

Chapter 3: Floodplain Management Practices and Goals



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3. Floodplain Management Practices and Goals

The Upper Rio Grande Regional Flood Planning Group (RFPG) reviewed local regulations and solicited input from stakeholders across the region to develop floodplain management practices and flood protection goals for the Upper Rio Grande region as part of Task 3. Public input and feedback on the practices and goals were received at planning group meetings, public meetings, via an online survey, and through independent outreach by phone and email to stakeholders within the region. The data collection effort provided feedback from more than 100 entities on specific topics representing all counties and a majority of the municipalities in the region.

The Region 14 RFPG divided into subcommittees to focus on specific tasks of the flood plan development. Subcommittee 1 was assigned to address Task 3a, the evaluation and development of recommendations on Floodplain Management Practices, and Task 3b, Flood Mitigation and Floodplain Management Goals. Subcommittee 1 met for discussion and development of these objectives in September, October, and twice in November 2021. The floodplain management practices and goals that resulted from these conferences were presented to and approved by the general body of the RFPG during the November 30th, 2021, monthly meeting. The floodplain management standards and goals described in the following chapter are the result of these meetings and developed with respect to the region under the guidance of regional residents, stakeholders, and the planning group.

3.1 Evaluation and Recommendations on Floodplain Management Practices

The Upper Rio Grande RFPG is required to evaluate and recommend floodplain management practices for the region. From a floodplain management perspective, the region faces issues such as uncontrolled development in unincorporated areas and a lack of resources needed for community officials to effectively enforce drainage and/or development regulations. Standardized floodplain management and land use practices help to reduce existing and future flood risk and promote regionwide flood resiliency.

3.1.1 Evaluation of Floodplain Management Practices

Data Collection

Task 3a involved the collection and qualitative assessment of current floodplain management regulations within the region (i.e., floodplain ordinances, drainage design standards and other related policies). To begin this task, floodplain management regulations and related documents were collected via local entities' websites, as well as through the Federal Emergency Management Agency (FEMA) and other online resources. Follow up outreach via email, phone call, and via a web-based stakeholders survey provided further regulatory documents and information. These documents are summarized in **Table 3-1** and described in further detail in the following sections. A summary of floodplain practices across the region is shown on **Map Exhibit 13** ("Floodplain Management") and in **Appendix Table 3A**.

Table 3.1 Existing Floodplain Management Documents

Type of Regulation	Purpose of Document	Entities with Document
Land Use Regulations (Zoning and Subdivision Ordinances)	Regulate types of land use and development in a community and can limit development in and near flood prone areas	Counties of Andrews, Brewster, Ector, El Paso, Midland, Presidio, Reeves, Sutton, Val Verde
Comprehensive Plan / Unified Development Code (UDC)	Guides development within an area for land use and both structural and infrastructure development and retrofit	Culberson County; City of El Paso
Hazard Mitigation Plan	Guides prevention and response for hazards in a region including stormwater/flood-related hazards	Concho Valley Council of Governments; Counties of Brewster, Ector, El Paso, Hudspeth, Jeff Davis; Presidio, Rio Grande Border (includes Counties of Pecos, Reeves, and Terrell)
FEMA Flood Insurance Study (FIS)	FEMA's report on flood hazard data for floodplain management and flood insurance in communities participating in the NFIP; Includes list of flood protection measures	Counties of Brewster, Ector, El Paso, Midland, Sutton, Val Verde; Cities of Alpine, Balmorhea, El Paso, Sonora, Van Horn
Floodplain and Drainage Ordinances	Regulate development within floodplain and the impact new development has on floodplain	All NFIP participants (see “National Flood Insurance Program [NFIP]” discussion below)
Drainage Criteria Manual/Design Manual	Minimum standards for the design of stormwater infrastructure to not increasing flood risk and increase resiliency	City of El Paso, Val Verde County, TxDOT

Land Use Regulations

Development impacts floodplains and flood storage. Local and regional land use plans often provide information regarding a community’s forecasted growth or land use regulations. In Region 14, with the exception of the City of El Paso, significant urban development is not expected, so most of the region’s local and regional governments do not have future land use estimates.

In Texas, cities have planning and zoning powers, while counties have the right to review and regulate the subdivision of land, as granted in *Section 232 of the Texas Local Government Code*. This requirement allows counties to review plats prior to development. Given the limitations of land use regulation that counties in Texas face, land use regulations like zoning and subdivision ordinances are used to influence land use and development.

Hazard Mitigation Planning

Hazard Mitigation Plans (HMPs) are developed to guide actions at the county or regional level to reduce potential hazard impacts and improve emergency response. These planning documents often address risks related to stormwater and flooding and consider characteristics such as land use, resilience, climate adaptation, and economic development plans.

The Rio Grande Council of Governments (RGCOG), representing Brewster, Culberson, El Paso, Hudspeth, Jeff Davis, and Presidio Counties, has led coordination with many of these counties to develop HMPs. Several plans have been completed recently and are awaiting FEMA’s approval, including for Brewster County, Jeff Davis County, and Presidio County. In addition, a HMP for Hudspeth County has been approved by FEMA and is waiting for local adoption.

In addition, the County of El Paso prepared a multi-jurisdictional hazard mitigation plan, which has been approved by FEMA and incorporated by participating jurisdictions. This plan was approved on August 16, 2021, and will expire in five years.

Flood Insurance Studies (FIS)/National Flood Insurance Program (NFIP)

FEMA Flood Insurance Studies (FIS) provide an overview of flood risk information for communities as part of the National Flood Insurance Program (NFIP). The NFIP is a program created by the US Congress in 1968 through the National Flood Insurance Act of 1968 and is managed and administrated by FEMA. The NFIP has two purposes: to share the risk of flood losses through flood insurance and to reduce flood damages by restricting floodplain development. NFIP participation is voluntary; however, it allows for discounted flood insurance premiums, eligibility for federal grants and loans, and federal disaster assistance.

All county and incorporated entities in the region are encouraged to enact ordinances that meet minimum requirements for NFIP Participation and remain active NFIP participants in good standing. While incorporated entities (cities/towns/villages) are independently eligible to participate in the NFIP, the participation of unincorporated communities is determined by the participation status of their associated county.

In the Upper Rio Grande Region, 75% of all eligible communities participate in the NFIP (40 out of 53), including 78% of counties (18 out of 23 counties representing 31 unincorporated communities) and 73% of incorporated places (22 out of 30). Communities not participating in the NFIP include seven incorporated places and five counties (including Coynosa CDP, Imperial CDP, and Sheffield CDP in Pecos County and Lindsay CDP in Reeves County) as listed in **Table 3.2**.

Table 3.2 Communities Not Participating in the NFIP

Incorporated Places (Cities/Towns/Villages)	Counties
Barstow, City of	Andrews County
Kermit, City of	Edwards County
Rankin, City of	Reeves County
Thorntonville, City of	Pecos County
Valentine, Town of	Winkler County
Wickett, City of	
Wink, City of	

For communities to participate in the NFIP program, they must meet requirements based off their flood map zoning designation. NFIP flood map zones are based on available mapping data from FEMA. The majority of the Upper Rio Grande Region is in a FEMA Zone A Special Flood Hazard Area. Zone A flood zones are subject to inundation by the 1% annual chance flood event

as generally determined using approximate mapping methods. These areas do not have detailed hydraulic analyses and are without defined Base Flood Elevations (BFEs) and flood depths. As an exception to this, the City of El Paso and El Paso County do have detailed hydraulic analyses and include 1% annual chance Zone AE flood zones (with defined BFEs and flood depths) in addition to Zone A (approximate mapped areas) and Zone X (shaded) (for areas between the limits of Zone AE and the 0.2% annual chance event).

All communities in the region which do not participate in the NFIP are located either in a Zone A FEMA flood hazard area or are unmapped. The following NFIP criteria for Zone A and unmapped areas are taken from 44 CFR § 60.3 (“Floodplain management criteria for flood-prone areas”).

No FEMA-Defined Flood Zone

- Development permits and proposals
 - Require development permits for all proposed construction to determine location relative to flood-prone areas
 - Review proposed development for all necessary permits
 - Review permit applications for flooding safety
 - Review subdivision/development proposals for flooding safety
- Flood resiliency for water supply and sanitary sewage systems
 - Require flood resiliency measures for new and replacement water supply systems within flood prone areas
 - Require flood resiliency measures for new and replacement sanitary sewage systems (including locating onsite waste disposal systems to avoid impairment or contamination during flooding)

FEMA Flood Zone A (no defined flood elevations)

- Require all standards from previous plus those applied to Zone A hazard areas (cumulative)
- Development permits and proposals
 - Require floodplain development permits for all proposed construction to determine location relative to Zone A hazard areas
 - Require all subdivision/development proposals greater than 50 lots (or 5 acres) include base flood elevation (BFE) data
- Base Flood Elevations (BFE) and lowest floor elevations
 - Obtain, review, and utilize BFE and floodway data available from a Federal, State, or other source
 - Where BFE data are utilized within Zone A (1) obtain elevations of structure lowest floor elevation (including basement), (2) obtain structure floodproofing information, (3) and maintain records of obtained information

- Watercourse alteration or relocation
 - Notify communities adjacent to a riverine area prior to any alteration or relocation of a watercourse
 - Assure that the flood carrying capacity within the altered or relocated watercourse is maintained
- Manufactured homes
 - Require that manufactured homes in Zone A shall be installed using methods which minimize flood damage

In addition to the baseline flood protection required for NFIP participation, FEMA rewards NFIP communities that take advanced measures for flood resilience with better insurance premiums. Advanced resiliency measures are characterized by TFMA's Higher Standards and measured by voluntary participation in the Community Rating System (CRS).

TFMA Higher Standards

The Texas Floodplain Management Association (TFMA) periodically publishes a survey of Higher Standards to document higher floodplain management standards adopted by Texas cities and counties. The survey collects information on various floodplain management practices adopted by communities such as freeboard requirements, stormwater storage, elevation requirements, land use controls, playa lake standards, and setbacks for development.

The City of El Paso is currently the only entity in the region with higher standards recognized by the 2018 TFMA Higher Standards Survey. Floodplain management standards for the City of El Paso vary depending on structure type, regulatory flood zone, and whether a Base Flood Elevation (BFE) has been established. Those standards can be found in Section 15 of Study ID: 92, the City of El Paso Drainage Design Manual (City of El Paso Engineering Department, 2008).

The Community Rating System (CRS)

The CRS is a voluntary incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the NFIP. The three goals of the CRS are to 1) reduce and avoid flood damage to insurable property.; 2) strengthen and support the insurance aspects of the NFIP; and 3) foster comprehensive floodplain management. The rating system awards points to communities for flood resiliency activities and assigns a CRS class based on the accumulated points where 10 is the lowest score and 1 is the highest score or most activities performed.

The four CRS activity categories are:

- Public Information Activities – programs that advise people about flood hazard & insurance;
- Mapping and Regulations – programs that provide increased protection to new development;
- Flood Damage Reduction Activities – programs that provide increased protection to existing development; and
- Warning and Response – measures that protect life and property during a flood.

The City of El Paso is currently the only entity in the region enrolled in the CRS Program (earning an entry-level rating of 9).¹ Applications for CRS participation have also been submitted by El Paso County and City of Sonora and are under review with an expected rating date by the end of 2022.

3.1.2 Recommendations for Minimum Standards

The Upper Rio Grande RFPG is required to consider whether to recommend or adopt region-wide minimum floodplain management standards and land use practices. *Recommending* minimum practices by the RFPG encourages entities to adopt similar floodplain management practices within their communities. On the other hand, *adopting* minimum practices by the RFPG requires potential sponsoring entities to adopt these minimum standards before their flood needs (FMEs, FMSs, and FMPs) may be considered for inclusion in the RFP and be eligible for potential state funding.

During the course of this first planning cycle of the 2023 Region/2024 State Flood Plan, the **Upper Rio Grande RFPG voted to recommend but not adopt** the following minimum standards for the region. In future planning cycles, the RFPG may reconsider whether to adopt these recommendations as minimum standards requirements.

- 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).

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

3.1.3 Recommendations for Floodplain Management Best Practices

In addition to the recommendations for minimum standards described above, the Upper Rio Grande RFPG considered other region-specific general recommendations. These recommendations include floodplain management best practices, such as adopting higher-than-minimum floodplain standards and participating in the FEMA CRS Program. Implementing these best practices will not only increase flood protection and resiliency in communities, but also provide direct economic benefit through improved insurance coverage during national disasters, discounts on flood insurance through the CRS Program, and increased eligibility for other

¹ CRS Rating classes range from 9 to 1 where CRS Class 1 is the highest possible classification. Most communities enter the program at a CRS Class 9 or Class 8 rating.

financial resources available in the form of disaster recovery and flood infrastructure planning grants and loans.

The following general recommendations were recommended by the RFPG during the first planning cycle. While these general recommendations are strongly encouraged, the RFPG does not anticipate adopting them as minimum standards in future planning cycles at this time.

- 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.

3.2 Flood Mitigation and Floodplain Management Goals

The Upper Rio Grande RFPG is required 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, 28 individual goals were identified with the following objectives:

- Improve floodplain management practices and design standards (Goals 14001001, 14001002, 14002001, 14002002, 14002003, and 14003001).
- Increase flood protection of unaccredited levees (Goals 14004001 and 14004002).
- Increase availability of flood gages (Goal 14005001).
- Improve region-wide flood warning and communication (Goals 14006001 and 14006002).
- Increase community flood awareness and Flood Plan participation (Goals 14007001, 14007002, and 14007003).
- Improve coverage of flood hazard data through flood mapping (Goals 14008001 and 14008002).
- Reduce flood risk to structures and low water crossings (Goals 14009001, 14009002, 14009003, 14009004, 14010001, and 14010002).
- Increase use of regional stormwater detention (Goal 14011001).
- Increase use of nature-based practices (Goal 14012001).
- Increase use of dual-use flood mitigation/water supply structures (Goal 14013001).
- Increase communities with stormwater asset management plans (Goal 14014001).
- Increase communities with new and/or dedicated flood funding sources (Goals 14015001 and 14015002).

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 28 Short-Term and Long-Term goals is presented in **Appendix Table 3B**.

These goals were first adopted by the Upper Rio Grande RFPG during a General Meeting on November 30, 2021. A second revision to the goals was later adopted by the RFPG on May 25, 2022, including updates to the goals related to increasing the flood protection of unaccredited levees (Goals 14004001 and 14004002).

Appendix 3A

Existing Floodplain Management Practices

Appendix Table 3A: Existing Floodplain Management Practices Summary Table

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	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	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
Pecos County	Unknown	No	No	No
Presidio city	Yes	Yes	Yes	No
Presidio County	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)
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

Appendix 3B

Regional Flood Plan Flood Mitigation and Floodplain Management Goals

Appendix Table 3B: 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

Goal ID	Goal	Term of Goal	Target Year	Applicable To	Residual Risk	How Will the Goal Be Measured	Overarching Goal	Associated Goal IDs
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 <u>in El Paso County watersheds</u> to meet FEMA levee accreditation requirements and update flood mapping to account for any changes in levee accreditation status	Short Term (10-year)	2033	HUC 8 Watersheds 13040100, 13030102	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)	14004002

Goal ID	Goal	Term of Goal	Target Year	Applicable To	Residual Risk	How Will the Goal Be Measured	Overarching Goal	Associated Goal IDs
14004002	Increase flood protection of unaccredited levees in the region <u>outside of El Paso County watersheds</u> to meet FEMA levee accreditation requirements and update flood mapping to account for any changes in levee accreditation status	Long Term (30-year)	2053	Entire RFPG Except for HUC 8 Watersheds 13040100, 13030102	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)	14004001
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

Goal ID	Goal	Term of Goal	Target Year	Applicable To	Residual Risk	How Will the Goal Be Measured	Overarching Goal	Associated Goal IDs
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 <u>in El Paso County watersheds</u> 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 <u>outside of El Paso County watersheds</u> 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 <u>in El Paso County watersheds</u> 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

Goal ID	Goal	Term of Goal	Target Year	Applicable To	Residual Risk	How Will the Goal Be Measured	Overarching Goal	Associated Goal IDs
14009004	Remove 50% of the existing structures <u>outside of El Paso County watersheds</u> 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
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

Goal ID	Goal	Term of Goal	Target Year	Applicable To	Residual Risk	How Will the Goal Be Measured	Overarching Goal	Associated Goal IDs
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

Appendix 3C

Map Exhibits