clinton Kimball, AECOM | El Paso Water | 12/20/2019 |
| 9 | Emergency Action Plan, City of El Paso High Hazard Dams | URS Corp | City of El Paso and El Paso Water Utilities | 7/1/2010 |
| 10 | Technical Memo - Existing Condition Analysis & Improvement Concepts, South Central Street and Drainage Projects, Simplified Master Drainage Study | Chris Wright, AECOM | Geoffrey Espineli, CNU-A, City of El Paso | 5/26/2015 |
| 11 | Technical Memo - Comment Responses and General Discussion to Simplified Master Drainage Study, Existing Condition Analysis & Improvement Concepts | Chris Wright, AECOM | Yesenia Castro, City of El Paso | 11/23/2015 |
| 12 | El Paso Stormwater Master Plan | URS Corp and Moreno Cardenas, Inc. | El Paso Water and the City of El Paso | 3/1/2009 |
| 13 | El Paso Stormwater Master Plan Update | Jeff Irvin, Gilbert Andujo, AECOM | El Paso Water and the City of El Paso | 7/15/2021 |
| 14 | Concho Valley Council of Governments, Hazard Mitigation Plan Update, 2012 - 2017 | H2O Partners, Inc. | CVOCOG | Unknown |
| 15 | Preliminary Engineering Analysis - Rio Grande Outlet Structures | Conde, Inc., EMC | City of El Paso | 7/1/2007 |
| 16 | Metropolitan Transportation Plan, Destino 2045 | El Paso Metropolitan Planning Organization Transportation Project Advisory Committee, Texas Dept of Transportation, New Mexico Dept of Transportation | Alliance Transportation Group | 5/18/2018 |

| Study ID | Title | Prepared By | Prepared For | Publication Date |
|----------|---|---|---|------------------|
| 17 | Figure 8-35. DRAFT Doniphan System, Doniphan Ditch (NW1 & NW2), Northwest Region, El Paso Stormwater Master Plan | URS Corp and Moreno Cardenas, Inc. | El Paso Water and the City of El Paso | 11/1/2010 |
| 18 | Supplemental Information to Tech Memo, Doniphan Ditch Upstream Project, El Paso, Texas | Quantum Engineering Consultants, Inc. | El Paso Water Utilities | 10/4/2010 |
| 19 | Dam Analysis Report, Drainage On-Call Services | Jeff Irvin, URS Corp | City of El Paso | 2/21/2008 |
| 20 | Plan El Paso, A Policy Guide for El Paso for the next 25 years and beyond, Vol 1, City Patterns | Various | City of El Paso | 3/6/2012 |
| 21 | Final Results of Hydraulic Study, El Paso County, TX | Compass PTS JV, Arlington, VA | DHS/FEMA, Region 6, Washington DC | 6/30/2019 |
| 22 | Final Results of Hydraulic Study, El Paso County, TX | Compass PTS JV, Arlington, VA | DHS/FEMA, Region 6, Washington DC | 6/30/2019 |
| 23 | Controlled Reclamation, Managing Water in the West, Emergency Flood Response, Elephant Butte & Caballo Dams Emergency Action Plan, Rio Grande Project, Albuquerque Area Office, Upper Colorado Region | Albuquerque Area Office, Bureau of Reclamation, U.S. Dept of the Interior | Albuquerque Area Office, Bureau of Reclamation, U.S. Dept of the Interior | 10/1/2018 |
| 24 | El Paso County Interior Drainage Study, Methodology and Mapping Results Report | Chris Wright, AECOM | City of El Paso and El Paso Water Utilities | 2/6/2021 |
| 25 | El Paso County Stormwater Master Plan | URS Corp | El Paso Water Utilities, TWDB, and El Paso County | 8/1/2010 |
| 26 | El Paso County Stormwater Master Plan | AECOM | El Paso Water Utilities, TWDB, and El Paso County | 2/1/2021 |
| 27 | City of El Paso, Rio Grande River, EP2A Levee Certification Summary Report | AECOM | City of El Paso | 3/11/2020 |
| 28 | Flood Frequency Determination, El Paso County and Incorporated Communities, Texas, Disaster Response Flood Recovery Data | Mapping Alliance Partnership, Albuquerque, NM | FEMA, Region VI, Denton, TX | 3/26/2007 |
| 29 | High Water Mark Data Collection for El Paso County and Incorporated Communities, Texas | Mapping Alliance Partnership, Albuquerque, NM | FEMA, Region VI, Denton, TX | 2/23/2007 |
| 30 | Flood Insurance Study, Brewster County, Texas. Unincorporated Areas | FEMA | FEMA | 4/2/1991 |
| 30a | Flood Insurance Study, City of Alpine, Texas. Brewster County. | FEMA | FEMA | 11/16/1990 |
| 30b | Flood Insurance Study, city of Balmorhea, Texas. Reeves County. | FEMA | FEMA | 9/16/1988 |
| 30c | Flood Insurance Study, City of Sonora, Texas. Sutton County | FEMA | FEMA | 2/17/1989 |
| 30d | Flood Insurance Study, City of Van Horn, Texas. Culberson County. | FEMA | FEMA | 11/2/1994 |
| 30e | Flood Insurance Study, Ector County, Texas and incorporated areas. Ector County, City of Goldsmith, City of Odessa. | FEMA | FEMA | 3/15/2012 |
| 30f | Flood Insurance Study, Volume 1 of 5, City of El Paso, Texas. El Paso County. | FEMA | FEMA | 2/16/2006 |
| 30g | Flood Insurance Study, Volume 2 of 5, City of El Paso, Texas. El Paso County. | FEMA | FEMA | 2/16/2006 |
| 30h | Flood Insurance Study, Volume 3 of 5, City of El Paso, Texas. El Paso County. | FEMA | FEMA | 2/16/2006 |

| Study ID | Title | Prepared By | Prepared For | Publication Date |
|----------|--|---|--|------------------|
| 30i | Flood Insurance Study, Volume 4 of 5, City of El Paso, Texas. El Paso County. | FEMA | FEMA | 2/16/2006 |
| 30j | Flood Insurance Study, Volume 5 of 5, City of El Paso, Texas. El Paso County. | FEMA | FEMA | 2/16/2006 |
| 30k | Flood Insurance Study. FEMA. Volume 1 of 8. El Paso County, Texas and incorporated areas. | FEMA | FEMA | 7/8/2020 |
| 30l | Flood Insurance Study. FEMA. Volume 2 of 8. El Paso County, Texas and incorporated areas. | FEMA | FEMA | 7/8/2020 |
| 30m | Flood Insurance Study. FEMA. Volume 3 of 8. El Paso County, Texas and incorporated areas. | FEMA | FEMA | 7/8/2020 |
| 30n | Flood Insurance Study. FEMA. Volume 4 of 8. El Paso County, Texas and incorporated areas. | FEMA | FEMA | 7/8/2020 |
| 30o | Flood Insurance Study. FEMA. Volume 5 of 8. El Paso County, Texas and incorporated areas. | FEMA | FEMA | 7/8/2020 |
| 30p | Flood Insurance Study. FEMA. Volume 6 of 8. El Paso County, Texas and incorporated areas. | FEMA | FEMA | 7/8/2020 |
| 30q | Flood Insurance Study. FEMA. Volume 7 of 8. El Paso County, Texas and incorporated areas. | FEMA | FEMA | 7/8/2020 |
| 30r | Flood Insurance Study. FEMA. Volume 8 of 8. El Paso County, Texas and incorporated areas. | FEMA | FEMA | 7/8/2020 |
| 30s | Flood Insurance Study, El Paso County, Texas. Unincorporated areas. | FEMA | FEMA | 9/4/1991 |
| 30t | Flood Insurance Study, Midland County, Texas and incorporated areas. | FEMA | FEMA | 9/16/2005 |
| 30u | Flood Insurance Study. Val Verde County, Texas and incorporated areas. | FEMA | FEMA | 7/22/2010 |
| 31 | Flowpath 39 Flood Mitigation Alternatives. Final Report. | AECOM | El Paso Water Utilities | 12/5/2016 |
| 32 | El Paso Water. Final Survey for the Rio Grande Storm Upstream/Outfall Structures. | Frank X. Spencer & Associates, Inc. | El Paso Water | 4/29/2019 |
| 33 | Hudspeth County, Texas. Villa Alegre, Fort Hancock East Unit 1, & Fort Hancock East Unit 2. Colonia Area Study and Plan 2019 - 2029. | GreatWorks | Commissioners Court of Hudspeth County, Texas | 12/1/2019 |
| 34 | Channel Maintenance Alternatives and Sediment-transport Studies for the Rio Grande Canalization Project: Final Report | Tetra Tech | International Boundary and Water Commission | 10/20/2015 |
| 35 | Final Environmental Assessment. Improvements to the Rio Grande Rectification Project. | Parsons | United States Section, International Boundary and Water Commission United States and Mexico. | 3/1/2009 |
| 36 | Conceptual Restoration Plan and Cumulative Effects Analysis, Rio Grande - Caballo Dam to American Dam, New Mexico and Texas. | U.S. Army Corps of Engineers. Albuquerque District. | United States Section International Boundary and Water Commission (USIBWC) Under (MOU) IBM 92-21, IWO No. 31 | 3/5/2009 |
| 37 | Hydrologic and Hydraulic Analysis of the Montoya and Nemexas Drains and Contributing Drainage Areas | URS | El Paso Water Utilities, Stormwater Engineering, El Paso. | 10/27/2014 |
| 38 | Technical Memorandum with Project Recommendation. Montoya Drain H&H Analysis. | AECOM | El Paso Water Utilities. Ryan Stubbs. | 1/27/2016 |

| Study ID | Title | Prepared By | Prepared For | Publication Date |
|----------|---|---|--|------------------|
| 39 | Hydrologic Analysis Review Memorandum. Rio Grande-Caballo Dam to Ft Quitman. | AECOM | | 7/12/2019 |
| 40 | Technical Memorandum. Rio Grande (El Paso County, Texas). Hydraulic Analysis. | AECOM | El Paso County, Texas | 2/10/2020 |
| 41 | Natural Valley Analysis Pre-LAMP Report. | Federal Emergency Management Agency | | 10/28/2016 |
| 42 | Monthly Report of Hydrologic Conditions | U.S. Department of Commerce. National Oceanic and Atmospheric Administration. | Hydrometeorological Information Center | 9/1/2008 |
| 43 | 2019 Water Management and Civil Works Activities. Pecos River Basin. | U.S. Army Corps of Engineers. Albuquerque District. | | 4/7/2020 |
| 44 | Pecos River Basin Salinity Assessment, Santa Rosa Lake, New Mexico, to the Confluence of the Pecos River and the Rio Grande, Texas, 2015. Scientific Investigations Report 2019-5071. | U.S. Army Corps of Engineers, New Mexico. Interstate Stream Commission, Texas Commission on Environmental Quality, and Texas Water Development Board. | U.S. Department of the Interior. U.S. Geological Survey. | 2/1/2015 |
| 45 | Reclamation Managing Water in the West, Emergency Action Plan, Avalon Dam, Carlsbad Project, New Mexico | U.S. Dept of the Interior, Bureau of Reclamation, Upper Colorado Region, Albuquerque Office | Carlsbad Irrigation District, Carlsbad, New Mexico | 5/1/2013 |
| 46 | Probable maximum precipitation update. | Freese and Nichols, Inc. | El Paso Water | 6/1/2018 |
| 47 | Multi-Hazard Mitigation Action Plan. 2015 El Paso County, Texas. | Rio Grande Council of Governments. URS. | El Paso County, Texas | 12/5/2018 |
| 48 | Wetlands, Vol. 18, No. 4. Chronology of the spread of Tamarisk in the Central Rio Grande. | Benjamin L. Everitt. Utah Division of Water Resources. | The Society of Wetland Scientists | 2006-2007 |
| 49 | Drainage Feasibility Study. Socorro Rd. Intersections with San Antonio St. % Main St. | Brock & Bustillos Inc. | City of San Elizario | 1/1/2021 |
| 50 | Southwest Weather Bulletin. National Weather Service El Paso/Santa Teresa. | National Weather Service El Paso/Santa Teresa | NWS | 9/1/2020 |
| 51 | Far West Texas Water Plan | Far West Texas Water Planning Group | Texas Water Development Board | 8/21/2020 |
| 52 | Statewide Survey of Aquifer. Suitability for Aquifer Storage and Recovery Projects or Aquifer Recharge Projects. | HDR | Texas Water Development Board | 4/16/2001 |
| 53 | Cebada Pump Station Wet Well Improvements. Feasibility Study. Final Report. | AECOM | El Paso Water | 12/1/2018 |
| 54 | Climate Change Recommendations for Regional Flood Planning. OSC Report 2021-01 | | Office of the Texas State Climatologist. | 12/1/2018 |
| 55 | Bridge Scour Analysis for US 190 at Draw | Civil Tech Engineering, Inc. | Texas Department of Transportation. Pecos County. | 5/1/2020 |
| 56 | Bridge Scour Analysis for US 190 at Richburg Draw. TxDOT CSJ No. 1640-01-005 | Civil Tech Engineering, Inc. | Texas Department of Transportation. Pecos County. | 2/1/2013 |
| 57 | Drainage Study for FM 170 from Candelaria to US-67 | AECOM | TxDOT Presidio County, Texas | 1/1/2019 |

| Study ID | Title | Prepared By | Prepared For | Publication Date |
|----------|--|--|---|------------------|
| 58 | Preliminary Engineering Drainage Report. Border Highway West Extension Loop 375. | Moreno Cardenas Inc. | TxDOT El Paso, Texas | 10/1/2005 |
| 59 | Drainage Study for SH 20 (Mesa Street) From Doniphan Drive to Texas Avenue | AECOM | TxDOT El Paso, Texas | 10/19/2007 |
| 60 | FLO-2D Model Development below Caballo Dam URGWOM | Tetra Tech. Inc. | U.S. Army Corps of Engineers | 2005 |
| 61 | URGWOM FLO-2D Model Development. Rio Grande - American Dam to Fort Quitman, TX | Mussetter Engineering, Inc. | U.S. Army Corps of Engineers. Albuquerque District and International Boundary and Water Commission, El Paso, Texas. | |
| 62 | Draft - HEC-RAS Model Development for the Rio Grande Canalization Project | Mussetter Engineering, Inc. | URGWOM | 11/14/2007 |
| 63 | Cibolo Creek, Presidio, Texas, Vol 1 - Main Report; Feasibility Report for Water Resources Development | USACE, Albuquerque District, Albuquerque, NM | USACE | 5/1/1976 |
| 64 | Interior Drainage Analysis Report for El Paso, Texas, Doniphan Drive, Borderland to American Dam | 3AEGREEN - A Joint Venture | USACE and El Paso Water Utilities | 3/16/2018 |
| 65 | Technical Memo - Keystone Dam - Limited Seepage Study, El Paso, Texas | Arias & Associates, Inc. and URS Corporation | URS Corporation | 11/6/2014 |
| 66 | Hydrologic, Hydraulic, & Sediment Analysis for Northwest El Paso, TX, Arroyos 38 to 48 Final Report | Southwest Water Design, LLC - A Joint Venture | USACE, Albuquerque District, Albuquerque, NM | 5/1/2015 |
| 67 | Rio Grande Canalization Project - LiDAR and Orthophotography Report | Wilson & FNI JV | IBWC | 6/12/2020 |
| 68 | O&M Manual upper Rio Grande Projects | Upper Rio Grande Projects, American Dam/Carlos Marin Field Office, El Paso, TX | IBWC | 10/1/2010 |
| 69 | Flood Frequency Study for the Rio Grande Between El Paso, Texas/Juarez, Chihuahua and Brownsville, Texas/Matamoros, Tamaulipas | Engineering Services Division, US Section, IBWC, United States and Mexico | IBWC | Sept. 2003 |
| 70 | Appendix A1, American Canal Hydrologic and Hydraulic Analysis Report | URS Corp., Dallas, TX | US Section, IBWC, El Paso, TX | 8/9/2021 |
| 71 | Rehabilitation Improvements for the Rio Grande Canalization Protective Levee System, Canutillo Phase II, El Paso, Texas - 100% Design Documentation Report | URS Group, Inc., Austin, TX | US Section, IBWC, El Paso, TX | 8/1/2013 |
| 72 | Rehabilitation Improvements for the Rio Grande Canalization Protective Levee System, Canutillo Phase II - Hydrologic & Hydraulic Analysis Report | URS Group, Inc., Austin, TX | US Section, IBWC, El Paso, TX | 8/21/2013 |
| 73 | Interior Drainage Hydrologic and Hydraulic Analysis for El Paso, TX, International Dam to Riverside Weir Report; Stormwater Master Plan Task Order No. 13 | URS Corp, Austin, TX | US Section, IBWC, El Paso, TX | 3/2/2019 |
| 74 | State of Texas Hazard Mitigation Plan | Texas Dept of Public Safety, Emergency Mgmt | Texas Dept of Public Safety | 10/1/2018 |
| 75 | Geotechnical Investigation Report, Keystone Dam Sluice Gate Modification, El Paso, Texas | URS Corp. | El Paso Water Utilities | Nov. 2014 |
| 76 | City of El Paso Flood Risk Management, TX, Investigations | USACE, Albuquerque District, Albuquerque, NM | USACE | |
| 77 | Flood Control Challenges of the El Paso Central Watershed | EPWater | USACE | |

| Study ID | Title | Prepared By | Prepared For | Publication Date |
|----------|---|---|--|------------------|
| 78 | A Watershed Protection Plan for the Pecos River in Texas | Lucas Gregory, Texas Water Resources Institute and Will Hatler, Texas AgriLife Extension Service | TSSWCB and USEPA | 10/1/2008 |
| 79 | Andrews County Subdivision and Development Regulations | Andrews County Commissioner's Court | Andrews County Commissioner's Court | 6/16/2014 |
| 80 | Flood Damage Prevention Ordinance | Brewster County Commissioner's Court | Brewster County Commissioner's Court | 12/13/2017 |
| 81 | Ector County Multi-jurisdictional Hazard Mitigation Plan | H2O Partners, Inc | Ector County, City of Odessa, City of Goldsmith | 2011 |
| 82 | El Paso County Multi-Hazard Mitigation Action Plan | URS/Rio Grande Council Of Governments | El Paso County; Cities of El Paso, Socorro; Towns of Anthony, Clint, Horizon City, Vinton | 2015 |
| 83 | Hazard Mitigation Action Plan for the Rio Grande Border | H2O Partners, Inc | Rio Grande border region, multiple communities | 10/20/2008 |
| 84 | Environmental Flows Recommendations Report | The Upper Rio Grande Basin & Bay Expert Science Team | Environmental Flows Advisory Group, Rio Grande Basin and Bay Area Stakeholders Committee, and TCEQ | 7/12/2012 |
| 85 | Economic effects of a reservoir re-operation policy in the Rio Grande/Bravo for integrated human and environmental water management | J. Pablo Ortiz-Partida (Graduate Student Researcher) ¹ , B.A. Lane (Graduate Student Researcher) ¹ , S. Sandoval-Solis (Assistant Professor) Department of Land, Air and Water Resources, University of California, Davis, USA | Journal of Hydrology: Regional Studies | 8/11/2016 |
| 86 | Assessing the State of Water Resources Management Policies and Water Resources Planning Tools for the Rio Grande/Bravo | S. Sandoval-Solis, J. Pablo Ortiz-Partida Department of Land, Air and Water Resources, University of California, Davis, USA | State of WRM policies and tools for the Rio Grande/Bravo Activities Report | 3/1/2017 |

Table A4: Proposed or Ongoing Flood Mitigation Projects

| Existing Project ID | Existing Project Name | Description | Counties | Project Status | Project Cost (\$) | Dedicated Funding for Construction | Planned Funding Source | Expected Completion Year | Anticipated Benefit |
|---------------------|-----------------------------------|---|----------|----------------|-------------------|------------------------------------|---|--------------------------|--|
| 14000001 | SOC1 & SOC2 | Sediment/Detention Basin - SOC1; Sediment/Detention Basin - SOC2 (design not yet started) | El Paso | Proposed | \$4,960,000 | No | TWDB FIF, El Paso County – Pending (invited for submission of full FIF application) | 2025 | Mitigate downstream flooding and sediment load due to uncontrolled flows from Stream 4 through the breached El Paso Hills Dam |
| 14000002 | SSA1 | Detention Basin SSA1 (design not yet started) | El Paso | Proposed | \$34,530,000 | Yes | TWDB FIF, El Paso County | 2024 | Mitigate uncontrolled flows from arroyos A1, A2, and A3 causing flooding problems in downstream communities |
| 14000003 | HAC7 | Sediment/Detention Basin at Location A; Sediment/Detention Basin at Location B (design currently ongoing) | El Paso | Proposed | \$5,990,000 | Yes | TWDB FIF, El Paso County | 2025 | Mitigate downstream flooding and sediment load due to uncontrolled flows from Stream 13.5 |
| 14000004 | EA6A | Sam Snead Storm Drain System (Pico Norte to Lee Trevino) (currently under construction) | El Paso | Ongoing | \$4,532,000 | Yes | El Paso Water CIP | 2022 | Mitigate street flows that travel too far over flat slopes causing flooding, street closures, and damage from Pico Norte St. to Lee Trevino Blvd |
| 14000005 | Keystone Dam Seepage Improvements | At Keystone Dam, install a toe drain, a toe berm, and a seepage collection system consisting of concrete lined ditch with a weir (in design by USACE) | El Paso | Proposed | \$1,500,000 | Yes | USACE, El Paso Water | 2024 | Prevention of surficial erosion issues on Keystone Dam protecting urban area along Doniphan Drive |

Table A5: Regional Flood Plan Flood Mitigation and Floodplain Management Goals

| Goal ID | Goal | Term of Goal | Target Year | Applicable To | Residual Risk | How Will the Goal Be Measured | Overarching Goal | Associated Goal IDs |
|----------|--|----------------------|-------------|-------------------------------------|---|--|---|---------------------|
| 14001001 | Increase NFIP participation or adoption of equivalent standards with 90% of communities meeting qualifying standards | Short Term (10-year) | 2033 | Entire RFPG | Improved floodplain management practices limit flood risk increases to existing structures; annual flood risk to new construction in participating communities will be less than 1% | Number of entities participating in NFIP; number of entities with equivalent standards | Adoption of floodplain management practices to reduce future flood risk (362.3.b.6) | 14001002 |
| 14001002 | Enroll all current non-participating communities into the NFIP and maintain 100% community enrollment with no suspensions or sanctions | Long Term (30-year) | 2053 | Entire RFPG | Improved floodplain management practices limit flood risk increases to existing structures; annual flood risk to new construction will be less than 1% | Number of entities participating in NFIP; number of entities with equivalent standards | Adoption of floodplain management practices to reduce future flood risk (362.3.b.6) | 14001001 |
| 14002001 | Increase number of communities that have adopted higher-than-NFIP-minimum standards | Short Term (10-year) | 2033 | Entire RFPG | Adopting higher floodplain management standards may help to reduce flood risk to existing and new structures; residual flood risk to structures will remain for flood events with less than 1% annual occurrence | Number of communities that have adopted higher-than-NFIP-minimum standards | Adoption of floodplain management practices to reduce future flood risk (362.3.b.6) | 14002002, 14002003 |
| 14002002 | Increase number of communities enrolled in CRS Program | Short Term (10-year) | 2033 | Entire RFPG | Enrolling in the CRS Program may help to increase community flood awareness and reduce flood risk to existing and new structures; residual flood risk to structures will remain for flood events with less than 1% annual occurrence | Number of communities that have enrolled in CRS Program | Adoption of floodplain management practices to reduce future flood risk (362.3.b.6) | 14002001, 14002003 |
| 14002003 | Improve CRS rating for the City of El Paso (which has a current CRS Rating of 9) | Short Term (10-year) | 2033 | HUC 8 Watersheds 13040100, 13030102 | Improving CRS Rating will help to increase community flood awareness and reduce flood risk to existing and new structures; residual flood risk to structures will remain for flood events with less than 1% annual occurrence | Improvement in City of El Paso CRS Rating | Adoption of floodplain management practices to reduce future flood risk (362.3.b.6) | 14002002, 14002003 |
| 14003001 | Adopt recommended minimum stormwater infrastructure design standards applicable across the region | Short Term (10-year) | 2033 | Entire RFPG | Region-wide recommended minimum design standards would serve as a guide for communities to implement; residual flood risk will remain for flood events not typically covered in design standards or for communities that do not adopt | Development of recommended minimum stormwater infrastructure design standards | Adoption of floodplain management practices to reduce future flood risk (362.3.b.6) | n/a |
| 14004001 | Increase flood protection of unaccredited levees to meet FEMA levee accreditation requirements and update flood mapping to account for any changes in levee accreditation status | Short Term (10-year) | 2033 | Entire RFPG | Residual flood risk will remain for flood events exceeding the design capacity of the accredited levees or for areas where levees remain unaccredited | Accreditation of current unaccredited levees by FEMA followed by associated risk map updates | Protect against loss of life and property (362.3.b.13-14) | n/a |

| Goal ID | Goal | Term of Goal | Target Year | Applicable To | Residual Risk | How Will the Goal Be Measured | Overarching Goal | Associated Goal IDs |
|----------|---|----------------------|-------------|---------------|---|---|--|---------------------|
| 14005001 | Increase the number of flood gages (rainfall and/or stream gages) in the region | Short Term (10-year) | 2033 | Entire RFPG | No changes in flood risk; additional flood gages would improve ability to validate or calibrate existing and new flood models | Number of rainfall and/or stream gages installed | Utilize best available science, data, models, and flood risk mapping (362.3.b.2) | n/a |
| 14006001 | Develop and implement region-wide flood warning and emergency response program | Short Term (10-year) | 2033 | Entire RFPG | No physical changes in flood risk; a flood warning and emergency response program would provide advanced warning of flood risks to mitigate loss of life and property during a flood event | Implementation of regional flood warning system | Protect against loss of life and property (362.3.b.13-14) | 14006002 |
| 14006002 | Increase the number of entities that use flood warning signs, traffic message boards, and other media (TV, radio, social media) to communicate flood warnings | Short Term (10-year) | 2033 | Entire RFPG | No physical changes in flood risk; improved flood warning messaging services would provide critical information to communities to mitigate loss of life and property during a flood event | Number of entities using flood warning signs, traffic message boards, and other media to communicate flood warnings | Protect against loss of life and property (362.3.b.13-14) | 14006001 |
| 14007001 | Establish community-led flood outreach and awareness programs (addressing risk, resiliency, and mitigation) in 30% of communities in the region | Short Term (10-year) | 2033 | Entire RFPG | Flood risk for communities without flood outreach and awareness programs will be greater than in communities with these programs; in addition, outreach programs will only reach a portion of community members | Percentage of communities with community-led flood outreach and awareness programs | Enhanced public understanding of flood risk; equity and accountability in decision-making (362.3.b.3, 20-21, 26) | 14007002, 14007003 |
| 14007002 | Establish community-led flood outreach and awareness programs (addressing risk, resiliency, and mitigation) in 90% of communities in the region | Long Term (30-year) | 2053 | Entire RFPG | Flood risk for communities without flood outreach and awareness programs will be greater than in communities with these programs; in addition, outreach programs will only reach a portion of community members | Percentage of communities with community-led flood outreach and awareness programs | Enhanced public understanding of flood risk; equity and accountability in decision-making (362.3.b.3, 20-21, 26) | 14007001, 14007003 |
| 14007003 | Increase entity and public stakeholder participation in the regional flood planning process | Short Term (10-year) | 2033 | Entire RFPG | No direct change in short-term flood risk; increased stakeholder participation will lead to more comprehensive future regional flood plans and indirect flood risk reduction in the long-term | Number of entities and public stakeholders contributing to future-cycle RFPs | Cooperative planning with local, state, and federal partners (362.3.b.29) | 14007002, 14007003 |
| 14008001 | Increase the coverage of flood hazard data across the region by completing studies in 40% of the areas identified as having current gaps in flood mapping in the first cycle Flood Plan | Short Term (10-year) | 2033 | Entire RFPG | No physical change in flood risk; completing FMEs will help to better identify flood risk, exposure, and vulnerabilities to life and property | Percentage of FMEs completed from the first-cycle RFP | Evaluate flood risk, exposure, and vulnerabilities to life and property (362.3.b.3-5) | 14008002 |

| Goal ID | Goal | Term of Goal | Target Year | Applicable To | Residual Risk | How Will the Goal Be Measured | Overarching Goal | Associated Goal IDs |
|----------|--|----------------------|-------------|--|---|--|---|------------------------------|
| 14008002 | Have complete coverage of flood hazard data across the region by completing studies in 100% of the areas identified as having current gaps in flood mapping in the first cycle Flood Plan and have an ongoing, funded maintenance plan for updates | Long Term (30-year) | 2053 | Entire RFPG | No physical change in flood risk; completing FMEs will help to better identify flood risk, exposure, and vulnerabilities to life and property | Percentage of FMEs completed from the first-cycle RFP | Evaluate flood risk, exposure, and vulnerabilities to life and property (362.3.b.3-5) | 14008001 |
| 14009001 | Remove 10% of the existing structures from 1% annual chance floodplain in the region (either by remapping or flood risk reduction) | Short Term (10-year) | 2033 | HUC 8 Watersheds 13040100, 13030102 | 90% of identified structures will have an annual risk of flooding of >1%; 10% of structures will have an annual risk of flooding of <1% | Number of structures removed from 1% annual chance existing flood hazard layer | Protect against loss of life and property (362.3.b.13-14) | 14009002, 14009003, 14009004 |
| 14009002 | Remove 25% of the existing structures from 1% annual chance floodplain in the region (either by remapping or flood risk reduction) | Short Term (10-year) | 2033 | Entire RFPG Except for HUC 8 Watersheds 13040100, 13030102 | 75% of identified structures will have an annual risk of flooding of >1%; 25% of structures will have an annual risk of flooding of <1% | Number of structures removed from 1% annual chance existing flood hazard layer | Protect against loss of life and property (362.3.b.13-14) | 14009001, 14009003, 14009004 |
| 14009003 | Remove 20% of the existing structures from 1% annual chance floodplain in the region (either by remapping or flood risk reduction) | Long Term (30-year) | 2053 | HUC 8 Watersheds 13040100, 13030102 | 80% of identified structures will have an annual risk of flooding of >1%; 20% of structures will have an annual risk of flooding of <1% | Number of structures removed from 1% annual chance existing flood hazard layer | Protect against loss of life and property (362.3.b.13-14) | 14009001, 14009002, 14009004 |
| 14009004 | Remove 50% of the existing structures from 1% annual chance floodplain in the region (either by remapping or flood risk reduction) | Long Term (30-year) | 2053 | Entire RFPG Except for HUC 8 Watersheds 13040100, 13030102 | 50% of identified structures will have an annual risk of flooding of >1%; 50% of structures will have an annual risk of flooding of <1% | Number of structures removed from 1% annual chance existing flood hazard layer | Protect against loss of life and property (362.3.b.13-14) | 14009001, 14009002, 14009003 |
| 14010001 | Remove 40% of the low water crossings from 10% annual chance floodplain in the region (either by remapping or flood risk reduction) | Short Term (10-year) | 2033 | Entire RFPG | 60% of identified low water crossings will have an annual risk of flooding of >10%; 40% of low water crossings will have an annual risk of flooding of <10% | Number of low water crossings removed from 10% annual chance existing flood hazard layer | Protect against loss of life and property (362.3.b.13-14) | 14010002 |
| 14010002 | Remove 90% of the low water crossings from 10% annual chance floodplain in the region (either by remapping or flood risk reduction) | Long Term (30-year) | 2053 | Entire RFPG | 10% of identified low water crossings will have an annual risk of flooding of >10%; 90% of low water crossings will have an annual risk of flooding of <10% | Number of low water crossings removed from 10% annual chance existing flood hazard layer | Protect against loss of life and property (362.3.b.13-14) | 14010001 |

| Goal ID | Goal | Term of Goal | Target Year | Applicable To | Residual Risk | How Will the Goal Be Measured | Overarching Goal | Associated Goal IDs |
|----------|--|----------------------|-------------|---------------|--|--|---|---------------------|
| 14011001 | Increase the number of entities that utilize regional detention for floodplain management | Short Term (10-year) | 2033 | Entire RFPG | No change in flood risk for communities that do not utilize regional detention; regional detention does not fully remove flood risk but mitigates flooding for a specified area and design flood event | Number of entities utilizing regional detention | Protect against loss of life and property (362.3.b.13-14) | n/a |
| 14012001 | Consider and incorporate nature-based practices in flood risk reduction projects | Short Term (10-year) | 2033 | Entire RFPG | No additional change in flood risk relative to other project types; nature-based solutions will reduce impacts to the environment | Number of flood risk reduction projects with nature-based components | Include strategies and projects that use nature-based features (362.3.b.17) | n/a |
| 14013001 | Establish dual usage regional storage facilities for flood mitigation and water supply | Short Term (10-year) | 2033 | Entire RFPG | No changes in flood risk; dual-use projects will contribute to the water supply | Establishment of new dual-use flood mitigation/water supply structures | Contribute to the water supply where possible (362.3.b.18-19) | n/a |
| 14014001 | Increase the number of communities with documented, operational, and fully funded stormwater asset management plans | Short Term (10-year) | 2033 | Entire RFPG | Entities without stormwater asset management plans have no change in flood risk; entities with new stormwater asset management plans have reduced risk due to better stormwater O&M practices | Number of new entities with stormwater asset management plans | Consideration of funding and long-term operation and maintenance (362.3.b.38) | n/a |
| 14015001 | Increase number of new funding sources used to pay for implementation of flood management activities and decrease number of communities without a local funding source | Short Term (10-year) | 2033 | Entire RFPG | Entities without additional funding have no change in flood risk; entities with new funding sources have reduced flood risk as stormwater O&M and capital projects are funded and implemented | Number of entities with new funding sources for implementation of flood management activities | Consideration of funding and long-term operation and maintenance (362.3.b.38) | 14015002 |
| 14015002 | Increase the number of entities that have a dedicated drainage fee to help implement future Flood Mitigation Evaluations (FMEs) and Flood Mitigation Projects (FMPs) | Short Term (10-year) | 2033 | Entire RFPG | Entities without dedicated drainage fee have no change in flood risk; entities with dedicated drainage fee have reduced flood risk as stormwater O&M and capital projects are funded and implemented | Number of new entities with dedicated drainage fee for implementation of flood management activities | Consideration of funding and long-term operation and maintenance (362.3.b.38) | 14015001 |

Table A6: Potential Flood Management Evaluations (FMEs) Identified by RFPG

| FME ID | FME Name | Description | Counties | Sponsor* | Estimated Study Cost (\$) |
|-----------|--|---|---------------------------|---|---------------------------|
| 141000001 | Develop and Implement a Sediment and Vegetation Control Program in the Rio Grande at El Paso | Assess Rio Grande capacity in El Paso County considering updated hydrology, sediment, and vegetation conditions. Establish maintenance program with minimum risk-based channel capacity. Address maintenance agreements between U.S. and Mexico. | El Paso | USIBWC, El Paso Water, El Paso County, Doña Ana County, Hudspeth County | |
| 141000002 | Develop H&H Models for Cibolo Creek and the Rio Grande at Presidio | Develop updated H&H models for Cibolo Creek and the Rio Grande in Presidio to evaluate flood risk. This study should include a coincident storm analysis for Cibolo Creek, the Rio Conchos, and the Rio Grande. | Presidio, Brewster | Presidio, Brewster, USIBWC, USACE | |
| 141000003 | Arroyo Siphon at SH20 in Tornillo | Coordinate with TXDOT to install siphon at SH20 to prevent road from overtopping and stormwater from entering EPCWID No. 1 canal system. | El Paso | EPCWID No. 1 | |
| 141000004 | Lower Mesa Drain Improvements at El Paso | Assess capacity of upstream reservoirs; develop detailed hydraulic model of Lower Mesa Drain to design 30+ culvert improvements; assess capacity of Mesa Drain to accept runoff without impacting downstream agricultural property. | El Paso | EPCWID No. 1 | |
| 141000005 | River Drain Improvements at San Elizario | Design drainage swales adjacent to roads to convey runoff into the River Drain and relieve localized ponding. Explore opportunities for plantings along flowpaths as butterfly habitat, based on discussions between San Elizario and Auburn University. | El Paso | EPCWID No. 1 | |
| 141000006 | Increase Storage Capacity of Fort Bliss Sump | Excavate Fort Bliss Sump while avoiding newly delineated wetland to increase storage capacity of sump. Requires continued coordination with U.S. Army due to project location on Fort Bliss. | El Paso | U.S. Army, El Paso Water | |
| 141000007 | Cebada System Flood Mitigation Study at El Paso | Ongoing study by USACE to reduce flood risk and public infrastructure threatened by flooding in Cebada drainage system within Central El Paso. | El Paso | USACE, El Paso Water | \$3,000,000 |
| 141000008 | Sediment Control at Alamito and Terneros Creek | Design sediment control structures on Alamito Creek and Terneros Creek upstream of confluence with the Rio Grande to reduce sediment in the Rio Grande and reduce USIBWC maintenance burden. | Presidio | USIBWC, Presidio County, & RGCOG | |
| 141000009 | Develop and Improve Early Warning Systems Throughout Region 14 | Conduct study to evaluate and propose improvements to Early Warning Systems (EWSs) in Region 14. Includes coordination with counties in need of EWSs and assessment of existing flood EWSs already identified by 5 counties through the stakeholder survey. | All Counties in Region 14 | EPWater, City of Marfa, Upton County, Val Verde County, City of Del Rio, City of Sonora, Devil's River Conservancy, RGCOG, USIBWC | |
| 141000010 | Emergency Access Road and Bridge Improvements at Presidio | Identify and design access routes and bridges/culverts to provide emergency access during extreme flood events in Presidio County. Southeast Marfa and dirt portion of FM2810 were identified as problem areas by Office of Emergency Management. | Presidio | USACE, Presidio County | |
| 141000011 | FM170 Improvements from Presidio to Study Butte | Ongoing TXDOT conceptual study for improvements to cross culverts and low water crossings on FM-170, expected to be finalized by July 2022. | Presidio, Brewster | TXDOT | |

| FME ID | FME Name | Description | Counties | Sponsor* | Estimated Study Cost (\$) |
|-----------|---|--|--|--|---------------------------|
| 141000012 | Dam Improvements at Comanche Creek Reservoir at Fort Stockton | Inspect and evaluate rehabilitation improvements for Comanche Creek Reservoir to protect Fort Stockton from similar flooding to that which occurred on April 4, 2004. | Pecos | Pecos County, NRCS, USACE | |
| 141000013 | Evaluate Improvements for Hydraulically Inadequate Dams in Region | Conduct assessment and evaluate rehabilitation improvements for 27 dams identified by TCEQ as "Hydraulically Inadequate" | Hudspeth, El Paso, Pecos, Schleicher, Sutton, Reeves, Crockett | TCEQ, Hudspeth, El Paso, Pecos, Schleicher, Sutton, Reeves, Crockett | |
| 141000014 | Develop a Colonia-wide Drainage System at Fort Hancock | Conduct surveys and drainage study to define flood areas, size 5th St crossing structures, develop H&H models for Fort Hancock, and propose FMPs. Address flooding at Hwy 20, Mustang Rd, and roadside ditches/culverts in Fort Hancock. | Hudspeth | City of Fort Hancock, Hudspeth County | \$50,200 |

*Note: Entities listed as sponsors have not committed to funding, nor are they responsible for funding the associated FMEs at this time.

Table A7: Potential Flood Management Strategies (FMSs) Identified by RFPG

| FMS ID | FMS Name | Description | Counties | Sponsor* | Estimated Strategy Cost (\$) | Water Supply Benefit (Y/N) |
|-----------|--|--|--|---|------------------------------|----------------------------|
| 142000001 | FEMA Levee Accreditation for All Rio Grande Levees at El Paso | Coordination needed between USIBWC, FEMA, El Paso Water, El Paso County, Doña Ana County, and Hudspeth County to certify and accredit all remaining levee segments through El Paso County. Interior drainage studies are needed in Hudspeth and Doña Ana. | El Paso | USIBWC, El Paso Water, El Paso County, Doña Ana County, Hudspeth County | | N |
| 142000002 | Irrigation and Recharge Application of Captured Rainwater Runoff at Alpine | Construct rainwater basins at 3 locations around Kokernot Park to drain neighboring streets, impound runoff volume, promote infiltration and aquifer recharge, reduce landscaping water costs, and remediate pollutants. | Brewster | City of Alpine, Brewster County | \$1,296,000 | Y |
| 142000003 | Maintenance and Outreach Program for Roadside Swales and Driveway Culverts at Fort Hancock | Maintain existing roadside ditches/swales to ensure positive drainage and develop an outreach program to encourage residents to maintain and repair driveway culverts. | Hudspeth | City of Fort Hancock, Hudspeth County | | N |
| 142000004 | Coordination with Ft. Bliss for FMP Permitting and Maintenance Access | EPWater designed NE7 on Ft. Bliss near unexploded ordinances (UXOs), and has an easement to maintain Fusselman and Northgate Dams, but can't access them due to UXOs. El Paso County designed MON1 on Ft. Bliss near a training ground and potential UXOs. | El Paso | El Paso Water, El Paso County, U.S. Army | | N |
| 142000005 | Maintenance Program to control Salt Cedar vegetation along Rio Grande upstream of Presidio | Coordination should take place between RGCOG, Presidio County, TXDOT, USACE, and USIBWC to identify funding source to clear vegetation along the Rio Grande between Candelaria and Presidio to allow for proper drainage for communities located along FM 170. | Presidio | RGCOG, Presidio County, TXDOT, USIBWC, USACE | | N |
| 142000006 | Implement Binational Streamflow Recommendations for Big Bend Reach of Rio Grande | Implement stream-flow program to support the Rio Grande ecological environment in Big Bend National Park. A controlled flood would be released from Luis Leon Dam in Mexico. Requires coordination with Mexican dam operations/water distribution entities. | Presidio County | National Park Service, Presidio County, USIBWC, CILA, CONAGUA, RG/B Basin Flows Collaboration | | N |
| 142000007 | Program to Manage Salt Cedar Growth and Debris in the Pecos River | Develop maintenance program to manage salt cedar growth in the Pecos River. Salt cedar decreases water quantity, reduces the width of the channel, increases sedimentation and flood stages, and increases debris damages downstream during floods. | Loving, Ward, Crane, Crockett, Val Verde, Terrell, Pecos, Reeves | USACE, Pecos Compact Commission | | Y |
| 142000008 | Cibolo Creek Channel and Levee Maintenance Program | Develop and implement maintenance program for Cibolo Creek channel bed and levee system. Coordination should take place between Presidio County and USACE to identify funding and goals of the program. | Presidio | USACE, Presidio County | | N |
| 142000009 | Regulatory Review of Off-Road Traffic on State Lands | Coordination should take place between EPCWID No. 1, El Paso County, and State land owners to discuss enforcement of restrictions associated with off-road motor vehicles on undeveloped land. | El Paso | EPCWID No. 1, El Paso County, Texas GLO | | N |
| 142000010 | Regulatory Review of Impervious Cover on New Development in El Paso County | Coordination should take place between EPCWID No. 1, El Paso County, and Texas GLO land owners to discuss revisions to development regulations associated with detention and impervious cover. | El Paso | EPCWID No. 1, El Paso County, Texas GLO | | N |

| FMS ID | FMS Name | Description | Counties | Sponsor* | Estimated Strategy Cost (\$) | Water Supply Benefit (Y/N) |
|-----------|---|--|---|--|------------------------------|----------------------------|
| 142000011 | Develop strategy to enhance FMPs with nature-based enhancements: streamflow harvesting for groundwater recharge, etc. | At Alamito Creek Preserve, Rio Grande Joint Venture has installed a dozen loose rock structures and road aprons along with High Density Large Woody Debris structures. The Venture plans to install Beaver Dam Analogs adjacent to the other structures. | Jeff Davis, Presidio, Brewster | Rio Grande Joint Venture, RGCOG, National Park Service | | N |
| 142000012 | Develop regional strategy for sediment control on arroyos tributary to the Rio Grande, major irrigation drains, other waterways (as identified) | Develop strategy for identification, study, prioritization, and development of mitigation solutions for arroyos that impair conveyance capacities of downstream channels associated with significant flood risk. | Jeff Davis, Presidio, Brewster | Rio Grande Joint Venture, RGCOG, National Park Service | | N |
| 142000013 | Staff augmentation support or funding for at risk communities to join NFIP | Prioritize and provide staff augmentation support or funding for at risk communities not currently participating in NFIP to implement recommended minimum standards and join NFIP | Andrews, Edwards, Jeff Davis, Reeves, Pecos, Upton, Winkler, Ward | RGCOG | | N |
| 142000014 | Develop new flood gages throughout the region | Prioritize, fund, and develop new flood gages (rainfall and/or stream gages) throughout the region to support flood warning system improvements and improve ability to validate or calibrate existing and new flood models | All Counties in Region 14 | RGCOG | | N |

*Note: Entities listed as sponsors have not committed to funding, nor are they responsible for funding the associated FMSs at this time.

Table A8: Potential Flood Management Projects (FMPs) Identified by RFPG

| FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|-----------|---|--|----------|---------------------------------------|-----------------------------|----------------------------|
| 143000001 | Riverside Regulating Reservoir at El Paso | Construction of 4,100 ac-ft ring levy regulating reservoir to allow more efficient use of stored water releases from Rio Grande storage reservoirs and from stormwater runoff that enters the Rio Grande downstream of Caballo Dam. | El Paso | EPCWID No. 1 | \$6,754,036 | Y |
| 143000002 | Hueco Bolson Artificial Recharge | Construct 10,000 feet of 20-inch pipe and six spreading basins, to be excavated on EPWU property, which will temporarily hold treated surface water from the Rio Grande for infiltration and aquifer recharge. Project is in the 2020 Region E Water Plan | El Paso | El Paso Water | \$38,003,000 | Y |
| 143000003 | Regional Pond and Storm Drain System at San Elizario | Construct an 11.5 ac-ft regional Pond and storm drain system with drainage inlets and approximately 740-ft of 30" RCP. Described as Alternative 1 from 12/5/2018 City of San Elizario "Drainage Feasibility Study". | El Paso | City of San Elizario | \$758,493 | N |
| 143000004 | Rio Bosque Wetlands Park at El Paso | Aquatic ecosystem restoration and protection project to enhance wetland and riparian habitat along the Rio Grande. | El Paso | USACE | \$11,730,000 | N |
| 143000005 | SH20 Drainage Improvements from Doniphan Drive to Texas Avenue | Improvements to inlet and culvert capacities at 14 crossings, with cost estimates and prioritizations available. | El Paso | TXDOT | \$5,425,000 | N |
| 143000006 | FM170 Drainage Improvements from Candelaria to US-67 | Increased culvert capacities for 9 crossings and 163 Low Water Crossings to provide 5- or 10-yr LOS, with cost estimates and prioritizations available. | Presidio | TXDOT | | N |
| 143000007 | Install Monitoring Gage on North Alamito Creek and Highway 17 | Add monitoring gage/early detection on North Alamito Creek under Hwy 17 Bridge (between Marfa and the airport). This would provide 5-10 minutes early warning to allow Presidio County Office of Emergency Management to deploy before imminent road flooding. | Presidio | Presidio County, City of Marfa | | N |
| 143000008 | Channelize Sections of Alamito Creek from Highway 67 to Rio Grande | Channelization of flood-prone sections of Alamito Creek between the Hwy 67 crossing and the Rio Grande. | Presidio | Presidio County | | N |
| 143000009 | Develop and Implement Floodplain Ordinance to Regulate Development at Hudspeth County | Coordinate with Hudspeth County Commissioners, Road & Bridge Departments, Safety & Inspection Departments, & County Attorney to draft a floodplain ordinance (or modify existing subdivision ordinance) to regulate development standards in Hudspeth County. | Hudspeth | City of Fort Hancock, Hudspeth County | | N |
| | El Paso County Stormwater Master Plan (2021) | Stormwater Master Plan for El Paso County, including 66 prioritized projects located outside the El Paso city limits, with cost estimates. Two projects (HAC7 and SSA1) have been awarded grant funding through the TWDB Flood Infrastructure fund (FIF). Projects are listed below from highest to lowest ranking according to the County prioritization. | El Paso | El Paso County | \$220,950,000 | N |

| FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|-----------|--------------|---|----------|------------------------------|-----------------------------|----------------------------|
| 143000010 | SOC1 & SOC 2 | Sediment/Detention Basin - SOC1; Sediment/Detention Basin - SOC2 (project has been invited to submit an application for funding by TWDB; FMP will be removed from list if funding is awarded) | El Paso | El Paso County | \$4,960,000 | N |
| 143000011 | SSA4 | Detention Basin SSA4 | El Paso | El Paso County | \$14,800,000 | N |
| 143000012 | CAN1 | Reconstruction of the channel with concrete lining | El Paso | El Paso County | \$1,960,000 | N |
| 143000013 | FAB1 | Sediment/Retention Basin | El Paso | El Paso County | \$3,310,000 | N |
| 143000014 | CAN2 | Retention Basin (CAN2B); 1 - 6' x 3' CBC; 143' Channel Improvements; Retention Basin (CAN2A) - 6-foot embankment; 1665' principal spillway from CAN2A to existing basin | El Paso | El Paso County | \$6,030,000 | N |
| 143000015 | MON2 | Sediment/Retention Basin | El Paso | El Paso County | \$8,030,000 | N |
| 143000016 | VIN1 | 5 - 7' x 4' CBC | El Paso | El Paso County | \$29,500,000 | N |
| 143000017 | MON1 | Sediment/Retention Basin | El Paso | El Paso County, U.S. Army | \$15,780,000 | N |
| 143000018 | HAC2 | Sediment/Retention Basin at Location A; Sediment/Retention Basin at Location B | El Paso | El Paso County | \$37,810,000 | N |
| 143000019 | CAN3 | 2 - 6' x 3' CBC | El Paso | El Paso County | \$200,000 | N |
| 143000020 | SSA5 | Sparks Channel; 6 - 10' x 4' CBC | El Paso | El Paso County | \$12,300,000 | N |
| 143000021 | SOC4 | Sediment/Detention Basin at "Mankato Arroyo" | El Paso | El Paso County, EPCWID No. 1 | \$1,500,000 | N |
| 143000022 | SSA2 | Detention Basin SSA2 | El Paso | El Paso County | \$7,190,000 | N |
| 143000023 | SOC3 | Sediment/Detention Basin | El Paso | El Paso County | \$1,100,000 | N |
| 143000024 | MON3 | Sediment/Retention Basin | El Paso | El Paso County | \$25,800,000 | N |
| 143000025 | HAC3 | Sediment/Retention Basin | El Paso | El Paso County | \$2,710,000 | N |
| 143000026 | HAC6 | Sediment/Retention Basin | El Paso | El Paso County | \$4,470,000 | N |

| FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|-----------|----------|--|----------|----------------|-----------------------------|----------------------------|
| 143000027 | TOR1 | Construct upstream sediment basin (Basin A) and downstream sediment/retention basin (Basin B). | El Paso | El Paso County | \$3,120,000 | N |
| 143000028 | SSA3 | Detention Basin SSA3; Concrete Lined Channel | El Paso | El Paso County | \$1,510,000 | N |
| 143000029 | VIN3 | 1600' of Channel Improvements | El Paso | El Paso County | \$160,000 | N |
| 143000030 | HAC1 | Low-level/Principal Spillway Outlet | El Paso | El Paso County | \$1,080,000 | N |
| 143000031 | MON7 | 4 - 7' x 4' CBC | El Paso | El Paso County | \$450,000 | N |
| 143000032 | MON15 | 14 -12' x 9' CBC | El Paso | El Paso County | \$1,470,000 | N |
| 143000033 | FAB3 | Upgrade Fabens Dam | El Paso | El Paso County | \$1,750,000 | N |
| 143000034 | VIN6 | 3 - 9' x 8' CBC | El Paso | El Paso County | \$880,000 | N |
| 143000035 | VIN5 | 2054' of Channel Improvements | El Paso | El Paso County | \$1,210,000 | N |
| 143000036 | HAC5 | Sediment/Retention Basin | El Paso | El Paso County | \$2,920,000 | N |
| 143000037 | VIN2 | 950' of Channel Improvements | El Paso | El Paso County | \$330,000 | N |
| 143000038 | HAC4 | Sediment/Retention Basin | El Paso | El Paso County | \$1,890,000 | N |
| 143000039 | TOR5 | 165' of Channel Bank Improvements | El Paso | El Paso County | \$280,000 | N |
| 143000040 | VIN4 | 4500' of Channel Improvements - property acquisition not included | El Paso | El Paso County | \$1,170,000 | N |
| 143000041 | SSA6 | Sediment Basin SSA6_A; North Channel for Basin at Location A; South Channel for Basin at Location A; Sediment Basin SSA6_B; North Channel for Basin at Location B; South Channel for Basin at Location B | El Paso | El Paso County | \$2,700,000 | N |
| 143000042 | TOR3 | Sediment Basin (TOR3A) | El Paso | El Paso County | \$60,000 | N |
| 143000043 | TOR6 | 2 - 4' x 2' CBC | El Paso | El Paso County | \$70,000 | N |
| 143000044 | HAC9 | 3 - 4' x 4' CBC | El Paso | El Paso County | \$150,000 | N |

| FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|-----------|----------|--|----------|----------------|-----------------------------|----------------------------|
| 143000045 | SOC6 | 2 - 7' x 7' CBC | El Paso | El Paso County | \$170,000 | N |
| 143000046 | SOC7 | 2 - 7' x 7' CBC | El Paso | El Paso County | \$190,000 | N |
| 143000047 | SOC5 | 3 - 4' x 4' CBC | El Paso | El Paso County | \$200,000 | N |
| 143000048 | MON8 | 7 - 8' x 5' CBC | El Paso | El Paso County | \$210,000 | N |
| 143000049 | SOC8 | 2 - 7' x 7' CBC | El Paso | El Paso County | \$260,000 | N |
| 143000050 | HAC13 | 2 - 7' x 7' CBC | El Paso | El Paso County | \$270,000 | N |
| 143000051 | VIN12 | 3 - 9' x 5' CBC | El Paso | El Paso County | \$270,000 | N |
| 143000052 | HAC14 | 2 - 7' x 7' CBC | El Paso | El Paso County | \$300,000 | N |
| 143000053 | MON4 | 7 - 9' x 5' CBC | El Paso | El Paso County | \$320,000 | N |
| 143000054 | MON5 | 7 - 9' x 5' CBC | El Paso | El Paso County | \$320,000 | N |
| 143000055 | MON6 | 7 - 9' x 5' CBC | El Paso | El Paso County | \$320,000 | N |
| 143000056 | VIN13 | 5 - 7' x 4' CBC | El Paso | El Paso County | \$340,000 | N |
| 143000057 | VIN14 | 6 - 6' x 6' CBC | El Paso | El Paso County | \$420,000 | N |
| 143000058 | HAC8 | 5 - 4' x 4' CBC (In conjunction with HAC2 Basin B) | El Paso | El Paso County | \$570,000 | N |
| 143000059 | FAB2 | Property | El Paso | El Paso County | \$590,000 | N |
| 143000060 | HAC11 | 2 - 7' x 7' CBC | El Paso | El Paso County | \$590,000 | N |
| 143000061 | MON9 | 6 - 7' x 4' CBC | El Paso | El Paso County | \$610,000 | N |
| 143000062 | HAC10 | 2 - 7' x 7' CBC | El Paso | El Paso County | \$620,000 | N |

| FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|-----------|---|---|----------|----------------|-----------------------------|----------------------------|
| 143000063 | HAC12 | 2 - 7' x 7' CBC | El Paso | El Paso County | \$650,000 | N |
| 143000064 | VIN7 | 84' span bridge | El Paso | El Paso County | \$830,000 | N |
| 143000065 | VIN11 | 58' span bridge | El Paso | El Paso County | \$940,000 | N |
| 143000066 | VIN10 | 58' span bridge | El Paso | El Paso County | \$990,000 | N |
| 143000067 | MON10 | 11 - 9' x 5' CBC | El Paso | El Paso County | \$1,020,000 | N |
| 143000068 | MON11 | 11 - 9' x 5' CBC | El Paso | El Paso County | \$1,020,000 | N |
| 143000069 | MON12 | 11 - 9' x 5' CBC | El Paso | El Paso County | \$1,020,000 | N |
| 143000070 | TOR2 | 2030' of Channel Bank Improvements | El Paso | El Paso County | \$1,040,000 | N |
| 143000071 | MON13 | 11 - 9' x 5' CBC | El Paso | El Paso County | \$1,390,000 | N |
| 143000072 | MON14 | 14 - 12' x 9' CBC | El Paso | El Paso County | \$1,470,000 | N |
| 143000073 | VIN8 | 56' span bridge | El Paso | El Paso County | \$1,700,000 | N |
| 143000074 | TOR4 | Sediment/Retention Basin | El Paso | El Paso County | \$1,750,000 | N |
| 143000075 | VIN9 | 110' span bridge | El Paso | El Paso County | \$1,910,000 | N |
| | City of El Paso and El Paso Water Stormwater Master Plan (2021) | Stormwater Master Plan for City of El Paso, including 95 prioritized projects with cost estimates. Projects are listed below from highest to lowest ranking according to the City prioritization. | El Paso | El Paso Water | \$479,273,063 | N |
| 143000076 | CE5A | Modify existing street inlets, design/construct new inlet to the existing Dallas basins, and start land acquisition process for a new 43 ac-ft basin | El Paso | El Paso Water | \$135,000 | N |
| 143000077 | CE Dam 2 | Upgrade dam to meet TCEQ requirements | El Paso | El Paso Water | \$750,000 | N |
| 143000078 | NW9 | Construction of new debris and volume Dam to prevent breach of existing channel. | El Paso | El Paso Water | \$3,000,000 | N |

| FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|-----------|-----------|---|----------|---------------|-----------------------------|----------------------------|
| 143000079 | EA6B | Sam Snead Storm Drain System (Lee Trevino to Dan Sikes) | El Paso | El Paso Water | \$3,922,000 | N |
| 143000080 | EA6C | Sam Snead Storm Drain System (Lee Trevino from Sam Snead to Amy Sue) | El Paso | El Paso Water | \$5,600,000 | N |
| 143000081 | CE5B | Buy land and build new basin to connect to existing Dallas PS basins, including new inlets, and install one new pumping unit at Dallas PS | El Paso | El Paso Water | \$7,522,081 | N |
| 143000082 | CE5C | Complete phased construction of new basin to connect to existing Dallas PS basins; also build new Cypress PS facility by river | El Paso | El Paso Water | \$12,767,000 | N |
| 143000083 | MV7 | Increase existing culvert capacity to two 5-ft x 5-ft concrete box culverts | El Paso | El Paso Water | \$125,000 | N |
| 143000084 | CE Dam 10 | Upgrade dam to meet TCEQ requirements | El Paso | El Paso Water | \$600,000 | N |
| 143000085 | CE Dam 4 | Upgrade dam to meet TCEQ requirements | El Paso | El Paso Water | \$400,000 | N |
| 143000086 | NE1 | Replacement of five crossing structures over Railroad Drive Ditch upstream of Railroad Drive | El Paso | El Paso Water | \$1,200,000 | N |
| 143000087 | MidV1 | Add Pump Capacity to Clardy Fox Pump Station | El Paso | El Paso Water | \$4,100,000 | N |
| 143000088 | NE3A | New Will Ruth Pond to catch FP 15 midstream | El Paso | El Paso Water | \$7,500,000 | N |
| 143000089 | NE9 | Placing RCP culverts to divert Flowpath from Northgate Diversion Channel to Northgate Dam | El Paso | El Paso Water | \$1,000,000 | N |
| 143000090 | CE4B | Gateway ponds dewatering pump station and discharge header to the existing Cebada conduit | El Paso | El Paso Water | \$7,200,000 | N |
| 143000091 | CE6B | Approx. 500 LF of new 24" storm drain system at the intersection of Montana Avenue and Houston Street tying back into channel | El Paso | El Paso Water | \$220,000 | N |
| 143000092 | CE6A | Extend existing storm drain system on Altura 150 LF towards Boone Street with 36" pipe and new 36" storm drain pipe at intersection of Boone Street and Altura Avenue to existing system under Boone Street | El Paso | El Paso Water | \$250,000 | N |
| 143000093 | MidV10 | Upsizing existing storm drain system located along El Paso Street to 36" | El Paso | El Paso Water | \$585,004 | N |
| 143000094 | CE Dam 6 | Upgrade dam to meet TCEQ requirements | El Paso | El Paso Water | \$600,000 | N |
| 143000095 | CE Dam 7 | Upgrade dam to meet TCEQ requirements | El Paso | El Paso Water | \$600,000 | N |

| FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|-----------|----------|---|----------|---------------|-----------------------------|----------------------------|
| 143000096 | CE Dam 8 | Upgrade dam to meet TCEQ requirements | El Paso | El Paso Water | \$600,000 | N |
| 143000097 | NW16 | Expand channel from Village Ct to Doniphan Dr | El Paso | El Paso Water | \$1,000,000 | N |
| 143000098 | EA3A | Increase channel capacity down to retention basin. | El Paso | El Paso Water | \$1,100,000 | N |
| 143000099 | EA3B | Add storm drain system within streets to reduce street flooding issues. | El Paso | El Paso Water | \$5,460,000 | N |
| 143000100 | NE3B | Alcan Pond: new catch basin to capture FP15 upstream | El Paso | El Paso Water | \$13,500,000 | N |
| 143000101 | MV2A | Excavate and regrade slope in Basin B so that water flows to pump station. Install new culverts | El Paso | El Paso Water | \$300,000 | N |
| 143000102 | EA6F | Construction of New larger capacity Doniphan Pump Station to replace PS1, with new force main directly to the Rio Grande. Install new catch basin with mechanical bar screen upstream of PS2. | El Paso | El Paso Water | \$2,207,500 | N |
| 143000103 | EA6E | Sam Snead Storm Drain System (Octubre Drive from Sam Snead to Montwood) | El Paso | El Paso Water | \$2,928,000 | N |
| 143000104 | EA6D | Sam Snead Storm Drain System (Frank Beard from Sam Snead to Anise) | El Paso | El Paso Water | \$3,284,000 | N |
| 143000105 | EA10A | Build sediment/detention basin upstream of Paseo del Este Drive | El Paso | El Paso Water | \$6,100,000 | N |
| 143000106 | NW4 | Replace 3 undersized culvert x-sings at Playa del Sol, Corona del Sol, and Villa del Sol; Increase capacity to culvert at Resler Drive | El Paso | El Paso Water | \$600,000 | N |
| 143000107 | CE3 | Pressurize conduit to increase capacity, install automatic gate at Rio Grande | El Paso | El Paso Water | \$2,500,000 | N |
| 143000108 | MidV5 | new detention pond with security fencing | El Paso | El Paso Water | \$5,000,000 | N |
| 143000109 | NW5 | FP39 Dam/ sediment basin; 2 small detention ponds, Resler Drive culvert improvement, | El Paso | El Paso Water | \$8,400,000 | N |
| 143000110 | EA4A | Expand 85 ac-ft capacity to Album Park | El Paso | El Paso Water | \$9,500,000 | N |
| 143000111 | NW3 | Construction of New larger capacity Doniphan Pump Station to replace PS1, with new force main directly to the Rio Grande. Install new catch basin with mechanical bar screen upstream of PS2. | El Paso | El Paso Water | \$10,000,000 | N |
| 143000112 | MV1 | Upgrade Basin A Pump Station | El Paso | El Paso Water | \$24,804,000 | N |

| FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|-----------|---------------|--|----------|---------------|-----------------------------|----------------------------|
| 143000113 | NW26 | Acquire land, construct a permanent wetland, install a storm drain system to Doniphan Drive, construct pipeline to Doniphan Pump Station and build new pump station to control flood levels. | El Paso | El Paso Water | \$35,000,000 | N |
| 143000114 | MidV9 | 1200 LF of new 36-inch storm drain along Yandell tying into existing system located in Paisano Drive and extending to the intersection with Argentina Street | El Paso | El Paso Water | \$405,080 | N |
| 143000115 | CE4A | Magnolia Pond Expansion | El Paso | El Paso Water | \$7,200,000 | N |
| 143000116 | EA9A | Build sediment/detention basin upstream of Paseo del Este Drive | El Paso | El Paso Water | \$7,500,000 | N |
| 143000117 | WC6B | Improve channel upstream of Hwy 20 | El Paso | El Paso Water | \$172,900 | N |
| 143000118 | EA2 | Expand existing drain to add 20 ac-ft of storage | El Paso | El Paso Water | \$900,000 | N |
| 143000119 | WC1 | Construct debris basin and Build check-dams along arroyo | El Paso | El Paso Water | \$1,000,000 | N |
| 143000120 | EA4B | Install Wedgewood Storm Drain | El Paso | El Paso Water | \$1,500,000 | N |
| 143000121 | WC6C | Improve 2 crossings, University Avenue and Oregon St | El Paso | El Paso Water | \$1,796,600 | N |
| 143000122 | NE4 | Increase crossing capacity over Range Dam Outlet Channel, improve junction of Range Dam Outlet Channel and Tobin Drain Channel | El Paso | El Paso Water | \$1,900,000 | N |
| 143000123 | EA10B | Concrete line Mercantile Channel (20-ft bottom width, 5 ft depth; rectangular channel) | El Paso | El Paso Water | \$2,000,000 | N |
| 143000124 | EA9B | Concrete line RV Channel (20-ft bottom width, 4 ft depth; rectangular channel) | El Paso | El Paso Water | \$2,700,000 | N |
| 143000125 | EA2 Alternate | Alternate - Enclose drain using underground storage system to utilize as park space; or installation of 10-10x10 CBC along 900 ft of drain OR Installation of underground large span crossing) | El Paso | El Paso Water | \$5,000,000 | N |
| 143000126 | EA6K | Ashwood Storm drain Improvements (Yarbrough) | El Paso | El Paso Water | \$5,389,800 | N |
| 143000127 | EA6I | Bywood Drive Storm drain System from Fierro Drive to Lee Trevino, 48- and 60-inch RCP, 7'x7' CBC, with cross-street trench drains at all intersecting streets and along Bywood Drive (design currently ongoing; construction not yet funded) | El Paso | El Paso Water | \$9,962,138 | N |

| FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|-----------|----------|---|----------|--------------------------|-----------------------------|----------------------------|
| 143000128 | EA6J | Eads Storm drain System from Bywood Drive to Pebbles Hills Drive, 9'x9' CBC with cross street trench drains along the way (design currently ongoing; construction not yet funded) | El Paso | El Paso Water | \$8,070,200 | N |
| 143000129 | EA7 Ph2 | Install storm drain system and increase capacity of existing storm drain system | El Paso | El Paso Water | \$8,400,000 | N |
| 143000130 | EA11 | 400 LF of 36-inch and 700 LF of 48-inch storm drain pipe connecting to existing system on Airway Boulevard | El Paso | El Paso Water | \$550,060 | N |
| 143000131 | MV3 | Installation of auto-gates, 25 cfs pump station, two new concrete box culverts | El Paso | El Paso Water | \$1,000,000 | N |
| 143000132 | MV12 | Reconstruct Americas Ten Basin outfall | El Paso | El Paso Water | \$1,800,000 | N |
| 143000133 | NW11A | Build sediment basin upstream at Via Serena | El Paso | El Paso Water | \$2,500,000 | N |
| 143000134 | WC5 | Bore outfall bubbler unto the River | El Paso | El Paso Water | \$3,800,000 | N |
| 143000135 | EA8D | New Dieter Storm Drain | El Paso | El Paso Water | \$4,000,000 | N |
| 143000136 | NE2 | Concrete line Railroad Drive Ditch, increase capacity of existing ditch crossing, improve channel into Fort Bliss sump | El Paso | El Paso Water, U.S. Army | \$6,500,000 | N |
| 143000137 | NW2 | Phase 2: Construct sediment basin | El Paso | El Paso Water | \$6,500,000 | N |
| 143000138 | CE4C | Add mechanical bar screen to remove debris from the existing wet well. | El Paso | El Paso Water | \$9,500,000 | N |
| 143000139 | MV4 | Excavate 115 Ac-Ft pond and culverts to divert Franklin Drain , put in auto-gates to Middle Drain Interceptor, and 25 cfs pump station to dewater pond | El Paso | El Paso Water | \$21,000,000 | N |
| 143000140 | MV5B | Upgrade PS to 820 cfs w/ new Rio Grande conduits - Proposed Land Acquisition from EPCWID | El Paso | El Paso Water | \$35,000,000 | N |
| 143000141 | NW11B | Add culvert at Via Descanso Drive (culvert may not be needed upon completion of sediment basin) | El Paso | El Paso Water | \$132,600 | N |
| 143000142 | MidV7 | Reconstruct 36 inch existing storm drain | El Paso | El Paso Water | \$227,500 | N |
| 143000143 | NW11C | Add culvert at Loma de Cristo Drive (culvert may not be needed upon completion of sediment basin) | El Paso | El Paso Water | \$383,500 | N |
| 143000144 | NW18 | Mesa Hills Channel Improvements | El Paso | El Paso Water | \$750,000 | N |

| FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|-----------|----------|---|----------|---------------|-----------------------------|----------------------------|
| 143000145 | NE6 | Installation of subsurface conduit from outfall to open channel | El Paso | El Paso Water | \$800,000 | N |
| 143000146 | WC6A | Improve existing dam, build new basin | El Paso | El Paso Water | \$897,000 | N |
| 143000147 | NW11D | Add culvert at Westwind Drive (culvert may not be needed upon completion of sediment basin) | El Paso | El Paso Water | \$1,261,000 | N |
| 143000148 | EA4C | Install Zanzibar Storm Drain | El Paso | El Paso Water | \$1,500,000 | N |
| 143000149 | EA1A | install culverts @ 4 crossings | El Paso | El Paso Water | \$1,650,000 | N |
| 143000150 | EA4D | Install Ballymonte & Orkney Storm Drain | El Paso | El Paso Water | \$2,500,000 | N |
| 143000151 | EA8A | New Pullman Storm Drain | El Paso | El Paso Water | \$2,500,000 | N |
| 143000152 | EA8B | Expand existing Peter Cooper Storm Drain | El Paso | El Paso Water | \$3,000,000 | N |
| 143000153 | EA8C | Expand existing and add new Henry Brennan Storm Drain | El Paso | El Paso Water | \$3,000,000 | N |
| 143000154 | EA1B | Install drain system on Cielo Vista Drive | El Paso | El Paso Water | \$8,500,000 | N |
| 143000155 | EA5 | Upgrade Eastwood Dam to meet TCEQ requirements | El Paso | El Paso Water | \$2,500,000 | N |
| 143000156 | MidV6 | Construction of detention basin | El Paso | El Paso Water | \$3,000,000 | N |
| 143000157 | WC4 | Build detention basin on EPWater land on O'Keefe | El Paso | El Paso Water | \$3,000,000 | N |
| 143000158 | WC3 | Widen channel at downstream @ Paisano, and replace bridge | El Paso | El Paso Water | \$3,800,000 | N |
| 143000159 | EA8E | expand existing and add new Zaragoza Storm Drain | El Paso | El Paso Water | \$4,000,000 | N |
| 143000160 | NW7 | Slipline existing storm drain, construct detention basin | El Paso | El Paso Water | \$4,000,000 | N |
| 143000161 | NW6 | FP-40 Dam; build sediment & detention basin | El Paso | El Paso Water | \$4,600,000 | N |
| 143000162 | WC8 | New Sediment Basin | El Paso | El Paso Water | \$897,000 | N |

| FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|-----------|----------|--|----------|---------------|-----------------------------|----------------------------|
| 143000163 | NE5 | Add new sediment basin | El Paso | El Paso Water | \$2,197,000 | N |
| 143000164 | MV2C | Expand pump station by installing an additional 165 cfs pump and conduit. | El Paso | El Paso Water | \$7,829,900 | N |
| 143000165 | MV10 | Expand channel | El Paso | El Paso Water | \$8,138,000 | N |
| 143000166 | MV2B | Install a new pump station (165 cfs total capacity) and conduit in the portion of Basin B west of Mimosa Avenue to pump water to the Rio Grande River. | El Paso | El Paso Water | \$13,536,900 | N |
| 143000167 | MV8 | Install pump station plus conduits to basin, from basin into Rio Grande | El Paso | El Paso Water | \$13,962,000 | N |
| 143000168 | MidV8 | New detention pond with outlet tower, upsizing pipes to 48" and 60", installing new drainage inlets along Raynolds, new 48" pipe extending north to Hastings Drive | El Paso | El Paso Water | \$4,304,300 | N |
| 143000169 | NE7C | Construct sediment basin with 10-ft depth | El Paso | El Paso Water | \$10,000,000 | N |
| 143000170 | NE7D | Addition of detention to sediment basin if appropriate | El Paso | El Paso Water | \$20,000,000 | N |

*Note: Entities listed as sponsors have not committed to funding, nor are they responsible for funding the associated FMPs at this time.

Table A9: Potential Flood Mitigation Projects (FMPs) Prioritized for Evaluation in RFP from El Paso County SWMP

| Order of Evaluation in RFP | FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|----------------------------|-----------|----------|---|----------|---------------------------|-----------------------------|----------------------------|
| 1 | 143000011 | SSA4 | Detention Basin SSA4 | El Paso | El Paso County | \$14,800,000 | N |
| 2 | 143000012 | CAN1 | Reconstruction of the channel with concrete lining | El Paso | El Paso County | \$1,960,000 | N |
| 3 | 143000034 | VIN6 | 3 - 9' x 8' CBC | El Paso | El Paso County | \$880,000 | N |
| 4 | 143000022 | SSA2 | Detention Basin SSA2 | El Paso | El Paso County | \$7,190,000 | N |
| 5 | 143000024 | MON3 | Sediment/Retention Basin | El Paso | El Paso County | \$25,800,000 | N |
| 6 | 143000025 | HAC3 | Sediment/Retention Basin | El Paso | El Paso County | \$2,710,000 | N |
| 7 | 143000013 | FAB1 | Sediment/Retention Basin | El Paso | El Paso County | \$3,310,000 | N |
| 8 | 143000014 | CAN2 | Retention Basin (CAN2B); 1 - 6' x 3' CBC; 143' Channel Improvements; Retention Basin (CAN2A) - 6-foot embankment; 1665' principal spillway from CAN2A to existing basin | El Paso | El Paso County | \$6,030,000 | N |
| 9 | 143000028 | SSA3 | Detention Basin SSA3; Concrete Lined Channel | El Paso | El Paso County | \$1,510,000 | N |
| 10 | 143000016 | VIN1 | 5 - 7' x 4' CBC | El Paso | El Paso County | \$29,500,000 | N |
| 11 | 143000015 | MON2 | Sediment/Retention Basin | El Paso | El Paso County | \$8,030,000 | N |
| 12 | 143000029 | VIN3 | 1600' of Channel Improvements | El Paso | El Paso County | \$160,000 | N |
| 13 | 143000017 | MON1 | Sediment/Retention Basin | El Paso | El Paso County, U.S. Army | \$15,780,000 | N |
| 14 | 143000018 | HAC2 | Sediment/Retention Basin at Location A; Sediment/Retention Basin at Location B | El Paso | El Paso County | \$37,810,000 | N |
| 15 | 143000030 | HAC1 | Low-level/Principal Spillway Outlet | El Paso | El Paso County | \$1,080,000 | N |
| 16 | 143000020 | SSA5 | Sparks Channel; 6 - 10' x 4' CBC | El Paso | El Paso County | \$12,300,000 | N |
| 17 | 143000033 | FAB3 | Upgrade Fabens Dam | El Paso | El Paso County | \$1,750,000 | N |

| Order of Evaluation in RFP | FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|----------------------------|-----------|--------------|--|----------|----------------|-----------------------------|----------------------------|
| 18 | 143000019 | CAN3 | 2 - 6' x 3' CBC | El Paso | El Paso County | \$200,000 | N |
| 19 | 143000032 | MON15 | 14 -12' x 9' CBC | El Paso | El Paso County | \$1,470,000 | N |
| 20 | 143000010 | SOC1 & SOC 2 | Sediment/Detention Basin - SOC1; Sediment/Detention Basin - SOC2 (project has been invited to submit application for funding by TWDB; FMP will be removed from list if funding is awarded) | El Paso | El Paso County | \$4,960,000 | N |

*Note: Entities listed as sponsors have not committed to funding, nor are they responsible for funding the associated FMSs at this time.

Table A10: Potential Flood Mitigation Projects (FMPs) Prioritized for Evaluation in RFP from City of El Paso SWMP

| Order of Evaluation in RFP | FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|----------------------------|-----------|----------|---|----------|---------------|-----------------------------|----------------------------|
| 1 | 143000076 | CE5A | Modify existing street inlets, design/construct new inlet to the existing Dallas basins, and start land acquisition process for a new 43 ac-ft basin | El Paso | El Paso Water | \$135,000 | N |
| 2 | 143000078 | NW9 | Construction of new debris and volume Dam to prevent breach of existing channel. | El Paso | El Paso Water | \$3,000,000 | N |
| 3 | 143000079 | EA6B | Sam Snead Storm Drain System (Lee Trevino to Dan Sikes) | El Paso | El Paso Water | \$3,922,000 | N |
| 4 | 143000080 | EA6C | Sam Snead Storm Drain System (Lee Trevino from Sam Snead to Amy Sue) | El Paso | El Paso Water | \$5,600,000 | N |
| 5 | 143000081 | CE5B | Buy land and build new basin to connect to existing Dallas PS basins, including new inlets, and install one new pumping unit at Dallas PS | El Paso | El Paso Water | \$7,522,081 | N |
| 6 | 143000082 | CE5C | Complete phased construction of new basin to connect to existing Dallas PS basins; also build new Cypress PS facility by river | El Paso | El Paso Water | \$12,767,000 | N |
| 7 | 143000091 | CE6B | Approx. 500 LF of new 24" storm drain system at the intersection of Montana Avenue and Houston Street tying back into channel | El Paso | El Paso Water | \$220,000 | N |
| 8 | 143000092 | CE6A | Extend existing storm drain system on Altura 150 LF towards Boone Street with 36" pipe and new 36" storm drain pipe at intersection of Boone Street and Altura Avenue to existing system under Boone Street | El Paso | El Paso Water | \$250,000 | N |
| 9 | 143000093 | MidV10 | Upsizing existing storm drain system located along El Paso Street to 36" | El Paso | El Paso Water | \$585,004 | N |
| 10 | 143000097 | NW16 | Expand channel from Village Ct to Doniphan Dr | El Paso | El Paso Water | \$1,000,000 | N |
| 11 | 143000098 | EA3A | Increase channel capacity down to retention basin. | El Paso | El Paso Water | \$1,100,000 | N |
| 12 | 143000099 | EA3B | Add storm drain system within streets to reduce street flooding issues. | El Paso | El Paso Water | \$5,460,000 | N |
| 13 | 143000100 | NE3B | Alcan Pond: new catch basin to capture FP15 upstream | El Paso | El Paso Water | \$13,500,000 | N |
| 14 | 143000101 | MV2A | Excavate and regrade slope in Basin B so that water flows to pump station. Install new culverts | El Paso | El Paso Water | \$300,000 | N |
| 15 | 143000103 | EA6E | Sam Snead Storm Drain System (Octubre Drive from Sam Snead to Montwood) | El Paso | El Paso Water | \$2,928,000 | N |
| 16 | 143000104 | EA6D | Sam Snead Storm Drain System (Frank Beard from Sam Snead to Anise) | El Paso | El Paso Water | \$3,284,000 | N |

| Order of Evaluation in RFP | FMP ID | FMP Name | Description | Counties | Sponsor* | Estimated Project Cost (\$) | Water Supply Benefit (Y/N) |
|----------------------------|-----------|----------|---|----------|---------------|-----------------------------|----------------------------|
| 17 | 143000105 | EA10A | Build sediment/detention basin upstream of Paseo del Este Drive | El Paso | El Paso Water | \$6,100,000 | N |
| 18 | 143000102 | EA6F | Construction of New larger capacity Doniphan Pump Station to replace PS1, with new force main directly to the Rio Grande. Install new catch basin with mechanical bar screen upstream of PS2. | El Paso | El Paso Water | \$2,207,500 | N |
| 19 | 143000107 | CE3 | Pressurize conduit to increase capacity, install automatic gate at Rio Grande | El Paso | El Paso Water | \$2,500,000 | N |
| 20 | 143000108 | MidV5 | new detention pond with security fencing | El Paso | El Paso Water | \$5,000,000 | N |
| 21 | 143000110 | EA4A | Expand 85 ac-ft capacity to Album Park | El Paso | El Paso Water | \$9,500,000 | N |
| 22 | 143000111 | NW3 | Construction of New larger capacity Doniphan Pump Station to replace PS1, with new force main directly to the Rio Grande. Install new catch basin with mechanical bar screen upstream of PS2. | El Paso | El Paso Water | \$10,000,000 | N |
| 23 | 143000112 | MV1 | Upgrade Basin A Pump Station | El Paso | El Paso Water | \$24,804,000 | N |
| 24 | 143000113 | NW26 | Acquire land, construct a permanent wetland, install a storm drain system to Doniphan Drive, construct pipeline to Doniphan Pump Station and build new pump station to control flood levels. | El Paso | El Paso Water | \$35,000,000 | N |

*Note: Entities listed as sponsors have not committed to funding, nor are they responsible for funding the associated FMSs at this time.

Table A11: Existing Flood Infrastructure Summary Table

| Existing Infrastructure ID | Counties | HUC8s | Feature Name | Infrastructure Type | Description | Natural or Constructed or Combination |
|----------------------------|------------|----------|--|---------------------|---|---------------------------------------|
| 14008558 | Edwards | 13040303 | Dry Devils And Lowrey WS SCS Site 8 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| Various | Edwards | 13040303 | Edwards Co - 17 Low Water Crossings | Low Water Crossings | 14 Road Culvert and 3 Road Bridge low water crossings. | Constructed |
| 14008554 | Sutton | 13040301 | Dry Devils And Lowrey WS SCS Site 10 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008555 | Sutton | 13040301 | Dry Devils And Lowrey WS SCS Site 11 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008556 | Sutton | 13040301 | Dry Devils And Lowrey WS SCS Site 12 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008557 | Sutton | 13040301 | Dry Devils And Lowrey WS SCS Site 13 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008548 | Sutton | 13040301 | Dry Devils And Lowrey WS SCS Site 3 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008549 | Sutton | 13040301 | Dry Devils And Lowrey WS SCS Site 4 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008552 | Sutton | 13040301 | Dry Devils And Lowrey WS SCS Site 5 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008550 | Sutton | 13040301 | Dry Devils And Lowrey WS SCS Site 6 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008551 | Sutton | 13040301 | Dry Devils And Lowrey WS SCS Site 7 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008553 | Sutton | 13040301 | Dry Devils And Lowrey WS SCS Site 9 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| Various | Sutton | 13040301 | Sutton Co - 128 Low Water Crossings | Low Water Crossings | 56 Low Water Crossings, 11 Road Bridges, 61 Road Culverts | Constructed |
| 14008546 | Schleicher | 13040301 | Dry Devils And Lowrey WS SCS Site 2 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008547 | Schleicher | 13040301 | Dry Devils And Lowrey WS SCS Site 1 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008563 | Crockett | 13040301 | Johnsons Draw WS SCS Site 1 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008564 | Crockett | 13040301 | Johnsons Draw WS SCS Site 2 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008562 | Crockett | 13040301 | Johnsons Draw WS SCS Site 3 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008565 | Crockett | 13040301 | Johnsons Draw WS SCS Site 4 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008566 | Crockett | 13040301 | Johnsons Draw WS SCS Site 5 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008567 | Crockett | 13040301 | Johnsons Draw WS SCS Site 6 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |

| Existing Infrastructure ID | Counties | HUC8s | Feature Name | Infrastructure Type | Description | Natural or Constructed or Combination |
|----------------------------|-----------|--|--|---------------------|--|---------------------------------------|
| 14008561 | Crockett | 13040301 | Johnsons Draw WS SCS Site 7 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| Various | Crockett | 13070011, 3070008, 13040301 | Crockett Co - 173 Low Water Crossings | Low Water Crossings | 38 Low Water Crossings, 19 Road Bridges, 116 Road Culverts | Constructed |
| 14008576 | Val Verde | 13040302 | Moody Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008577 | Val Verde | 13040302 | Gillis West Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008578 | Val Verde | 13040302 | Gillis East Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| Various | Val Verde | 13040210, 13040212, 13040301, 13040302, 13040303, 13070011, 13070012 | Val Verde Co - 257 Low Water Crossings | Low Water Crossings | 7 Road Bridges, 7 Rail Bridges, 193 Low Water Crossings, 50 Road Culverts | Constructed |
| 14008572 | Terrell | 13040208 | Sanderson Canyon WS SCS Site 9 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008570 | Terrell | 13040208 | Sanderson Canyon WS SCS Site 8 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008573 | Terrell | 13040208 | Sanderson Canyon WS SCS Site 7 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008608 | Terrell | 13040208 | Sanderson Canyon WS SCS Site 6 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008607 | Terrell | 13040208 | Sanderson Canyon WS SCS Site 5 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008606 | Terrell | 13040208 | Sanderson Canyon WS SCS Site 4 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008609 | Terrell | 13040208 | Sanderson Canyon WS SCS Site 11 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008574 | Terrell | 13040208 | Sanderson Canyon WS SCS Site 10 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008568 | Terrell | 13070010 | Roden Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| Various | Terrell | 13040208, 13040210, 13040211, 13070010, | Terrell Co - 49 Low Water Crossings | Low Water Crossings | 20 Low Water Crossings, 13 Rail Bridges, 5 Road Bridges, 11 Road Culverts. | Constructed |

| Existing Infrastructure ID | Counties | HUC8s | Feature Name | Infrastructure Type | Description | Natural or Constructed or Combination |
|----------------------------|----------|--|------------------------------------|---------------------|---|---------------------------------------|
| 14008544 | Pecos | 13070007 | Comanche Creek Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008545 | Pecos | 13070007 | Imperial Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008587 | Pecos | 13040211 | Allison Ranch GSS Dam No 1 | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008588 | Pecos | 13040211 | Allison Ranch GSS Dam No 2 | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008604 | Pecos | 13040208 | Sanderson Canyon WS SCS Site 2 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008605 | Pecos | 13040208 | Sanderson Canyon WS SCS Site 3 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| Various | Pecos | 13040211, 13070007, 13070008, 13070009, 13070010 | Pecos Co - 26 Low Water Crossings | Low Water Crossings | 1 Road Culvert, 25 Low Water Crossings. | Constructed |
| 14008569 | Upton | 13070007 | Mc Elroy Reservoir Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| Various | Upton | 13070008 | Upton Co - 2 Low Water Crossings | Low Water Crossings | 1 Road Culvert, 1 Low Water Crossing. | Constructed |
| Various | Crane | 13070007 | Crane Co - 5 Low Water Crossings | Low Water Crossings | 5 Low Water Crossings | Constructed |
| 14008575 | Ward | 13070007 | Permian Basin Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| Various | Ward | 13070001, 13070007 | Ward Co - 4 Low Water Crossings | Low Water Crossings | 2 Low water crossings, 2 Road Culverts. | Constructed |
| 14008628 | Winkler | 13070007 | Felix 20-37 Impoundment Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| Various | Winkler | 13070007 | Winkler Co - 4 Low Water Crossings | Low Water Crossings | 4 Low Water Crossings. | Constructed |
| 14008559 | Loving | 13070001 | Red Bluff Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| Various | Loving | 13070001 | Loving Co - 7 Low Water Crossings | Low Water Crossings | 7 Low Water Crossings. | Constructed |
| 14008560 | Reeves | 13070003 | Balmorhea Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008627 | Reeves | 13070003 | Section 304 Produced Water Pit | Dam/ Reservoir | Regional Flood Control Dam | Constructed |

| Existing Infrastructure ID | Counties | HUC8s | Feature Name | Infrastructure Type | Description | Natural or Constructed or Combination |
|----------------------------|----------------------|--|--|---------------------|--|---------------------------------------|
| Various | Reeves | 13070001, 13070003, 13070004 | Reeves Co - 26 Low Water Crossings | Low Water Crossings | 26 Low Water Crossings. | Constructed |
| 14008583 | Brewster | 13040204 | Hammond Ranch Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008596 | Brewster | 13040204 | Ament Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008597 | Brewster | 13040208 | Sanderson Canyon WS SCS Site 1 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008610 | Brewster | 13040207 | Meriwether Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008611 | Brewster | 13040207 | Goddard Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008626 | Brewster | 13040207 | Nevill Ranch Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14000817 | Brewster | 13070006 | City Of Alpine Levees System- Brewster, Tx | Levee | Levee System | Constructed |
| 14000826 | Brewster | 13070006 | Moss Creek Levee | Levee | Levee | Constructed |
| Various | Brewster | 13040203, 13040204, 13040205, 13040206, 13040207, 13070006, | Brewster Co - 159 Low Water Crossings | Low Water Crossings | 14 Road Culverts, 5 Road Bridges, 8 Rail Bridges, 132 Low Water Crossings. | Constructed |
| 14008528 | Jeff Davis | 13070003 | T And P Railroad Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008529 | Jeff Davis/Culberson | 13070004 | Levinson Reservoir Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008603 | Jeff Davis | 13070004 | Cowden Ranch Pond No 14 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| Various | Jeff Davis | 13040202, 13070003, 13070004, 13070005, 13070006 | Jeff Davis Co - 111 Low Water Crossings | Low Water Crossings | 9 Road Culverts, 4 Road Bridges, 98 Low Water Crossings. | Constructed |
| 14008530 | Culberson | 13050004 | Harold Martin Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008531 | Culberson | 13070004 | Big Charlie Tank Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |

| Existing Infrastructure ID | Counties | HUC8s | Feature Name | Infrastructure Type | Description | Natural or Constructed or Combination |
|----------------------------|-----------|---|--|---------------------|--|---------------------------------------|
| 14008579 | Culberson | 13050004 | Horse Camp Tank Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008581 | Culberson | 13070002 | Cowden Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008598 | Culberson | 13050004 | Three Mile And Sulfur Draw WS SCS Site 1 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008599 | Culberson | 13050004 | Three Mile And Sulfur Draw WS SCS Site 2 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14000818 | Culberson | 13050004 | City Of Van Horn Levee System | Levee | Levee | Constructed |
| 14000819 | Culberson | 13050004 | Culberson County Airport Levee | Levee | Levee | Constructed |
| 14000840 | Culberson | 13050004 | Van Horn I-10 Diversion | Levee | Levee | Constructed |
| 14000841 | Culberson | 13050004 | Wild Horse Draw Diversion South | Levee | Levee | Constructed |
| Various | Culberson | 13050004, 13070001, 13070002, 13070004 | Culberson Co - 29 Low Water Crossings | Low Water Crossings | 6 Low Water Crossings, 2 Rail Bridges, 2 Road Bridges, 19 Road Culverts. | Constructed |
| 14008525 | Presidio | 13040202 | Sutton Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008526 | Presidio | 13040202 | Mimms Draw WS SCS Site 1 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008527 | Presidio | 13040202 | San Esteban Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008582 | Presidio | 13040204 | Fowlkes Ranch Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008586 | Presidio | 13040204 | Montgomery Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14000831 | Presidio | 13040201 | Presidio, Tx, Cibolo Creek Left Levee | Levee | Levee | Constructed |
| 14000832 | Presidio | 13040201 | Presidio, Tx, Cibolo Creek Right Levee | Levee | Levee | Constructed |
| 14000833 | Presidio | 13040201 | Rio Grande Levee 1 (Presidio) | Levee | Levee | Constructed |
| 14000836 | Presidio | 13040201 | Rio Grande River Levee System (Presidio) | Levee | Levee | Constructed |
| Various | Presidio | 13040201, 13040202, 13040203, 13070006 | Presidio Co - 282 Low Water Crossings | Low Water Crossings | 1 Rail Bridge, 10 Road Culverts, 271 Low Water Crossings. | Constructed |

| Existing Infrastructure ID | Counties | HUC8s | Feature Name | Infrastructure Type | Description | Natural or Constructed or Combination |
|----------------------------|----------|-------------------------------------|---|---------------------|---|---------------------------------------|
| 14008515 | Hudspeth | 13040100 | Diablo Arroyo WS SCS Site 1 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008516 | Hudspeth | 13040100 | Madden Arroyo WS SCS Site 1 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008517 | Hudspeth | 13040100 | Camp Rice Arroyo WS SCS Site 1 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008518 | Hudspeth | 13040100 | Diablo Arroyo WS SCS Site 2 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008519 | Hudspeth | 13040100 | Fort Quitman Lake Dam No 1 | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008520 | Hudspeth | 13040100 | Fort Quitman Lake Dam No 2 | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008521 | Hudspeth | 13040100 | Macho Arroyo WS SCS Site 1 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008522 | Hudspeth | 13040201 | Gibson Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008523 | Hudspeth | 13040100 | Alamo Arroyo WS SCS Site 1 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008524 | Hudspeth | 13040100 | Alamo Arroyo WS SCS Site 3 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008580 | Hudspeth | 13040100 | Tx No Name No 47 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008584 | Hudspeth | 13050004 | Hitson-C&L-Washburn Draws WS SCS Site 2 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008591 | Hudspeth | 13040100 | Hudspeth County Reservoir No 2 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008594 | Hudspeth | 13040100 | Diablo Reservoir Levee | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008600 | Hudspeth | 13050004 | Cornudas North And Culp Draw WS SCS Site 1 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008601 | Hudspeth | 13050004 | Hitson C And L Washburn Draws WS SCS Site 1 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008602 | Hudspeth | 13050004 | Hitson C And L Washburn Draws WS SCS Site 3 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14000834 | Hudspeth | 13040201 | Rio Grande Levee 1 - Hudspeth | Levee | Levee | Constructed |
| 14000835 | Hudspeth | 13040100, 13040201 | Rio Grande Levee System - Hudspeth | Levee | Levee | Constructed |
| Various | Hudspeth | 13040100, 13040201, 13050004, | Hudspeth Co - 39 Low Water Crossings | Low Water Crossings | 4 Rail Bridges, 9 Road Culverts, 26 Low Water Crossings | Constructed |

| Existing Infrastructure ID | Counties | HUC8s | Feature Name | Infrastructure Type | Description | Natural or Constructed or Combination |
|----------------------------|----------------|----------|------------------------------------|---------------------|----------------------------|---------------------------------------|
| 14008514 | El Paso County | 13040100 | Riverside Diversion Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008532 | El Paso County | 13040100 | Fabens Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008533 | El Paso County | 13040100 | Rattlesnake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008534 | El Paso County | 13040100 | Cottonwood Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008535 | El Paso County | 13040100 | Roberts Tank Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008536 | El Paso County | 13030102 | Thorn Drive Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008537 | El Paso County | 13030102 | Portland Cement Reservoir Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008538 | El Paso County | 13040100 | International Diversion | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008539 | El Paso County | 13040100 | American Diversion | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008540 | El Paso County | 13030102 | Mulberry Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008541 | El Paso County | 13040100 | Northgate Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008542 | El Paso County | 13040100 | Fusselman Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008543 | El Paso County | 13040100 | Range Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008571 | El Paso County | 13040100 | Indian Cliff Ranch Main Lake Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008585 | El Paso County | 13030102 | Mesa Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008589 | El Paso County | 13040100 | North Hills Detention Pond 1 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008590 | El Paso County | 13040100 | Knapp Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008592 | El Paso County | 13040100 | Americas Ten Detention Pond Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008593 | El Paso County | 13040100 | Hudspeth Regulating Reservoir No 1 | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008595 | El Paso County | 13040100 | North Hills Detention Pond 2 Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008612 | El Paso County | 13050003 | Hueco Tanks State Park Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |

| Existing Infrastructure ID | Counties | HUC8s | Feature Name | Infrastructure Type | Description | Natural or Constructed or Combination |
|----------------------------|----------------|----------|------------------------|---------------------|----------------------------|---------------------------------------|
| 14008613 | El Paso County | 13040100 | Phelps Dodge Basin Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008614 | El Paso County | 13040100 | Van Buren Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008615 | El Paso County | 13040100 | Morehead Avenue Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008616 | El Paso County | 13040100 | Nashville Avenue Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008617 | El Paso County | 13040100 | Memphis Avenue Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008618 | El Paso County | 13040100 | Wheeling Avenue Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008619 | El Paso County | 13040100 | Copper Avenue Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008620 | El Paso County | 13040100 | Tremont Avenue Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008621 | El Paso County | 13040100 | Murchison Drive Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008622 | El Paso County | 13040100 | Denver Avenue Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008623 | El Paso County | 13040100 | Medical Center Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008624 | El Paso County | 13030102 | Montoya Detention Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008625 | El Paso County | 13040100 | San Diego Avenue Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008629 | El Paso County | 13040100 | Mountain Park Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008630 | El Paso County | 13040100 | Pershing Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008631 | El Paso County | 13040100 | Sunrise Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008632 | El Paso County | 13030102 | Keystone Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008633 | El Paso County | 13030102 | Oxidation Pond Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008634 | El Paso County | 13040100 | Mckelligon Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008635 | El Paso County | 13040100 | Americas Basin Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008636 | El Paso County | 13040100 | Lomaland Basin Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |

| Existing Infrastructure ID | Counties | HUC8s | Feature Name | Infrastructure Type | Description | Natural or Constructed or Combination |
|----------------------------|----------------|------------------------------------|--------------------------------------|---------------------|---|---------------------------------------|
| 14008637 | El Paso County | 13040100 | Carolina Basin Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008638 | El Paso County | 13040100 | Portland Avenue Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| 14008639 | El Paso County | 13040100 | Richmond Ave Dam | Dam/ Reservoir | Regional Flood Control Dam | Constructed |
| Various | El Paso County | 13040100 | El Paso Co Crossings | Major Crossings | 25 Major Crossings | Constructed |
| Various | El Paso County | 13030102, 13040100 | El Paso Co Ponds | Ponds | 454 Ponds | Unknown |
| Various | El Paso County | 13030102, 13040100, 13050003 | El Paso Co - 266 Low Water Crossings | Low water Crossings | 113 Low Water Crossings, 8 Rail Bridges, 73 Road Bridges, 72 Culverts | Constructed |
| Various | El Paso County | 13030102, 13040100 | El Paso Co Pump Stations | Pump Stations | 24 Pump Stations | Constructed |
| Various | El Paso County | 13030102, 13040100 | El Paso Co - 20 Levees | Levee | Levee System (approximately 148 miles total) | Constructed |
| Various | El Paso County | 13030102, 13040100 | El Paso Co - Storm Drain System | Storm Drain System | Storm Drain System (approximately 370 miles total) | Constructed/Unknown |
| Various | El Paso County | 13030102, 13040100 | El Paso Co - Storm Water Canals | Storm Water Canals | Storm Water Canals (approximately 111 miles total) | Unknown |
| Various | El Paso County | 13040100 | El Paso Co - Small Ponds | Small Ponds | 50 Small Ponds (122 acres total) | Unknown |
| Various | El Paso County | 13030102, 13040100 | El Paso Co - Dams | Dam/ Reservoirs | 80 Regional Flood Control Dams (2,686 acres total) | Constructed |



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Project name:
Upper Rio Grande 2023 Regional Flood Plan

Project ref:
60660436

From:
Gilbert Andujo, PE, CFM – AECOM Project Manager

Date:
January 7, 2022

To:
Texas Water Development Board
(TWDB)

Memo

Subject: Regional Flood Planning Group Approval of Region 14 Upper Rio Grande Technical Memorandum Submittal to TWDB

AECOM is providing engineering services for the Rio Grande Council of Governments (RGCOG) as part of the Region 14 Upper Rio Grande Regional Flood Plan (RFP), administered by the Texas Water Development Board (TWDB).

This memorandum is to document the Upper Rio Grande Regional Flood Planning Group (URGRFPG) approval of the submittal of the Technical Memorandum to TWDB on January 7, 2022.

During a public meeting held on December 16, 2021, and in accordance with the Texas Administrative Code (TAC) Chapter 31 Section 361.21(h) notice requirements, AECOM presented a draft version of the Technical Memorandum to the URGRFPG for discussion and comment. URGRFPG voted to authorize AECOM to make non-substantial edits and submit the final Technical Memorandum to TWDB. A public comment period was held for 14 days following the meeting.

Annette Gutierrez
Executive Director
Rio Grande Council of Governments (RGCOG) – RFP Sponsor

Omar Martinez
URGRFPG Chair
El Paso County Water Improvement District No. 1

Gilbert Andujo, PE, CFM
Technical Consultant Project Manager
AECOM Technical Services, Inc.