

# FLOOD MITIGATION PLAN

City of Raymondville  
Raymondville, Texas

December 2004

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## Chapter 1. PROJECT SUMMARY

### 1.1 Project Description

The City of Raymondville has prepared this Flood Mitigation Plan (FMP) in an effort to provide its citizens with an enhanced understanding of potential flood dangers. This increased awareness is expected to result in improved flood protection thereby minimizing losses from flood events. Improved protection as used here covers a broad base of community elements such as:

1. life safety;
2. personal and public property;
3. economic development from minimal disruption of retail, manufacturing, service and other private sector operations;
4. economic development from minimal disruption of access to educational and municipal services.

With the passage of the National Flood Insurance Reform Act of 1994 (NFIRA), Congress authorized the establishment of a Federal grant program to provide financial assistance to communities for flood mitigation planning and activities. The Federal Emergency Management Agency (FEMA) has designated this as Flood Mitigation Assistance (FMA). FMA is a state-administered, cost-share program through which communities can receive grants for flood mitigation planning. The prerequisite to obtaining grants for projects and technical assistance through the FMA program is the creation of the FMP.

The FMP is developed through a planning process which includes an evaluation of existing flood hazards, existing flood management activities, and a plan of action to upgrade those activities. The process includes:

1. Public Involvement
2. Coordination with other agencies or organizations
3. Flood hazard area inventory
4. Problem identification
5. Review of possible mitigation actions
6. Adoption of the Plan

Specifically, the process presented in this FMP uses the National Flood Insurance Program (NFIP) Community Rating System (CRS) as a model. This has the potential of providing the City of Raymondville with credits for preparing, adopting, implementing, evaluating and updating its FMP. Another potential

## *PROJECT SUMMARY*

benefit of a FEMA approved FMP is the eligibility for FEMA funding of mitigation projects through the Texas Water Development Board (TWDB).

### **1.2 Community Benefit**

The CRS rewards those communities, through lower insurance rates, that are doing more than the minimum NFIP requirements to prevent or reduce flood losses. The system also provides an incentive for communities to initiate new flood protection activities. Community application for CRS classification is voluntary. Any community in full compliance with the rules and regulations of the NFIP may apply for a CRS classification. The applicant community submits documentation that it is implementing one or more of the activities recognized in the CRS schedule. This schedule identifies creditable activities, organized under four categories: public information, mapping and regulations, flood damage reduction, and flood preparedness. The CRS schedule assigns points based on how well an activity affects the basic goals of the CRS. Some of the creditable activities may be implemented by the state or a regional district rather than at the local level. In some cases, any community in those states or districts could receive credit points if the community applies for a CRS classification and if the state or district program is in fact being implemented in the community.

### **1.3 Project Planning**

The preparation of this FMP was funded by FEMA through the TWDB. The FMP process was jointly developed and managed by the City of Raymondville and the consultant, MGM Engineering Group, LLC. The process presented in this FMP uses the CRS defined in the NFIP as a model. As described in Section 510 of the Coordinator's Manual for the Community Rating System <sup>1</sup>, this process is based on a 10 step planning method that includes:

1. Organize to prepare the plan.
2. Involve the public.
3. Coordinate with other agencies.
4. Assess the hazard.
5. Assess the problem.
6. Set goals.
7. Review possible activities.
8. Draft an action plan.
9. Adopt the plan
10. Implement, evaluate and revise the plan

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<sup>1</sup> National Flood Insurance Program, Community rating System, CRS Coordinator's Manual 2002, OMB No. 3067-0195, Expires February 28, 2005.; see Exhibit 1.

## **1.4 Project Goals**

The City of Raymondville does not currently have a comprehensive city-wide drainage capital improvements plan (CIP) nor does it have a watershed management plan (WMP). However, it will use this FMP as the precursor to the development of a strategic plan to address city drainage needs and the impact on the watershed drainage needs for the foreseeable future. The City plans to integrate the plan presented into the overall plan implemented by Willacy County and its Drainage Districts. Willacy County is currently developing a watershed drainage plan in concert with Hidalgo County which borders Willacy County on the west. Integration of this plan into the Willacy County plan will serve to leverage substantial resources available only through the bi-lateral partnering with Hidalgo County.

The City wishes to protect the public safety and minimize the losses resulting from flood events. The goals of the City of Raymondville in developing this plan are as follows:

1. Protect human life and health of its citizens.
2. Gain synergy in the effective use of expensive flood control projects through memorandums of understanding and partnering with neighboring political subdivisions.
3. Minimize flood damage to structures.
4. Minimize the need for rescue and relief efforts associated with flooding.
5. Minimize the disruption of economic, educational and normal daily activities through improved flood control planning;
6. Ensure that potential buyers are notified that a property lies within the floodplain.
7. Minimize flood damage to crops.

## **1.5 Action Plan.**

As a result of this FMP, new policies and flood mitigation activities will be adopted by the City of Raymondville. As the FMP matures and funding becomes available, the City will update the plan with enhanced policies and new policies as a means to keep the plan current. The following policies and mitigation measures will be considered for actions as a result of the development of this plan:

1. Develop an inventory of existing Drainage networks and their operation.
2. Utilize modeling and predictive techniques in the development of a drainage master plan and use it as a basis for a prioritized capital improvements plan.

## *PROJECT SUMMARY*

3. Perform a comprehensive review of the City's Subdivision Ordinances with a focus on erosion, detention ponds and alignment of drainage with the City's drainage master plan.
4. Develop a public awareness program.
5. Re-instate a regular schedule in the cleaning of drainage lines.
6. Update and revise the FMP annually.

The details of each of the above elements of FMP are detailed in the previous Chapter.

Once the FMP is adopted, grant funding for the implementation of the above

Chapter 2. INTRODUCTION and BACKGROUND

2.1 Community

The City of Raymondville is located in Willacy County in deep South Texas. Willacy County abuts Kenedy County to the north, Hidalgo County to the west and Cameron County to the south. The eastern edge of the county is adjacent to the Laguna Madre which is separated from the Gulf of Mexico by Padre Island. Padre Island is a narrow island with a channel connecting the Laguna Madre Bay with the Gulf of Mexico in the Port Mansfield area. An area map illustrating the location of Raymondville in relation to South Texas is shown below. The red arrow in the map below indicates the location Of the City of Raymondville. It is approximately 25 miles from the Gulf of Mexico, and 40 miles north of the international border with Mexico, at latitude 26°29'25" and longitude 97°47'45".

Figure 1  
AREA MAP OF RAYMONDVILLE



Raymondville is the County Seat and is situated in the central area of the county. U.S. Highway 77 passes through the City from north to south while the main east-west artery is State Highway 186. The location map below shows the City's location within Willacy County and its proximity to adjacent counties.



## INTRODUCTION AND BACKGROUND

Figure 2

LOCATION MAP OF RAYMONDVILLE



The City has a population of approximately 10,000. The median age is 30 which is slightly lower than the national median age of 35. The median household income is \$23,800 while the median value of owner occupied homes is \$32,500. The City has experienced a growth rate of approximately 10% over the last decade, or an annualized growth rate of slightly less than 1%.<sup>2</sup>

The public school system in Raymondville is made up of single district, Raymondville Independent School District, which has a student enrollment of approximately 2,520. The District has one high school, one middle school and two elementary school campuses. The University of Texas at Brownsville maintains a satellite campus in the City and the District enjoys memorandums of

<sup>2</sup> U.S. Census Bureau, factfinder.census.gov, fact sheet for Raymondville city, Texas, Highlights from the Census 2000 Demographic Profiles.

## *INTRODUCTION AND BACKGROUND*

understanding with various colleges and universities regarding teaching of college-level in the high school.

The City is home to a Texas Department of Corrections Unit and is using this as a basis for further economic development in the area of security housing and correctional facilities. Further, the City is active in the development of space launching facilities and in other areas of economic development and employment opportunities for the community. Economic development in and around Raymondville is also rooted in outdoor activity such as hunting, fishing, sailing, and golfing. Over the last five years, birding and nature adventures have become high profile activities with festivals and major events taking place in October.

The City is a type A municipality and has a mayor with five (5) commissioners elected at-large. Further, the City lays in the 27th U.S. Congressional District, the 27th Texas Senate District and the 43rd Texas House District.

### **2.2 Project Description**

With the passage of the National Flood Insurance Reform Act of 1994 (NFIRA), Congress authorized the establishment of a Federal grant program to provide financial assistance to communities for flood mitigation planning and activities. The Federal Emergency Management Agency (FEMA) has designated this as the Flood Mitigation Assistance (FMA) Program. FMA is a federal/local cost-share program administered in the state by the TWDB on behalf of FEMA, providing grants to eligible communities for flood mitigation planning and projects. The prerequisite to obtaining grants for projects and technical assistance through the FMA program is the creation of the FMP.

In an effort to provide its citizens with an enhanced understanding of potential flood dangers the City Commission of Raymondville, on April 25, 2003, passed a resolution authorizing an application for an FMA planning grant through TWDB for the purpose of developing a Flood Mitigation Plan. This increased awareness is expected to result in improved flood protection thereby minimizing losses from flood events. Improved protection as used here covers a broad base of community elements such as:

1. life safety;
2. personal and public property;
3. economic development from minimal disruption of retail, manufacturing, service and other private sector operations;
4. economic development from minimal disruption of access to educational and municipal services.

## *INTRODUCTION AND BACKGROUND*

Specifically, the process presented in this FMP uses the National Flood Insurance Program (NFIP) Community Rating System (CRS) as a model. This has the potential of providing the City of Raymondville with credits for preparing, adopting, implementing, evaluating and updating its FMP. Another potential benefit of a FEMA approved FMP is the eligibility for FEMA funding of mitigation projects through the Texas Water Development Board (TWDB).

### Chapter 3. THE PLANNING PROCESS

The preparation of this FMP was funded by FEMA through the TWDB. The FMP process was jointly developed and managed and by the City of Raymondville and the consultant, MGM Engineering Group, LLC. The process presented in this FMP uses the CRS defined in the NFIP as a model. As described in Section 510 of the Coordinator's Manual for the Community Rating System <sup>3</sup>, this process is based on a 10 step planning method that includes:

1. Organize to prepare the plan (CRS Activity 511.a.1).
2. Involve the public (CRS Activity 511.a.2).
3. Coordinate with other agencies (CRS Activity 511.a.3).
4. Assess the hazard (CRS Activity 511.a.4).
5. Assess the problem (CRS Activity 511.a.5).
6. Set goals (CRS Activity 511.a.6).
7. Review possible activities (CRS Activity 511.a.7).
8. Draft an action plan (CRS Activity 511.a.8).
9. Adopt the plan (CRS Activity 511.a.9).
10. Implement, evaluate and revise the plan (CRS Activity 511.a.10).

Items 1 through 3 provide partnering as a vehicle for identifying the existing flood challenges and resources with the least duplication. A broad inclusion of political subdivisions, agencies and citizens brings the resources of all parties together to accurately and adequately assess the problems, thus forming a foundation for the establishment of effective goals. The adoption of the plan sets the FMP in motion. A significant part of the FMP is the continuous improvement realized through the FMP's updates listed in item 10 above. The FMP Process Flowchart included on the following page is a graphical depiction of the process.

The start of any planning process is the identification of existing conditions, pertinent constraints and viable resources. This was accomplished through surveys of historical events and research of FEMA related activity in the area. Interviews with City staff, County-wide elected officials, the Corp of Engineers, Drainage Districts and citizens were also important elements in the identification of hazards and assessment of problems. This section describes the process that was used to describe the existing flood conditions and develop viable solutions. This plan sought to include input from those who are potentially impacted by

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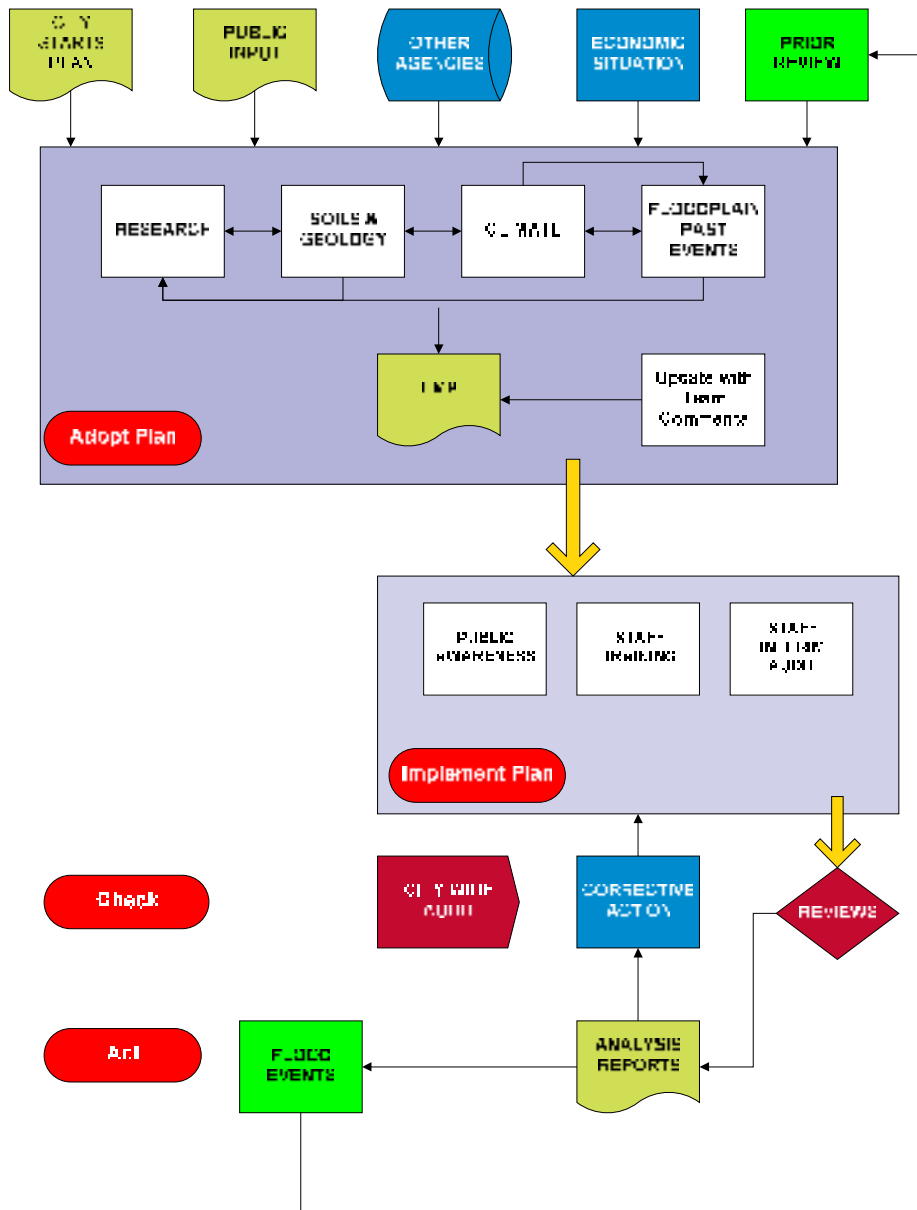
<sup>3</sup> National Flood Insurance Program, Community rating System, CRS Coordinator's Manual 2002, OMB No. 3067-0195, Expires February 28, 2005.; see Exhibit 1.

# THE PLANNING PROCESS

flooding in the City as well as those persons who will bear the responsibility of FMP implementation.

Figure 3

## FLOOD MITIGATION PLANNING PROCESS



### 3.1 Organize to Prepare the Plan (CRS Activity 511.a.1)

On April 25, 2003 the Raymondville City Commission passed a resolution authorizing a grant application for the purpose of developing a Flood Mitigation Plan. This resolution was founded in the City's desire "to develop a viable urban

community including decent housing, a suitable living environment and expanding economic opportunities".<sup>4</sup> The award of the grant in turn led to the contract between the City of Raymondville and the Texas Water Development Board, serving as Grantor for FEMA. The grant was for the development of a flood mitigation plan to bring the improved quality of life described in the grant application. Subsequently, the City entered into an agreement with a consultant to manage the process and publish a FMP. The development committee consisted of Mr. Eleazar Garcia, Jr., City Manager and Cesar Maldonado, P.E. of MGM Engineering Group, LLC.

In preparation for the plan the Committee developed materials for use in articulating the existing conditions, assessing the hazards, flood problems and other elements of the Plan. The materials were mainly presented through slides, aerial maps and a questionnaire.<sup>5</sup> Information regarding loss history and ongoing work on the Raymondville Drain Project (described in Section 4.3) was also presented. Other pertinent materials were the existing City of Raymondville Subdivision Ordinance<sup>6</sup> and the existing Flood Damage Prevention Ordinance.<sup>7</sup>

### 3.2 Public Involvement (*CRS Activity 511.a.2*)

On October 27, 2004 a public notice was published in the Raymondville Chronicle of two public workshops.<sup>8</sup> In addition to listing the date and location of the workshop, the notice offered a questionnaire to those that could not attend.

On November 1 the first public workshop was held with the Honorable Joe Alexandre, Mayor of Raymondville, serving as meeting chair. Six people attended the meeting and minutes of the meeting along with a sign-in sheet are included in this FMP.<sup>9</sup> The second meeting was held on the following day with only the consultant and grant administrator attending.

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<sup>4</sup> Resolution of the City Commission of the City of Raymondville, Approved March 25, 2003, see Exhibit 2.

<sup>5</sup> See Exhibit 3.

<sup>6</sup> City of Raymondville Ordinance No. 619, August 27, 1974, See Exhibit 4.

<sup>7</sup> City of Raymondville Ordinance No. 888, February 24, 1987, See Exhibit 5.

<sup>8</sup> Public Notice of Flood Mitigation Workshop, see Exhibit 6a.

<sup>9</sup> Public Workshop sign-in sheets and meeting minutes, see Exhibit 6b.

## *THE PLANNING PROCESS*

### **3.3 Coordination with other Agencies (CRS Activity 511.a.3)**

Notices of the public workshop described in the prior section were sent to the following agencies and elected officials for their awareness of the study and to solicit their input to the development of the FMP:<sup>10</sup>

1. Texas Water Development Board, Mr. Gilbert Ward.
2. Texas Parks and Wildlife
3. Texas General Land Office
4. Federal Emergency Management Agency
5. Senator Kay Baily Hutchinson
6. Senator John Cornyrn
7. Congress Salomon Ortiz
8. State Senator Eddie Lucio
9. Representative Juan M. Escobar
10. Willacy County Commissioners Court
11. Raymondville Independent School District.

Other agencies were used as resources in the development of an inventory and in assessing risks for the development of the FMP. Some of these agencies were the USACOE, NOAA, and the Raymondville Chronicle.

### **3.4 Review of Draft FMP and Adoption of Resolution**

The draft FMP was jointly prepared by the City Manager, Mr. Eleazar Garcia, and the consultant. After feedback from the team members, issued that were deemed to be persuasive resulted in changes to the FMP and a final draft was presented for adoption by the City.

### **3.5 Flood Mitigation Plan Implementation**

Implementation of the FMP will be the responsibility of the City Manager under the guidance of the Mayor and City Council.

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<sup>10</sup> See Exhibit 8 for confirmation of mailing Flood Mitigation Planning notices.

## Chapter 4. ASSESING THE HAZARDS

The most reasonable starting point for assessing Raymondville's flood hazards is the identification of the existing conditions and a review of the City's drainage asset inventory. The City Manager is the Emergency Management Coordinator and is also the City's Flood Plain Management Coordinator. As such, his input was a critical in the development of the basis from which to assess hazards. Other resources used in developing the elements presented in this chapter include various local, state and federal governmental agencies.

### 4.1 Geology and Soils

The City and the surrounding area are flat and as a result the City experiences slow storm water drainage. In a 1980 soil survey report, the United States Department of Agriculture (USDA) described the area as "nearly level to gently sloping" with "slow surface runoff". Willacy County is part of the Western Gulf Coast Plain Section of the Coastal Plain Geomorphic Province <sup>11</sup> which dips gently towards the gulf.

Geological research indicates that in prehistoric times, a branch of the Rio Grande floodway extended into Willacy County beginning just east of the city of Weslaco. The channel passed north of Raymondville then turned east and entered the Laguna Madre north of Port Mansfield. Today this channel serves as a natural floodway for the Rio Grande. Other than the aforementioned floodway, there are no natural drainage channels in the county. Rain water run-off mass flows into the Laguna Madre. Elevations range from mean sea level (msl) in the east portions of Willacy County to 90 feet above msl in the western portions. The soils in surrounding areas are generally clay loam with slopes in the 0-2 percent range and low moisture absorption rates.

The water table in the area is located at approximately 6-7 feet of depth. This is a high ground water level and hinders the storm drainage benefit that could be gained from the absorption of moisture by the soil. In summary, the geological and soil properties of the area are not favorable for natural flood mitigation.

### 4.2 Climatological Influences

The climate of Raymondville is characterized by long, hot and humid summers, mild winters with few incursions of cold northern air, and windy spring seasons.

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<sup>11</sup> United States Department of Agriculture, Soil Conservation Service Report on Willacy County, 1982.



## ASSESSING THE HAZARDS

The temperatures average 84 degrees Fahrenheit (F) in the summer, and 60F degrees in the winter. Average rainfall for Willacy County is 27 inches per year mostly distributed evenly throughout the year. The prevailing wind is from the southeast during the spring and summer months and from the north and northwest during the fall and winter months. The main source of moisture is from the Gulf of Mexico. Freezing temperatures are abnormal but occasionally occur between November and April.

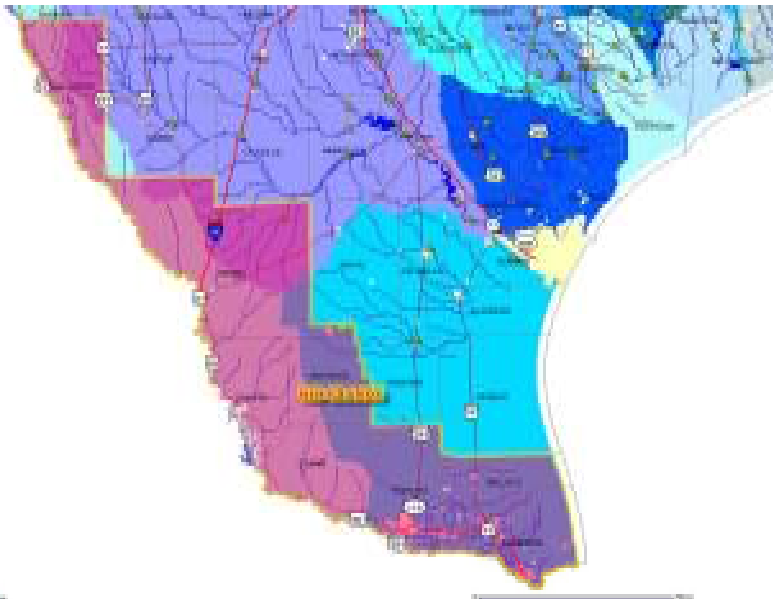
Due to its proximity to the Gulf of Mexico, Raymondville is repeatedly subjected to tropical storms and hurricanes. Even during drought conditions, rain bursts from storms result in localized flooding and flood hazards. As recent as 2002, the City received over 20 inches of rain over a 60-day period. The City's proximity to the Gulf of Mexico is a negative influence on its flood management.

### 4.3 Floodplain Management.

Raymondville is in the Lower Rio Grande Basin watershed. The Flood Insurance Rate Maps (FIRM) for the Raymondville area, published by the National Flood Insurance Program were last revised on January 5, 1989. The city limits have changed since that time but due to the relative flatness of the area, the flood zones are not likely to have changed in any appreciable manner. Therefore these maps remain a suitable basis for the foundation for an understanding of the flood challenges faced by the City.

#### Figure 4

#### RIO GRANDE BASIN WATERSHED



## ASSESSING THE HAZARDS

As illustrated in the Flood Insurance Rate Map prepared by FEMA, approximately 90% of Raymondville lies within zones AH and AO of the 100-year floodplain. The current FIRMs show the City to be in the following flood zones under the category of "Special Flood Hazard Areas Inundated by 100-year Flood":<sup>12</sup>

Flood Zone	Description	Vicinity	Approximate Area
AH	Flood depths of 1 to 3 feet, usually areas of ponding.	Generally west of Business U.S. 77	45%
AO	Flood depths of 1 to 3 feet, usually areas of sheet flow on sloping terrain	Generally east of Business U.S. 77	45%
X	Areas determined to be outside 500-year flood plain.	Select areas between Business and Expressway U.S. 77	10%

For Raymondville, the FIRMs show zone AH to be mostly at an elevation of 33 feet above msl and zone AO to experience a depth of 1 foot inundation at a 100 year storm level.

In addition to providing drainage for Raymondville and surrounding areas through man-made structures, the two Willacy County Drainage Districts provide drainage for portions of Hidalgo County. The U.S. Army Corps of Engineers (USACE) is currently evaluating alternatives for the "Raymondville Drain Project" watershed, which will impact the storm water drainage from the City.

The Raymondville Channel provides a drainage outlet to the Laguna Madre for a large area in eastern Hidalgo and northern Willacy counties. The flows of floodwaters in the basin are impeded by the relatively flat topography, inadequate drainage structures, irrigation canals that crisscross the area and the lack of adequate outlets. Floodwaters inundate large agricultural areas, improved pastures, and urban areas (Raymondville plus areas in Hidalgo County) for long periods, resulting in damage to crops, properties and structures. Floodwaters block transportation arteries causing interruption of economic activities, tourism, school attendance and utility services.

Environmental studies and coordination with resource agencies were first conducted in 1982 for a Lower Rio Grande Basin Programmatic Environmental Impact Statement. The Lower Rio Grand Basin, Texas, Flood Control and Major

<sup>12</sup> FEMA Flood Insurance Rate Map and Street Index, City of Raymondville, Community Panel Number 480666 0005D, Map Revised January 5, 1989; see Exhibit 9

## ASSESSING THE HAZARDS

Drainage Project was authorized by the Water Resources Development Act (WRDA) of 1986. The Raymondville Drain Project was defined as one of three elements of the Lower Rio Grande Basin Project. Its cost and benefit impact were reevaluated and updated for inclusion in a revised environmental criteria for program implementation. Findings of the reevaluation were documented in a 1998 Limited Reevaluation Report (LRR). The authorized plan for the Raymondville Drain consisted of 100-year flood protection to the City and provided a major drainage outfall channel with a capacity to contain a 2- year frequency rainfall event for agricultural drainage purposes. The LRR concluded that the Federal project for flood damage reduction and major drainage at Raymondville was economically and environmentally feasible. However, the non-Federal sponsor at the time, Willacy County, was not able to offer an expression of support for the project due to financial constraints.

Recent partnering between Willacy County and Hidalgo County has improved the financial resources such that the project has been revived and is currently in development by the USACE.<sup>13</sup>

### 4.4 Inventory

The City of Raymondville does not have an inventory of its storm water drainage network. However, it recognizes the bottlenecks in the drainage system and the importance of proper maintenance of adjoining laterals

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<sup>13</sup> USACOE Project for Lower Rio Grande Basin, Texas, Flood Control and Major Drainage, Raymondville Drain Project; see Exhibit 10.

## Chapter 5. ASSESSING THE PROBLEM

Using the historical data and work-in-progress information gathered throughout the process, an evaluation of existing flooding problems is presented. The City has not traditionally been active in floodplain management but only due to financial constraints. As the City grows and works towards an increased quality of infrastructure and increase in economic development, it is a critical that elements of this FMP identify the floodplain management activities in which the City should increase its participation.

### 5.1 Basis of Assessment

As explained above, a broad base was used for identification of existing hazards. Data provided by the aforementioned sources included: data on previous flood events and the nature of the elevated rainfall events, details on the damage done by flooding and the resulting remedial costs, loss of crops, and the economic impact on the City. Most of the City lies in areas likely to experience flooding during a 100 year storm event. As a component of the evaluation of the existing hazards, a review of historical events is presented.

### 5.2 Inventory

It is important to note that an inventory of drainage structures is limited to old maps and is virtually non-existent for planning purposes.

### 5.3 Flood Loss History

A leading authority on storm and flooding events is the National Oceanographic and Atmospheric Administration NOAA. Within the National Climate Data Center (NCDC) it maintains an exhaustive data base of significant events of the types directly related to flooding. As a major reference, the NCDC was queried for events in precipitation and flooding. The query periods were 01/01/1950 to 06/30/2004. Attempts were made to limit the queries to those resulting in losses.

Queries in precipitation resulted in no events reported.<sup>14</sup> Queries in flooding resulted in the listing of ten (10) flood events.<sup>15</sup> Although the total property loss listed for the events is approximately \$24 million, a vast majority of that loss occurred not only outside of Raymondville but outside of Willacy County

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<sup>14</sup> National Climate Data Center, Precipitation query for Willacy County, 01/01/1950 to 06/30/2004, see Exhibit 11.

<sup>15</sup> National Climate Data Center, Flooding query for Willacy County, 01/01/1950 to 06/30/2004, see Exhibit 12

## *ASSESSING THE PROBLEM*

altogether. Of the ten events listed, only one is shown to have occurred in Raymondville. That event was a flash flood on 09/19/2002 at 11:00PM. The description of the event is as follows: "Intense thunderstorms produced flash flooding of homes and city streets in Raymondville. Portions of Highway 186 near Raymondville were also closed due to floodwaters."

### **5.4 Existing Flood Mitigation Plan**

Even though a majority of the City is identified in the FEMA maps as being in a 100 year flood zone, the City does not have a plan in place for dealing with flood plain improvements. Due to financial constraints, the City's activities related to floodplain management have been minimal. While the City does not have a formal flood plain management plan, the City staff and elected officials are very much aware of flooding risks and the need for a formal improvement plan. The City currently does minimal drainage maintenance and does not have a comprehensive flood response plan. The City has an informal agreement with Drainage District No. 2 for maintenance of drainage laterals. However, a formal inclusion in the Drainage District would have tax consequences that the City must evaluate prior to participation. The City is participating in the area Hazard Plan under development by the Council of Governments (COG).<sup>16</sup>

Notwithstanding the lack of a formal flood mitigation plan, City administration is aware of several area of localized flooding that have potential for losses. Flood prone areas are illustrated in Exhibit 7 and are generally described follows.<sup>17</sup>:

1. an area surrounding Raymondville High School.
2. an area surrounding Myra Green Middle School.
3. an area on Kimball Street.
4. an area of S.H. 186 east of U.S. 77 Expressway.

The flooding is mainly localized ponding which appears to be the result of undersized culverts and old misaligned flow lines. As illustrated in Exhibit 7, these areas are generally adjacent to U.S. Expressway 77 where drainage patterns have changed apparently as a result of major road improvements. These improvements have improved overall drainage but may have adversely affected a few localized areas.

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<sup>16</sup> Hazard Profile Worksheets submitted to the Council of Governments, see Exhibit 13.

<sup>17</sup> From conversations during Public Meeting on November 1, 2004.

## **5.5 Impact of New Developments**

Development of new housing areas is not restricted to a single direction or area. Residential growth is occurring to all sides of the City with commercial growth being concentrated in the U.S. 77 corridor and Hidalgo Street.

Changing land use usually impacts drainage through changes in the clearing of vegetation which decreases the land's ability to absorb rainwater. Since the runoff is slow due to the prevalent terrain, this serves to increase the level of ponding in flood prone areas. Although changing of land use from farm land to residential does have a detrimental impact on drainage, it can be considered insignificant in that the growth is relatively small and the drainage challenges are mostly from existing capacity shortfalls.

The major upgrading of U.S. 77 has had an impact on area drainage. Drainage improvements have been implemented by the Texas Department of Transportation (TxDOT) through the installation of culverts and drainage structures. These new systems are designed to prevent the build-up of sediment, and prevent erosion of the drainage areas. These drainage improvements consist entirely of man-made grading improvements but exclude downstream channel modification or clearing which would have provided drainage capacity downstream of drainage improvements associated with U.S. 77.

Based on existing loads, an undersized storm drainage system serves to aggravate the already poor drainage. Flood water drainage is to the east with the main flows being carried by the main drainage ditch flowing to the north under SH 186. The City recognizes that it is costly to improve and expand the storm water drainage infrastructure. To best perform this, studies need to be commissioned to determine how to best alleviate flooding conditions and to re-establish drainage patterns.

The City has experienced low property losses but due to the street flooding, it is the Committee's opinion that undocumented economic losses may have occurred.

## **5.6 Drainage Awareness and Activities**

Although City administration and elected officials realize the need for drainage improvement projects, financial constraints have prevented the City from undertaking any watershed or drainage improvement projects. However, it

## *ASSESSING THE PROBLEM*

applied for, and received, a grant for the preparation of this FMP as a precursor to the development of a strategic plan for watershed improvements.

The City is actively pursuing flood mitigation through its subdivision ordinances. The City has a subdivision ordinance that requires the preparation of localized drainage networks and hopes to implement a flood ordinance that will be drafted from input received through the preparation of the FMP.

It is important to note that City representatives have provided input to the Raymondville Drain Project which is under management by Hidalgo County and the City expects to benefit from the improvements that the project will bring to the watershed drainage. The City participates in the Raymondville Drain planning process and expects to receive significant benefit from improvements of drainage laterals resulting from this regional project.

*Chapter 6.* PLANNING GOALS

The City of Raymondville does not currently have a comprehensive city-wide drainage capital improvements plan (CIP) nor does it have a watershed management plan (WMP). However, it will use this FMP as the precursor to the development of a strategic plan to address city drainage needs and the impact on the watershed drainage needs for the foreseeable future. The City plans to integrate the plan presented into the overall plan implemented by the County and its Drainage Districts thereby leveraging resources available only through the bi-lateral partnering with Hidalgo County.

The City wishes to protect the public safety and minimize the losses resulting from flood events. The goals of the City of Raymondville in developing this plan are as follows:

1. Protect human life and health of its citizens.
2. Gain synergy in the effective use of extensive flood control projects through memorandums of understanding and partnering with neighboring political subdivisions.
3. Minimize flood damage to structures.
4. Minimize the need for rescue and relief efforts associated with flooding.
5. Minimize the disruption of economic, educational and normal daily activities through improved flood control planning;
6. Ensure that potential buyers are notified that a property lies within the floodplain.
7. Minimize flood damage to crops.



*PLANNING GOALS*

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*Chapter 7. FLOODPLAIN MANAGEMENT PROGRAM*

The floodplain management program proposed is an extension of the elements in the grant application submitted for funding the preparation of this FMP. Prior to the development of this plan, the City had not concentrated its efforts on developing a public awareness campaign nor had it established formal relationships with adjoining political subdivisions regarding flood mitigation plans. A challenge in the development of seamless flood damage mitigation in Raymondville is that many of the channels for diversion of flood waters away from the City are under the jurisdiction of entities other than the City. The City's authority stops at the city limits. Nonetheless, from a planning perspective the development of a FMP is the first step for the City to address the establishment of partnerships with these adjoining entities in the mitigation of flood damages.

The City, through the planning process, hopes to develop a comprehensive flood management plan that will be used to direct flood management operations and improvements for both near and long-term future. With its unfavorable elevations, limited resources, and vulnerability to tropical storms and hurricanes, the City's proposed plan will focus on developing strategies for each of the neighboring political subdivisions in forming a coalition to provide a high level of cooperation in order to deliver flood mitigation for the citizens of Raymondville.

**7.1 Master Drainage Plan and Capital Improvements Plan**

City-wide drainage network mapping and modeling are the first step in the development of an effective drainage CIP. Coupled with hydrology studies and work currently in process by the USACE on the Raymondville Drain, a drainage modeling could be used for the establishment of watershed models that would provide guidance in the direction of future improvements.<sup>18</sup> With a reliable inventory basis, studies could be conducted to identify optimal municipal storm water drainage patterns, lateral drain capacity restrictions and channel improvements. This information would be part of a CIP for mitigation of flood damage. The critical element in this component of the program is the accurate establishment of the existing drainage network. Once this is established and modeled, specific variants of the drainage network can be studied to evaluate the impact on the overall performance of the drainage network and the cost for improvements can be better defined. Priorities for improvements could then be based on a combination of cost, funding, existing flood problems, and a

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<sup>18</sup> See Exhibit 14 for a partial list of hydrology models available.

## *FLOODPLAIN MANAGEMENT PROGRAM*

comprehensive cost-benefit analysis for each project. These proposed studies would provide valuable information to FEMA and the City in terms of economic and safety benefits.

### **7.2 Planning/Regulation of Subdivision Development**

Currently, the City of Raymondville provides guidance on subdivision development in the form of a city ordinance. Inadequate downstream drainage is not addressed in this ordinance at this time. A possible enhancement to the ordinance could be the additional requirement for drainage easements where they would serve to relieve flooding at current sites.

Erosion control plans for land development should also be considered as an optional flood mitigation component. Erosion control has an impact over watershed management because lack of erosion control can negatively affect the flow capacity of storm water networks and discharge streams. Requiring developments to submit an erosion control plan for a project's construction would be beneficial to the drainage system.

### **7.3 Detention requirements**

Another mitigation possibility is to require all new developments to include detention facilities as a condition of receiving approval by the City. Detention areas would be used to restrict runoff and maintain pre-development levels of runoff thus lowering the incremental demand on the existing drainage network and mitigating flooding.

Since the development and design of the Raymondville Drain is currently in progress, the City could also be involved with County, State and Federal Agencies to determine if local or regional detention facilities would enhance flood control and alleviate expansion of the floodplain. If studies support the use of a regional approach to detention, the City should maintain an active role in the placement of such detention facilities.

### **7.4 Public education program**

The City maintains a limited public education program which consists of warnings and watches from the National Weather Service channeled through local media. As an expansion to this limited program, the City proposes to implement an ongoing public education campaign to provide the public with information regarding flooding and flood protection. This program could use advertisements in the local paper and on local radio to inform citizens of their risk for potential

flood damage. Citizens in the most flood prone area could be targeted with direct mailings. This effort could also be used to persuade owners of residential and commercial buildings to purchase flood insurance and make home improvements that mitigate flood damage.

### **7.5 Drainage Network Cleaning Program**

The City should consider re-instating the use of its staff and equipment in cleaning the existing drainage network on a rotational basis. During this cleaning process, data on line sizes and locations could be collected and be used to develop and update a database of drainage line sizes in the community.

### **7.6 Mapping Localized Flooding**

The City should provide a map of areas within Raymondville that are prone to localized flooding. This would not only be of benefit to residents but also to emergency personnel so that they can be aware of potential roadway closures or the need to evacuate or provide rescue services to citizens in these areas. This information could also be used in any wide-area modeling so that flooding situations can be more accurately predicted.

### **7.7 Protection of Emergency Services**

As an extension of the mapping of localized flooding, the City should take publish routes to emergency service locations for use during flood events. These maps would show the "high land" routes to emergency clinics, shelters, schools, police station and ambulance service.

*FLOODPLAIN MANAGEMENT PROGRAM*

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*Chapter 8. ACTION PLAN*

As a result of this FMP, new policies and flood mitigation activities will be adopted by the City of Raymondville. As the FMP matures and funding becomes available, the City will update the plan with enhanced policies and new policies as a means to keep the plan current. The following policies and mitigation measures will be considered for actions as a result of the development of this plan:

1. Develop an inventory of existing Drainage networks and their operation.
2. Utilize modeling and predictive techniques in the development of a drainage master plan and use it as a basis for a prioritized capital improvements plan.
3. Perform a comprehensive review of the City's Subdivision Ordinances with a focus on erosion, detention ponds and alignment of drainage with the City's drainage master plan.
4. Develop a public awareness program.
5. Re-instate a regular schedule in the cleaning of drainage lines.
6. Continue participation by the City in the Raymondville Drain Project's planning process.
7. Evaluate the impact of new subdivision or land developments on drainage patterns and capacity.
8. Evaluate progress of specific projects listed above plus any new projects identified that support the FMP.
9. Update and revise the FMP annually after review of the above items.

The details of each of the above elements of FMP are detailed in the previous Chapter.

Once the FMP is adopted, grant funding for the implementation of the above items can submitted to various agencies.

*ACTION PLAN*

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## *ADOPTION OF FLOOD MITIGATION PLAN*

### *Chapter 9. ADOPTION OF FLOOD MITIGATION PLAN*

On December 21, 2004 a Raymondville City Commissioners meeting was held to review, discuss and act on the adoption of the proposed Flood Mitigation Plan. The action taken at the meeting was the adoption of the plan contained herin. A copy of the resolution adopted by the City Commissioners is include as Exhibit 15.



*ADOPTION OF FLOOD MITIGATION PLAN*

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*Chapter 10.*      EXHIBITS



MGM ENGINEERING GROUP, LLC  
Engineers £ Surveyors £ Planners

502 N. Expressway 77  
Harlingen, Texas 78550  
(956) 364-1700

## 510 FLOODPLAIN MANAGEMENT PLANNING

### Summary of Section 510

Credit is provided for preparing, adopting, implementing, evaluating, and updating a comprehensive floodplain management plan. The Community Rating System (CRS) does not specify what must be in a plan, but it only credits plans that have been prepared and kept updated according to the standard planning process explained in Section 511. Credit is also provided for implementing a habitat conservation plan.

**511 Credit Points.** Up to 309 points are provided for two elements.

- a. Up to 294 points are provided for adopting and implementing a floodplain management plan (FMP) that was developed using the following standard planning process. There must be some credit for each of the 10 planning steps.

<u>Step</u>	<u>Max points</u>
1. Organize to prepare the plan	10
2. Involve the public	72
3. Coordinate with other agencies	18
4. Assess the hazard	20
5. Assess the problem	35
6. Set goals	2
7. Review possible activities	30
8. Draft an action plan	70
9. Adopt the plan	2
10. Implement, evaluate, and revise	35

- b. Up to 15 points are provided for adopting and implementing a Habitat Conservation Plan (HCP)

### 512 Impact Adjustment.

- a. Under Option 1, if the floodplain management plan covers all of the community's known flood hazard areas, the impact adjustment ratio is 1.0.
- b. Under Option 2, if the floodplain management plan covers all of the community's repetitive loss areas or at least 25% of its known flood hazard areas, the impact adjustment ratio is 0.25.

### 513 Credit Calculation.

The credit for the floodplain management plan (FMP) is the total of the credit points for the 10 steps. If the credit for any one of the 10 steps is 0, then  $FMP = 0$ . The credit for this activity is FMP multiplied by the impact adjustment ratio plus the credit for HCP.

**514 Credit Documentation.** The community must submit the following.

- a. A copy of the floodplain management plan with the credited elements noted in the margin or explained in an attached memo.
- b. Documentation showing how the public was involved in preparing or reviewing the plan.
- c. Documentation showing that the plan has been adopted by the community's governing body and/or the habitat conservation plan was accepted by the appropriate agency.

The community must submit the following with its annual CRS recertification.

- d. An annual evaluation report on progress toward implementing the plan's objectives.
- e. An update to the plan, prepared at least every five years.

**515 For More Information.** A free CRS publication, *Example Plans*, provides more information and examples on this activity.

**RESOLUTION**

**A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF RAYMONDVILLE, TEXAS AUTHORIZING THE SUBMISSION OF A FLOOD MITIGATION ASSISTANCE (FMA) PROGRAM PLANNING GRANT APPLICATION TO THE TEXAS WATER DEVELOPMENT BOARD AND AUTHORIZING THE MAYOR TO ACT AS THE CITY'S EXECUTIVE OFFICER AND AUTHORIZED REPRESENTATIVE IN ALL MATTERS PERTAINING TO THE CITY'S PARTICIPATION IN THE FLOOD MITIGATION ASSISTANCE (FMA) PROGRAM PLANNING GRANT.**

**WHEREAS, the City Commission of the City of Raymondville desires to develop a viable urban community including decent housing and suitable living environment and expanding economic opportunities, principally for persons of low/moderate income and;**

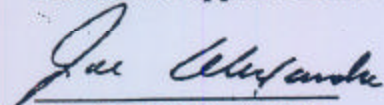
**WHEREAS, certain conditions exist which represent a threat to the public health and safety; and**

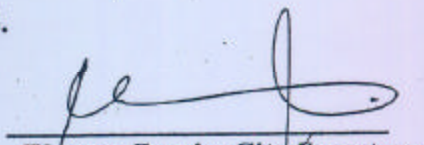
**WHEREAS, it is necessary and in the best interests of the City of Raymondville to apply for funding under the Flood Mitigation Assistance (FMA) Program Planning Grant to the Texas Water Development Board;**

**NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF RAYMONDVILLE, TEXAS:**

- 1. That a Flood Mitigation Assistance (FMA) Program Planning Grant application is hereby authorized to be filed on behalf of the City with the Texas Water Development Board.**
- 2. That the application be for a \$24,000 Project, of which \$18,000 is grant funds and \$6,000 is the local match; Of the local match \$3,000 will be in cash and \$3,000 will be in In-Kind Services.**
- 3. That the City Commission directs and designates the Mayor as the City's Chief Executive Officer and Authorized Representative to act in all matters in connection with this application and the City's participation in the Texas Water Development Board-Flood Mitigation Assistance (FMA) Program Planning Grant.**

Passed and approved this <sup>25<sup>th</sup></sup> ..... day of March, 2003.

  
Joe Alexandre, Mayor  
City of Raymondville

  
Eleazar Garcia, City Secretary  
City of Raymondville

# **Flood Mitigation Plan**

City of Raymondville

November 1 and 2, 2004

## **Planning Process**

1. Evaluation of existing flood hazards
2. Assessment of risks
3. Plan development
4. Plan implementation

## Evaluation of Flood Hazards

1. Community meetings
2. City of Raymondville
3. Willacy County
4. Texas Water Development Board
5. Records from local entities
6. Records from National Agencies

11/1-2/2004

City of Raymondville Flood  
Mitigation Plan

3

## Assessment of Risks

1. Identify specific flood prone areas
2. Identify needs and procedures for a flood warning system
3. Identify critical facilities (hospitals, fire stations, chemical storage, etc.)
4. Identify City development trends
5. Define economic impact of flooding

11/1-2/2004

City of Raymondville Flood  
Mitigation Plan

4

## **Plan Development Goals**

1. Protect human life and health
2. Minimize expenditure of public funds for flood control projects
3. Minimize flood damage to structures and relief efforts
4. Minimize damage to public utilities

11/1-2/2004

City of Raymondville Flood  
Mitigation Plan

5

## **Plan Implementation**

1. Review of draft plan by City Executive
2. Review of draft plan by other agencies
3. Plan revisions
4. Plan review and adoption by City Commission

11/1-2/2004

City of Raymondville Flood  
Mitigation Plan

6



## Community Discussion

1. Questionnaire
2. Community experience & history

## QUESTIONNAIRE

1. Is your home in a flood plain?
2. What is the source of flooding?
3. Do you own or rent?
4. What type of construction is used in your home?
5. If your home has actually flooded, when did it happen?
6. Describe any damage your home has received from flooding.
7. Have you done anything to your home to reduce future damage?
8. In the last flood did you have any flood insurance?
9. Do you now have any flood insurance?
10. If not, why not?
11. Is your business or place of work in a flood plain?
12. If it has actually flooded, please describe the damage.
13. Please list the streets and roads where you have seen flooding.
14. Describe other flooding problems you know about.
15. Give us your ideas to reduce the impacts of flooding.

## COMMUNITY HISTORY

- [\\_MGM\Projects\RayMit\FEMA Storm hist.pdf](#)

11/1-2/2004

City of Raymondville Flood  
Mitigation Plan

9

## Flood Mitigation Plan

City of Raymondville

November 1 and 2, 2004

# CITY OF RAYMONDVILLE

## TELL US WHAT YOU KNOW ABOUT FLOODING IN THE CITY OF RAYMONDVILLE

and

## SHARE YOUR IDEAS ABOUT REDUCING FLOOD DAMAGE

This questionnaire is to collect information about flooding in your community. The City of Raymondville is preparing a plan to help reduce flood damage and other safety risks. An important part of the planning process is hearing from our citizens. We will hold public workshops to present the draft plan in early December. At that time you will learn about mitigation planning and proposals to reduce damage.

You can help us now. We would like to learn about any flooding problems you may have had at your home or business. Please take a few minutes and answer the following questions. Please use additional paper if your answers will not fit in the spaces provided. If you have any questions, please call Cesar Maldonado or Sharon Farias with MGM Engineering Group at 956-364-1700.

No.	Question	Answer
1	Is your home in a floodplain?	
2	What is the source of flooding?	
3	Do you own or rent?	
4	What type of construction is used in your home?	
5	If your home has actually flooded, when did it happen.	
6	Describe any damage your home has received from flooding.	
7	Have you done anything to your home to reduce future damage?	
8	In the last flood, did you have flood insurance?	
9	Do you now have flood insurance?	
10	If not, why not?	
11	Is your business or place of work in the floodplain?	
12	If it has actually flooded, describe the damage.	
13	Please list the streets and roads where you have seen flooding.	
14	Describe other flooding problems you know about.	
15	Please give us your ideas to reduce the impacts of flooding.	



**ZONE AH**  
(EL. 33)

**ZONE AH**  
(EL. 33)

**ZONE RLSB**

**ZONE AO**  
(DEPTH 11)

**MOPAC RAILROAD**

**CITY PARK**

**WATER PLANT**

**RESERVOIR**

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**Mobile Home Park**

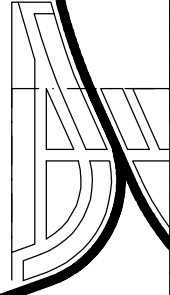
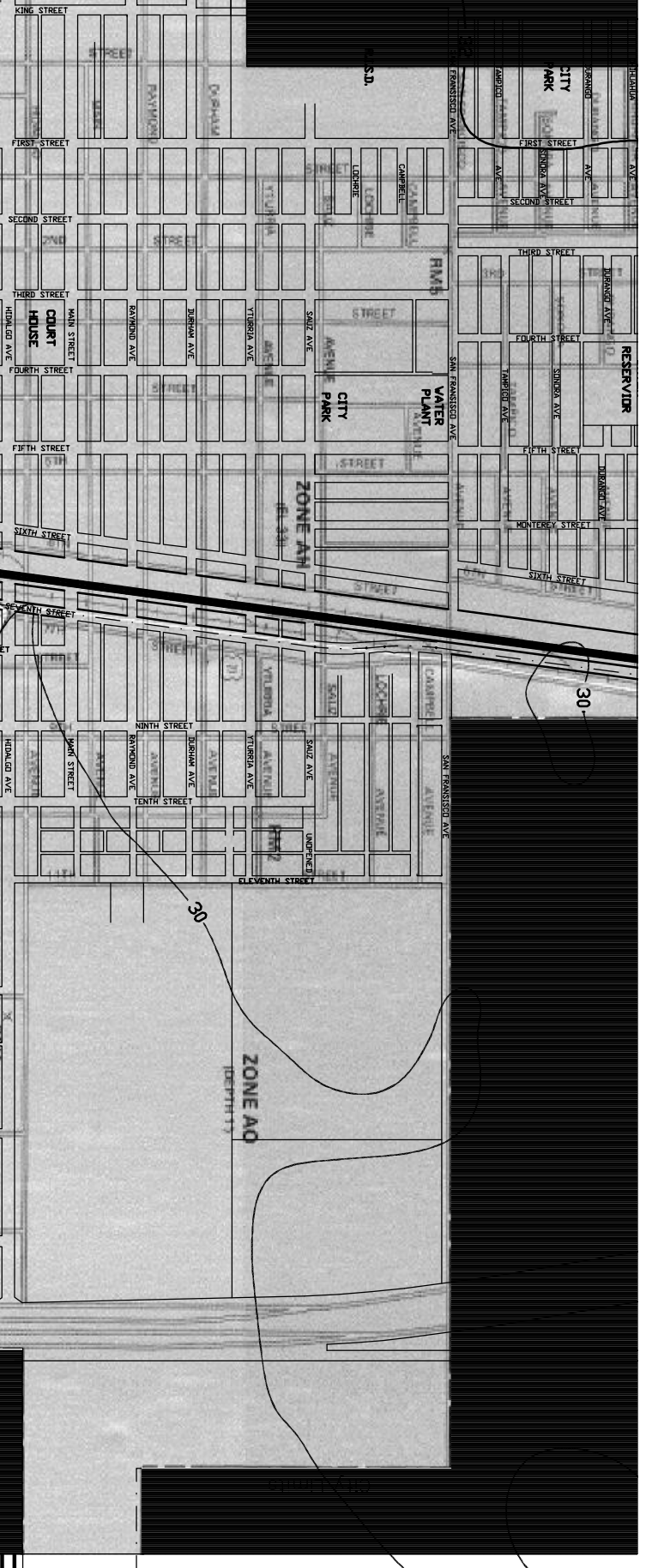
**RLSB**

**RLSB**

City Limits



**U.S. HIGHWAY 77**



ORDINANCE NO. 619

AN ORDINANCE PROVIDING RULES AND REGULATIONS FOR THE  
PLATTING AND SUBDIVISION OF LANDS WITHIN THE CORPORATE  
LIMITS OF THE CITY OF RAYMONDVILLE;

PROVIDING FOR THE GRANTING OF AUTHORITY TO THE CITY TO  
IMPLEMENT SUCH RULES, REGULATIONS, STANDARDS, AND SPECIFICA-  
TIONS;

DEFINING PURPOSES;

DEFINING TERMS;

PROVIDING FOR PLANNING AND ZONING COMMISSION ACTION;

PROVIDING FOR VARIANCE;

PROVIDING FOR CONFLICTS WITH OTHER ORDINANCES;

PROVIDING FOR SEPARABILITY; AND

PROVIDING FOR PENALTIES FOR VIOLATION THEREOF:

NOW, THEREFORE,

BE IT ORDAINED BY THE BOARD OF COMMISSIONERS OF THE CITY  
OF RAYMONDVILLE, TEXAS:

## SECTION I.

**AUTHORITY:** This ordinance is adopted under the authority of the Constitution and laws of the State of Texas, including particularly Chapters 231, Acts of the 40th Legislature, Regular Session, 1927, as heretofore or hereafter amended (compiled as Article 974a, V.T.C.S.), and the provisions of Section 4 of the Municipal Annexation Act as heretofore or hereafter amended (compiled as Article 970a, V.T.C.S.). This ordinance is adopted pursuant to the provisions of the Charter of the City of Raymondville.

## SECTION II.

**PURPOSE:** The purpose of this ordinance is to provide for the orderly, safe and healthful development of the area within the City and within the area surrounding the City and to promote the health, safety, morals and general welfare of the community.

## SECTION III.

**DEFINITIONS:** For the purpose of this ordinance, the following terms, phrases, words and their derivations shall have the meaning ascribed to them in this section:

- A. **Alley.** An alley is a secondary public right-of-way, which is used primarily for utility and vehicular service access to the back or sides of properties otherwise abutting on a public street.
- B. **Building Setback Line.** A building setback line is the line within a lot defining the minimum horizontal distance between a building and the adjacent street line and interior lot lines.
- C. **City.** The City of Raymondville, Texas.
- D. **Dead-End Street.** A dead-end street is a street with only one outlet.
- E. **Utility Easement.** A utility easement is a right of use granted to the public for installing and maintaining utility and drainage facilities across, over or under private land together with the right to enter thereon with machinery and other vehicles necessary for the maintenance of said utilities.
- F. **Lot.** A lot is an undivided tract or parcel of land having frontage on a public street and usually on an alley or utility easement, which is or in the future may be offered for sale, conveyance, transfer or improvement; and which is designated as, (1) one individual or separate tract which is identified by a tract or lot number or symbol in a duly approved subdivision plat as herein provided, which has been approved by the Planning and Zoning Commission and properly filed for record.

- G. Public Right-of-way. A public right-of-way is land used, wholly or in part, as a public street or alley.
- H. Pavement or Roadway. The pavement is the improved surface portion of a street over which vehicular traffic travels.
- I. Street. A street is a public right-of-way intended to provide vehicular access to adjacent or abutting land, whether designated as a street, highway, thoroughfare, parkway, avenue, boulevard, road, place, drive, expressway, freeway, or however otherwise designated.
- J. Subdivider. A subdivider is any person or corporation, or any agent thereof, dividing or proposing to divide land so as to constitute a subdivision as that term is defined herein. The term subdivider shall be limited to only the owner, equitable owner, or authorized agent of such owner or equitable owner of land sought to be subdivided.
- K. Subdivision. A subdivision is the division of any tract of land into two or more parts for the purpose of laying out any subdivision of any tract of land or any addition to any town or city, or for laying out suburban lots or building lots, or any lots, and streets, alleys, or parks or other portions intended for public use or the use of purchasers or owners of lots fronting thereon or adjacent thereto. Subdivision includes re-subdivision but it does not include the division of land for agricultural purposes in parcels or tracts of five (5) acres or more and not involving any new street or alley.
- L. Shall. The word shall denotes a mandatory action or requirement.
- M. Preliminary Plat. A preliminary plat is a tentative drawing made by a licensed surveyor or registered engineer for inspection purposes only, showing the entire tract of land sought to be subdivided and showing the boundary of the subdivision lots, streets and easements, etc., intended in a reasonably accurate and detailed manner.
- N. Final Plat. A final plat is a plat prepared by a licensed surveyor or registered engineer; said plat shall be duly acknowledged by the owners or proprietors of the land, or by some duly authorized agent of such owners or proprietors in the manner required for the acknowledgement of deed and which may be filed for record in the office of the County Clerk.
- O. Engineer. An engineer is a person duly authorized under the provisions of the Texas Engineering Registration Act, as heretofore or hereafter amended to practice the profession of engineering.
- P. Surveyor. A surveyor is a person duly authorized under the provisions of the Texas Registered Public Surveyors Act, to practice the profession of public surveying.

- Q. Comprehensive Plan. The comprehensive plan is the plan for the future development of the City adopted by the City Commission of the City of Raymondville.
- R. Definitions not expressly prescribed herein are to be construed in accordance with customary usage in municipal planning and engineering practices.

#### SECTION IV.

PLANNING AND ZONING COMMISSION ACTION: Before any plan, plat or re-plat of a subdivision of land inside the City of Raymondville or within one mile of the corporate limits thereof shall be recorded with the County Clerk, it shall be approved by the Planning and Zoning Commission of the City of Raymondville.

#### SECTION V.

PRELIMINARY PLAT: A preliminary plat shall comply with the following regulations and requirements:

- A. Preparation: The plat shall be prepared by a registered engineer or a licensed surveyor.
- B. Content of Plat: The plat shall be drawn to a scale of 1"=100' or larger and shall contain the following information:
  - 1. A key map indicating the area surrounding the land to be subdivided and sufficient to readily fix the approximate location of the tract.
  - 2. The name or title under which the proposed subdivision is to be recorded and said name shall not duplicate or be similar to the name of a previously recorded subdivision.
  - 3. The north arrow or point and the scale of the map.
  - 4. The location and width of existing and proposed street right-of-way and pavement, and the location of blocks, lots, contour lines, alleys, utilities easements, building setback lines and parks in and adjacent to the tract to be subdivided. Dimensions sufficient to indicate the approximate intent shall be shown.
  - 5. Identify the boundaries of the proposed subdivision with a distinctive or wide line and by a metes and bounds description.
  - 6. The names of all existing streets and subdivisions adjacent to or adjoining the proposed subdivision.
  - 7. The names of proposed streets, said names shall conform to the names of existing streets of which they may be or in the future



may become extensions. Proposed street names shall not duplicate the name of an existing street unless it may be or in the future may become an extension.

- C. The plat shall be accompanied by a letter of transmittal, giving a brief description of the proposed street and utility improvements, and an outline of the restrictive covenants.
- D. Three copies of the plat and transmittal letter shall be submitted to the Director of Public Works.

#### SECTION VI.

FINAL PLAT: A final plat and accompanying data shall comply with the following regulations and requirements.

- A. Conform generally to the preliminary plat approved or conditionally approved; all changes, modifications, alterations, conditions and corrections imposed on the preliminary plat by the Planning and Zoning Commission shall be reflected on the final plat.
- B. Contain all of the features required for preliminary plats in Section V, above, save and except no existing or proposed improvements or construction features shall be shown on the face of the final plat.
- C. Be made with or from an accurate survey; be neat and in all respects proper for filing for record in the office of the County Clerk; patching and pasting of attachments is not acceptable; all figures and lettering shall be neat and easily legible.
- D. The face of the plat shall contain the following:
  - 1. A legal description and identification of the tract being subdivided, sufficient for the requirements of title examination.
  - 2. The name and seals of the engineer and/or surveyor responsible for the preparation of the plat and the survey.
  - 3. All block, lot, building setback lines, alley, easement and street boundary lines shall be shown and shall be defined by dimensions. All dimensions, including linear, curvilinear and angular, shall be shown, and must be accurate, the linear and curvilinear data shall be expressed in feet and decimals of a foot; the angular dimensions shall be shown by bearings; curved boundaries or lines shall be described by the length of tangents, central angle of curve, and the cords and arcs of curves.
  - 4. Block corners, angle points, points of curve, and points of intersection and tangents shall be shown as permanently monumented on the ground.

5. A bench mark elevation shall be shown on at least one block corner of each street intersection.
6. An Owner's acknowledgement as follows:

STATE OF TEXAS  
COUNTY OF WILLACY

I (we), the undersigned, owner(s) of the land shown on this plat, and designated herein as the \_\_\_\_\_ subdivision to the City of Raymondville, Texas, and whose name is subscribed hereto, hereby dedicate to the use of the public forever all streets, alleys, parks, water courses, drains, easements and public places thereon shown for the purpose and consideration therein expressed.

\_\_\_\_\_  
Owner

STATE OF TEXAS  
COUNTY OF WILLACY

Before me, the undersigned authority, on this day personally appeared \_\_\_\_\_, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and considerations therein stated.

Given under my hand and seal of office this \_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

\_\_\_\_\_  
Notary Public  
Willacy County, Texas

7. Certification by the Director of Public Works.

I, the undersigned, Director of Public Works of the City of Raymondville, hereby certify that this subdivision plat conforms to all requirements of the subdivision regulations of the City to which this approval is required.

\_\_\_\_\_  
Director of Public Works

8. Approval of the Planning Commission of the City of Raymondville.

This plat \_\_\_\_\_ has been submitted to and considered by the Planning Commission of the City of

Raymondville, Texas, and is hereby approved by such Commission.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 19 \_\_\_\_\_.

By: \_\_\_\_\_  
Chairman

ATTEST:

\_\_\_\_\_  
Secretary

9. Certification of the surveyor or engineer responsible for surveying the subdivision area, attesting to its accuracy:

STATE OF TEXAS  
COUNTY OF WILLACY

I, the undersigned, a (registered professional engineer/public surveyor) in the State of Texas, do hereby certify that this plat is true and correct and was prepared from an actual survey of the property made under my supervision on the ground.

(Engineer or Surveyor's  
Seal)

\_\_\_\_\_  
Registered Professional Engineer  
or  
Registered Public Surveyor

- E. The final plat may include or constitute only a portion of the approved preliminary plat.
- F. Certificates from all local taxing agencies shall be provided along with the final plat stating that ad valorem taxes have been paid on the land included within the proposed subdivision.
- G. The owner shall provide adequate funds for the recording and filing of the subdivision plat and related instruments, said funds shall be delivered upon request of the Director of Public Works.
- H. The original of the plat shall be submitted to the Planning and Zoning Commission, said plat shall be on tracing cloth or plastic film and three copies or prints shall be submitted along with the original.
- I. An approved plat shall be filed for record by the Director of Public Works within ten days of the date of final approval by the Planning Commission provided all requirements of this Ordinance have been met and the Planning and Zoning Commission by motion and vote have approved the plat.

## SECTION VII.

DESIGN STANDARDS: A subdivision shall comply with the following design standards:

### A. Streets:

1. Street right-of-way shall be as shown in the Comprehensive Plan for the City of Raymondville and where not shown the right-of-way shall be as follows:

<u>Street Type</u>	<u>Right-of-Way</u>	<u>Pavement Width</u>
Local	60	28
Secondary A	60	40
Major Thoroughfare B	70-80	44
Major Thoroughfare C	80-100	60

2. Street jogs with centerline offsets of less than one hundred and twenty-five (125) feet shall be avoided.
3. Streets shall be laid out so as to intersect as nearly as possible at right angles; in no case may a street intersect any other street at less than 60 degrees.
4. Reserve strips controlling access to streets shall be prohibited.
5. Dead-end streets are prohibited except where necessary to provide for future extensions into adjacent land under separate ownership.

### B. Alleys and Utility Easements:

1. Alleys and/or utility easements shall be provided adjacent to or over every lot.
2. The width of an alley shall be twenty (20) feet.
3. The minimum width of the utility easement shall be fifteen (15) feet and may be centered on the rear or side lot lines.

### C. Blocks:

1. Block length shall not exceed one thousand two hundred (1,200) feet or be less than six hundred (600) feet. A cul-de-sac may not exceed five hundred (500) feet in length.

### D. Lots:

1. The lot area and width shall be as required in the zoning ordinance, however, in no case shall a lot contain less than five thousand (5,000) square feet and have an average width of less than fifty (50) feet.

2. Every lot shall abut a public dedicated street; double frontage lots shall be avoided except where essential to provide separation of residential development from traffic arteries.
3. Side lot lines shall be substantially at right angles or radial to front street right-of-way lines.

#### SECTION VIII.

##### REQUIRED IMPROVEMENTS.

- A. Monuments shall be placed as required in this ordinance and shall be an iron rod three quarter (3/4) inches in diameter and from twenty-four (24) to thirty (30) inches in length with its top set flush with the natural ground or finished grade. Provided further, iron pins shall be set at all lot corners and shall be one-half (1/2) inch iron rods twenty-four (24) inches long, with the top set flush with the natural ground.
- B. Street and alley paving, sidewalks, curbs, street lights, street signs, fire hydrants, drainage facilities and utility improvements shall be in accordance with the standards and specifications adopted by the City Commission of the City of Raymondville.

#### SECTION IX.

VARIANCES: The Planning Commission may authorize a variance from these regulations when, in its opinion, undue hardship will result from requiring strict compliance. In granting a variance, the Commission shall prescribe only conditions that it deems necessary to or desirable in the public interest. In making the findings hereinbelow required, the Commission shall take into account the nature of the proposed use of the land involved, existing uses of land in the vicinity, the number of persons who will reside or work in the proposed subdivision, and the probable effect of such variance upon traffic conditions and upon the public health, safety, convenience, and welfare in the vicinity. No variance shall be granted unless the Commission finds:

- A. That there are special circumstances or conditions affecting the land involved such that the strict application of the provisions of this ordinance would deprive the applicant of the reasonable use of his land; and
- B. That the variance is necessary for the preservation and enjoyment of a substantial property right of the applicant; and
- C. That the granting of the variance will not be detrimental to the public health, safety or welfare, or injurious to other property in the area; and

- D. That the granting of the variance will not have the effect of preventing the orderly subdivision of other land in the area in accordance with the provisions of this ordinance. Such findings of the Commission, together with the specific facts upon which such findings are based, shall be incorporated into the official minutes of the Commission meeting at which such variance is granted. Variances may be granted only when in harmony with the general purpose and intent of this Ordinance so that the public health, safety and welfare may be secured and substantial justice done. Peculiar hardship to the subdivider, standing alone, shall not be deemed to constitute undue hardship.

#### SECTION X.

CONFLICT WITH OTHER ORDINANCES: Whenever the standards and specifications in this Ordinance conflict with those contained in another ordinance, the most stringent or restrictive provision shall govern.

#### SECTION XI.

SEPARABILITY CLAUSE: Should any portion or part of this Ordinance be held for any reason invalid or unenforceable, the same shall not be construed to affect any other valid portion hereof, but all valid portions hereof shall remain in full force and effect.

#### SECTION XII.

PENAL PROVISIONS: Any person, firm or corporation violating any provision of this Ordinance within the corporate limits of the City of Raymondville, Texas, shall be guilty of a misdemeanor, and upon conviction, shall be fined an amount not exceeding two hundred dollars (\$200). Each day that such violation continues shall be a separate offense. Prosecution or conviction under this provision shall never be a bar to any other remedy or relief for violations of this Ordinance.

This Ordinance shall be effective from and after its passage and publication of caption, or from and after the 27th day of August, 1974.

Passed on first reading at a regular meeting of the City Commission held on the 23rd day of July, 1974;

Passed on second reading on the 13 day of August, 1974;

PASSED, APPROVED AND ADOPTED ON THIRD AND FINAL READING ON THE 27th day of August, 1974.

Eustalio Gonzales  
Mayor

ATTEST:

C. M. Crumell  
City Secretary

ORDINANCE NUMBER: 888

"AN ORDINANCE AMENDING ORDINANCE NUMBER 711, AND THE AMENDMENTS THERETO SO THAT THE AMENDMENTS SHALL HEREAFTER PROVIDE FOR FLOOD DAMAGE PREVENTION; STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND METHODS; DEFINITIONS; GENERAL PROVISIONS; ADMINISTRATION; PROVISIONS FOR FLOOD HAZARD REDUCTION; AND DECLARING AN EMERGENCY."

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF COMMISSIONERS OF THE CITY OF RAYMONDVILLE, TEXAS:

Ordinance Number 711, and the amendments thereto, shall and is hereby, amended to READ as follows:

FLOOD DAMAGE PREVENTION ORDINANCE

ARTICLE I

STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND METHODS

SECTION A. STATUTORY AUTHORIZATION

The Legislature of the State of Texas has in V.T.C.A. Water Code, Section 16315, delegated the responsibility to local governmental units to adopt regulations designed to minimize flood losses. Therefore, the Board of Commissioners of the City of Raymondville, Texas, does ordain as follows:

SECTION B. FINDINGS OF FACT

(1) The Flood hazard areas of the City of Raymondville are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, all of which adversely affect the public health, safety and general welfare.

(2) These flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazards areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, floodproofed or otherwise protected from flood damage.

SECTION C. STATEMENT OF PURPOSE

It is the purpose of this ordinance to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- (1) Protect human life and health;
- (2) Minimize expenditure of public money for costly flood control projects;
- (3) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- (4) Minimize prolonged business interruptions;
- (5) Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains;
- (6) Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas; and



(7) Insure that potential buyers are notified that property is in a flood area.

#### SECTION D. METHODS OF REDUCING FLOOD LOSSES

In order to accomplish its purposes, this ordinance uses the following methods:

(1) Restrict or prohibit uses that are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities;

(2) Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

(3) Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of flood waters;

(4) Control filling, grading, dredging and other development which may increase flood damage;

(5) Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands.

### ARTICLE 2

#### DEFINITIONS

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

**APPEAL** - means a request for a review of the Flood Plain Administrator's interpretation of any provision of this ordinance or a request for a variance.

**AREA OF SHALLOW FLOODING** - means a designated AO, AH, or VO zone on a community's Flood Insurance Rate Map (FIRM) with a one percent chance or greater annual chance of flooding to an average depth of one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

**AREA OF SPECIAL FLOOD HAZARD** - is the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. The area may be designated as Zone A on the Flood Hazard Boundary Map (FHBM). After detailed ratemaking has been completed in preparation for publication of the FIRM, Zone A usually is refined into Zones A, AE, AH, AO, A1-99, VO, V1-30, VE or V.

**BASE FLOOD** - means the flood having a one percent chance of being equalled or exceeded in any given year.

**CRITICAL FEATURE** - means an integral and readily identifiable part of a flood protection system, without which the flood protection provided by the entire system would be compromised.

**DEVELOPMENT** - means any man-made change in improved and unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations.

**ELEVATED BUILDING** - means a nonbasement building (i) built, in the case of a building in Zones A1-30, AE, A, A99, AO, AH, B, C, X, and D, to have the top of the elevated floor, or in the case of a building in Zones V1-30, VE, or V, to have the bottom of the lowest horizontal structure member of the elevated floor elevated above the ground level by means of pilings, columns (posts and

piers), or sheer walls parallel to the floor of the water and (ii) adequately anchored so as not to impair the structural integrity of the building during a flood of up to the magnitude of the base flood. In the case of Zones A1-30, AE, A, A99, AO, AH, B, C, X, D, "elevated building" also includes a building elevated by means of fill or solid foundation perimeter walls with openings sufficient to facilitate the unimpeded movement of flood waters. In the case of Zones VI-30, VE, or V, "elevated building" also includes a building otherwise meeting the definition of "elevated building", even though the lower area is enclosed by means of breakaway walls if the breakaway walls meet the standards of Section 60.3(e) (5) of the National Flood Insurance Program regulations.

**EXISTING CONSTRUCTION** - means for the purposes of determining rates, structures for which the "start of construction" commenced before the effective date of the FIRM or before January 1, 1975, for FIRMs effective before that date. "Existing construction" may also be referred to as "existing structures."

**FLOOD OR FLOODING** - means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- (1) the overflow of inland or tidal waters.
- (2) the usual and rapid accumulation or runoff of surface waters from any source.

**FLOOD INSURANCE RATE MAP (FIRM)** - means an official map of a community, on which the Federal Emergency Management Agency has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

**FLOOD INSURANCE STUDY** - is the official report provided by the Federal Emergency Management Agency. The report contains flood profiles, water surface elevation of the base flood, as well as the Flood Boundary-Floodway Map.

**FLOODPLAIN OR FLOOD-PRONE AREA** - means any land area susceptible to being inundated by water from any source (see definition of flooding).

**FLOOD PROTECTION SYSTEM** - means those physical structural works for which funds have been authorized, appropriated, and expended and which have been constructed specifically to modify flooding in order to reduce the extent of the areas within a community subject to a "special flood hazard" and the extent of the depths of associated flooding. Such a system typically includes hurricane tidal barriers, dams, reservoirs, levees or dikes. These specialized flood modifying works are those constructed in conformance with sound engineering standards.

**FUNCTIONALLY DEPENDENT USE** - means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

**HABITABLE FLOOR** - means any floor usable for the following purposes; which includes working, sleeping, eating, cooking or recreation, or a combination thereof. A floor used for storage purposes only is not a "habitable floor."

**HIGHEST ADJACENT GRADE** - means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

**LEVEE** - means a man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding.

**LEVEE SYSTEM** - means a flood protection system which consists of a levee, or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices.

**LOWEST FLOOR** - means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking or vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirement of Section 60.3 of the National Flood Insurance Program regulations.

**MANUFACTURED HOME** - means a structure transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For flood plain management purposes the term "manufactured home" also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than 180 consecutive days. For insurance purposes the term "manufactured home" does not include park trailers, travel trailers, and other similar vehicles.

**MEAN SEA LEVEL** - means for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

**NEW CONSTRUCTION** - means for flood plain management purposes, structures for which the "start of construction" commenced on or after the effective date of a flood plain management regulation adopted by a community.

**START OF CONSTRUCTION** - (for other than new construction or substantial improvements under the Coastal Barrier Resources Act (Pub. L. 97-348)), includes substantial improvement and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement, or other improvement was within 180 days of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for basement, footings, piers or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure.

**STRUCTURE** - means a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home.

**SUBSTANTIAL IMPROVEMENT** - means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure either, (1) before the improvement or repair is started, or (2) if the structure has been damaged and is being restored, before the damage occurred. For the purpose of this definition "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include either (1) any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions, or (2) any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

**VARIANCE** - is a grant of relief to a person from the requirements of this ordinance when specific enforcement would result in unnecessary hardship. A variance, therefore, permits construction or development in a manner otherwise prohibited by this ordinance. (For full requirements see Section 60.6 of the National Flood Insurance Program regulations.)

**VIOLATION** - means the failure of a structure or other development to be fully compliant with the community's flood plain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in Section 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) is presumed to be in violation until such time as that documentation is provided.

WATER SURFACE ELEVATION - means the height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929 (or other datum, where specified), of floods of various magnitudes and frequencies in the flood plains of coastal or riverine areas.

### ARTICLE 3

#### GENERAL PROVISIONS

##### SECTION A. LANDS TO WHICH THIS ORDINANCE APPLIES

The ordinance shall apply to all areas of special flood hazard with the jurisdiction of the City of Raymondville.

##### SECTION B. BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD

The areas of special flood hazard identified by the Federal Emergency Management Agency in a scientific and engineering report entitled, "The Flood Insurance Study for the City of Raymondville," dated May 5, 1981, with accompanying Flood Insurance Rate Maps and Flood Boundary-Floodway Maps (FIRM and FBFM) and any revisions thereto are hereby adopted by reference and declared to be a part of this ordinance.

##### SECTION C. ESTABLISHMENT OF DEVELOPMENT PERMIT

A Development Permit shall be required to ensure conformance with the provisions of this ordinance.

##### SECTION D. COMPLIANCE

No structure or land shall hereafter be located, altered, or have its use changed without full compliance with the terms of this ordinance and other applicable regulations.

##### SECTION E. ABROGATION AND GREATER RESTRICTIONS

This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

##### SECTION F. INTERPRETATION

In the interpretation and application of this ordinance, all provisions shall be: (1) considered as minimum requirements; (2) liberally construed in favor of the governing body; and (3) deemed neither to limit nor repeal any other powers granted under State statutes.

##### SECTION G. WARNING AND DISCLAIMER OR LIABILITY

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. On rare occasions greater floods can and will occur and flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of the community or any official or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

### ARTICLE 4

#### ADMINISTRATION

##### SECTION A. DESIGNATION OF THE FLOODPLAIN ADMINISTRATOR

The Director of Public Works is hereby appointed the Floodplain Administrator to administer and implement the provisions of this ordinance and other appropriate sections of 44 CFR (National Flood Insurance Program Regulations) pertaining to flood plain management.

SECTION B. DUTIES & RESPONSIBILITIES OF THE FLOODPLAIN ADMINISTRATOR

Duties and responsibilities of the Floodplain Administrator shall include, but not be limited to, the following:

- (1) Maintain and hold open for public inspection all records pertaining to the provisions of this ordinance.
- (2) Review permit application to determine whether proposed building site will be reasonable safe from flooding.
- (3) Review, approve or deny all applications for development permits required by adoption of this ordinance.
- (4) Review permits for proposed development to assure that all necessary permits have been obtained from those Federal, State or local governmental agencies (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334) from which prior approval is required.
- (5) Where interpretation is needed as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions) the Floodplain Administrator shall make the necessary interpretation.
- (6) Notify, in riverine situations, adjacent communities and the State Coordinating Agency which is Texas Water Commission, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.
- (7) Assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained.
- (8) When base flood elevation data has not been provided in accordance with Article 3, Section B, the Floodplain Administrator shall obtain, review and reasonably utilize any base flood elevation data and floodway data available from a Federal, State or other source, in order to administer the provisions of Article 5.
- (9) When a regulatory floodway has not been designated, the Floodplain Administrator must require that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

SECTION C. PERMIT PROCEDURES

- (1) Application for a Development Permit shall be presented to the Floodplain Administrator on forms furnished by him/her and may include, but not be limited to, plans in duplicate drawn to scale showing the location, dimensions, and elevation of proposed landscape alterations, existing and proposed structures, and the location of the foregoing in relation to areas of special flood hazard. Additionally, the following information is required:
  - a. Elevation (in relation to mean sea level), of the lowest floor (including basement) of all new and substantially improved structures;
  - b. Elevation in relation to mean sea level to which any nonresidential structure shall be floodproofed;
  - c. A certificate from a registered professional engineer or architect that the nonresidential floodproofed structure shall meet the floodproofing criteria of Article 5, Section B(2);
  - d. Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development.

e. Maintain a record of all such information in accordance with Article 4, Section (B)(1).

(2) Approval or denial of a development permit by the Floodplain Administrator shall be based on all of the provisions of this ordinance and the following relevant factors;

- a. The danger to life and property due to flooding or erosion damage;
- b. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
- c. The danger that materials may be swept onto other lands to the injury of others;
- d. The compatibility of the proposed use with existing and anticipated development;
- e. The safety of access to the property in times of flood for ordinary and emergency vehicles;
- f. The costs of providing governmental services during and after flood conditions including maintenance and repair of streets and bridges, and public utilities and facilities such as sewer, gas, electrical and water systems;
- g. The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site;
- h. The necessity to the facility of a waterfront location, where applicable;
- i. The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;
- j. The relationship of the proposed use to the comprehensive plan for that area.

#### SECTION D. VARIANCE PROCEDURES

(1) The Appeal Board as established by the community shall hear and render judgment on requests for variances from the requirements of this ordinance. The Board of Commissioners shall be and constitute said Appeal Board.

(2) The Appeal Board shall hear and render judgment on an appeal only when it is alleged there is an error in any requirement, decision, or determination made by the Floodplain Administrator in the enforcement or administration of this ordinance.

(3) Any person or persons aggrieved by the decision of the Appeal Board may appeal such decision in the courts of competent jurisdiction.

(4) The Floodplain Administrator shall maintain a record of all actions involving an appeal and shall report variances to the Federal Emergency Management Agency upon request.

(5) Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in the remainder of this ordinance.

(6) Variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing the relevant factors in Section C(2) of this Article have been fully considered. As the lot size increases beyond the one-half acre, the technical justification required for issuing the variance increases.

(7) Upon consideration of the factors noted above and the intent of this ordinance, the Appeal Board may attach such conditions to the granting of variances as it deems necessary to further the purpose and objectives of this ordinance (Article a, Section C).

(8) Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

(9) Prerequisites for granting variances:

a. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

b. Variances shall only be issued upon, (i) showing a good and sufficient cause; (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant, and (iii) a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

c. Any application to whom a variance is granted shall be given written notice that the structure will be permitted to be built with the lowest floor elevation below the base flood elevation, and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

(10) Variances may be issued by a community for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that (i) the criteria outlined in Article 4, Section D(1)-(9) are met, and (ii) the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

## ARTICLE 5

### PROVISIONS FOR FLOOD HAZARD REDUCTION

#### SECTION A. GENERAL STANDARDS

In all areas of special flood hazards the following provisions are required for all new construction and substantial improvements;

(1) All new construction or substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;

(2) All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;

(3) All new construction or substantial improvements shall be constructed with materials resistant to flood damage;

(4) All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

(5) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;

(6) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from the systems into flood waters; and,

(7) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

SECTION B. SPECIFIC STANDARDS

In all areas of special flood hazards where base flood elevation data has been provided as set forth in (i) Article 3, Section B, (ii) Article 4, Section B(8), or (iii) Article 5, Section C(4), the following provisions are required:

(1) Residential Construction - new construction and substantial improvement of any residential structure shall have the lowest floor (including basement), elevated to or above the base flood elevation. A registered professional engineer, architect, or land surveyor shall submit a certification to the Floodplain Administrator that the standard of this subsection as proposed in Article 4, Section C(1)a., is satisfied.

(2) Nonresidential Construction - new construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor (including basement) elevated to or above the base flood level or, together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyance. A registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice as outlined in this subsection. A record of such certification which includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained by the Floodplain Administrator.

(3) Enclosures - new construction and substantial improvements, with fully enclosed areas below the lowest floor that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:

a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.

b. The bottom of all openings shall be no higher than one foot above grade.

c. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

(4) Manufactured Homes -

a. Require that all manufactured homes to be placed within Zone A, shall be installed using methods and practices which minimize flood damage. For the purpose of this requirement, manufactured homes must be elevated and anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable State and local anchoring requirements for resisting wind forces.

b. All manufactured homes shall be in compliance with Article 5, Section B(1).

c. Require that all manufactured homes to be placed or substantially improved within Zones A1-30, AH and AE on the community's FIRM be elevated on a permanent foundation such that the lowest floor of the manufactured home is at or above the base flood elevation; and be securely anchored to an adequately anchored foundation system in accordance with the provision of Section B(4) of this Article.



SECTION C. STANDARDS FOR SUBDIVISION PROPOSALS

(1) All subdivision proposals including manufactured home parks and subdivisions shall be consistent with Article 1, Sections B, C, and D of this ordinance.

(2) All proposals for the development of subdivisions including manufactured home parks and subdivisions shall meet Development Permit requirements of Article 3, Section C; Article 4, Section C; and the provisions of Article 5 of this ordinance.

(3) Base flood elevation data shall be generated for subdivision proposals and other proposed development including manufactured home parks and subdivisions which is greater than 50 lots or 5 acres, whichever is lesser, if not otherwise provided pursuant to Article 3, Section B or Article 4, Section B (8) of this ordinance.

(4) All subdivision proposals including manufactured home parks and subdivisions shall have adequate drainage provided to reduce exposure to flood hazards.

(5) All subdivision proposals including manufactured home parks and subdivisions shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize or eliminate flood damage.

SECTION D. STANDARDS FOR AREAS OF SHALLOW FLOODING (AO/AH ZONES)

Located within the areas of special flood hazard established in Article 3, Section B, are areas designated as shallow flooding. These areas have special flood hazards associated with base flood depths of 1 to 3 feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow; therefore, the following provisions apply;

(1) All new construction and substantial improvements of residential structures have the lowest floor (including basement) elevated above the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least two feet if no depth number is specified).

(2) All new construction and substantial improvements of nonresidential structures;

(i) have the lowest floor (including basement) elevated above the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least two feet if no depth number is specified), or;

(ii) together with attendant utility and sanitary facilities be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads of effects of buoyancy.

(3) A registered professional engineer or architect shall submit a certification to the Floodplain Administrator that the standards of this Section, as proposed in Article 4, Section C (1)a., are satisfied.

(4) Require within Zones AH or AO adequate drainage paths around structures on slopes, to guide flood waters around and away from proposed structures.

The fact that the Federal Emergency Management Agency has informed the City of Raymondville that an ordinance must be passed before March 1, 1987, which adopts floodplain management measures which complies with revised regulations creates a public emergency and imperative public necessity requiring the waiving of the reading of the ordinance on three occasions; the requirement for reading the ordinance on three occasions has been waived and it is dispensed with, and this ordinance shall take effect after its passage on first and only reading, and be in full force and effect on and from February 24, 1987.

PASSED, APPROVED AND ADOPTED THIS THE 24TH DAY OF FEBRUARY, 1987.

  
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JOE ALEXANDRE, MAYOR

ATTEST:

  
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JOE LOPEZ, CITY SECRETARY

**PUBLIC NOTICE  
CITY OF RAYMONDVILLE**

**FLOOD HAZARD MITIGATION PLAN**

Two public workshops will be held November 1 and 2, 2004 at 6:30 p.m. at the Raymondville city Hall located at 142 S. 7th Street, Raymondville, Texas 78580 to present an overview of a planning process started by the City of Raymondville. The process will lead to a plan of action to the long-term impacts of flooding on the City and its citizens. Members of the public are encouraged to attend , especially those with property located in flood prone areas.

Attendees will be asked to help identify problem areas and offer recommendations for the City to consider. If you cannot attend one of the meetings, a questionnaire can be obtained at Raymondville City Hall or from MGM Engineering Group, LLC. Completed questionnaires can be faxed to (956) 689-0981 or mailed to 502 North Expressway 77, Harlingen, TX 78550.

The final Flood Hazard Mitigation Plan will be presented to the City Commissioners for adoption in December 2004. Questions about the plan should be directed to the City's consultant, Cesar Maldonado, P.E. at 956-364-1700.

*Sign-In Sheet*  
**FEMA WORKSHOP**  
*November 1, 2004 at 6:30 p.m.*

*Name*

*Company / Address / Phone Number*

*Carlos Mondragon*

*Gilbert Ward*

*Alex J. A.*

*CESAR MALDONADO*

*Jim Murphy*

*David Wolf*

*TWDB*

*City of Fayetteville*

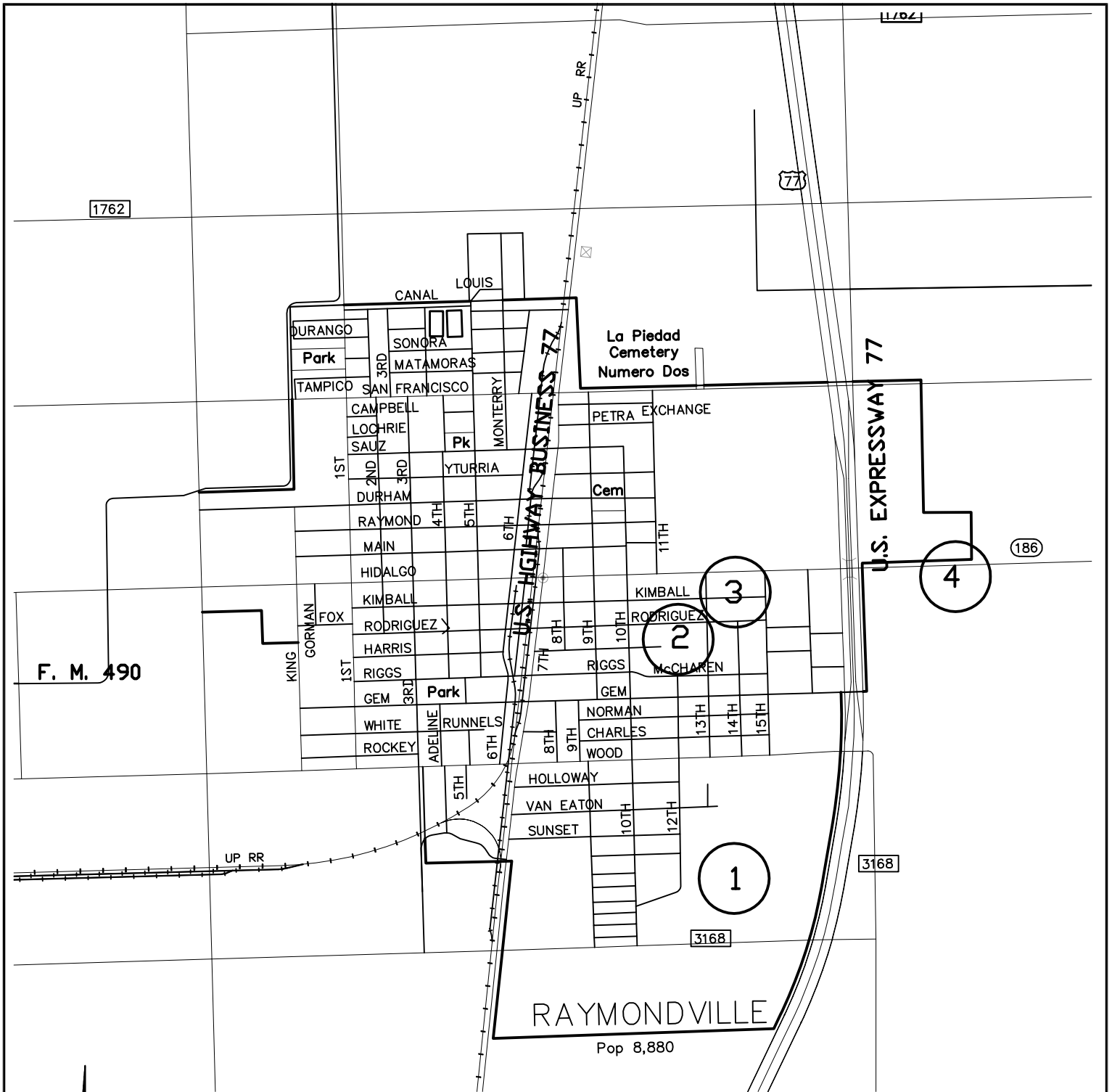
*MCM Eng. Group*

*Mayor of Fayetteville*

*MCM Engineering*

*Sign-In Sheet*  
**FEMA WORKSHOP**  
November 1, 2004 at 6:30 p.m.

<i>Name</i>	<i>2cm</i> <i>Company / Address / Phone Number</i>
CESAR MALDONADO	MGM ENG. GROUP / 956-364-1700
Carlos Mandragón	
David Wolf	MGM Engineering Group



1. RAYMONDVILLE HIGH SCHOOL
2. MYRA GREEN MIDDLE SCHOOL
3. LOW AREA ON KIMBALL STREET
4. LOW AREA ON SH 186



MGM Engineering Group, LLC  
Engineering—Surveying—Project Management

TITLE  
RAYMONDVILLE FLOOD MITIGATION PLAN  
EXHIBIT 7  
FLOOD PRONE AREAS

SCALE DATE VER SHEET

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 City, State, ZIP+4: Brownsville TX 78521

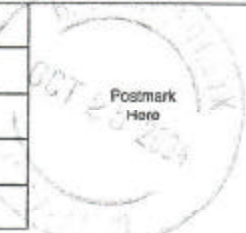
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 City, State, ZIP+4: Harlingen, Tx. 78550

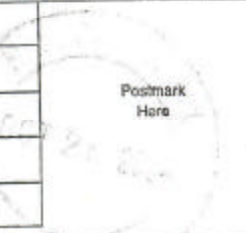
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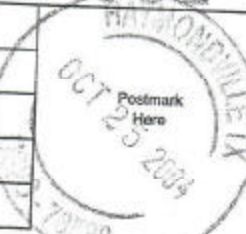
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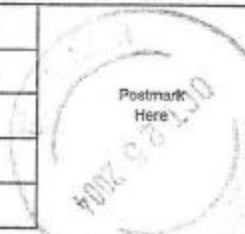
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 Street, Apt. No., or PO Box No.: 311 North 15th Street  
 City, State, ZIP+4: McAllen, Tx. 78501

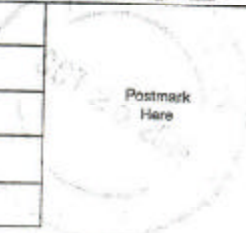
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# LEGEND

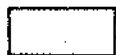


**SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD**

- ZONE A** No base flood elevations determined.
- ZONE AE** Base flood elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- ZONE A0** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

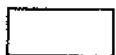


**FLOODWAY AREAS IN ZONE AE**



**OTHER FLOOD AREAS**

- ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.



**OTHER AREAS**

- ZONE X** Areas determined to be outside 500-year flood plain.
- ZONE D** Areas in which flood hazards are undetermined.



Flood Boundary



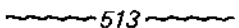
Floodway Boundary



Zone D Boundary



Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.



Base Flood Elevation Line; Elevation in Feet\*



Cross Section Line

(EL 987)

Base Flood Elevation in Feet Where Uniform Within Zone\*  
Elevation Reference Mark.

RM 7<sub>x</sub>



APPROXIMATE SCALE

800 0 800 FEET

NATIONAL FLOOD INSURANCE PROGRAM

## FIRM FLOOD INSURANCE RATE MAP and STREET INDEX

CITY OF  
**RAYMONDVILLE,  
TEXAS**  
WILLACY COUNTY

ONLY PANEL PRINTED

COMMUNITY-PANEL NUMBER

480666 0005 D

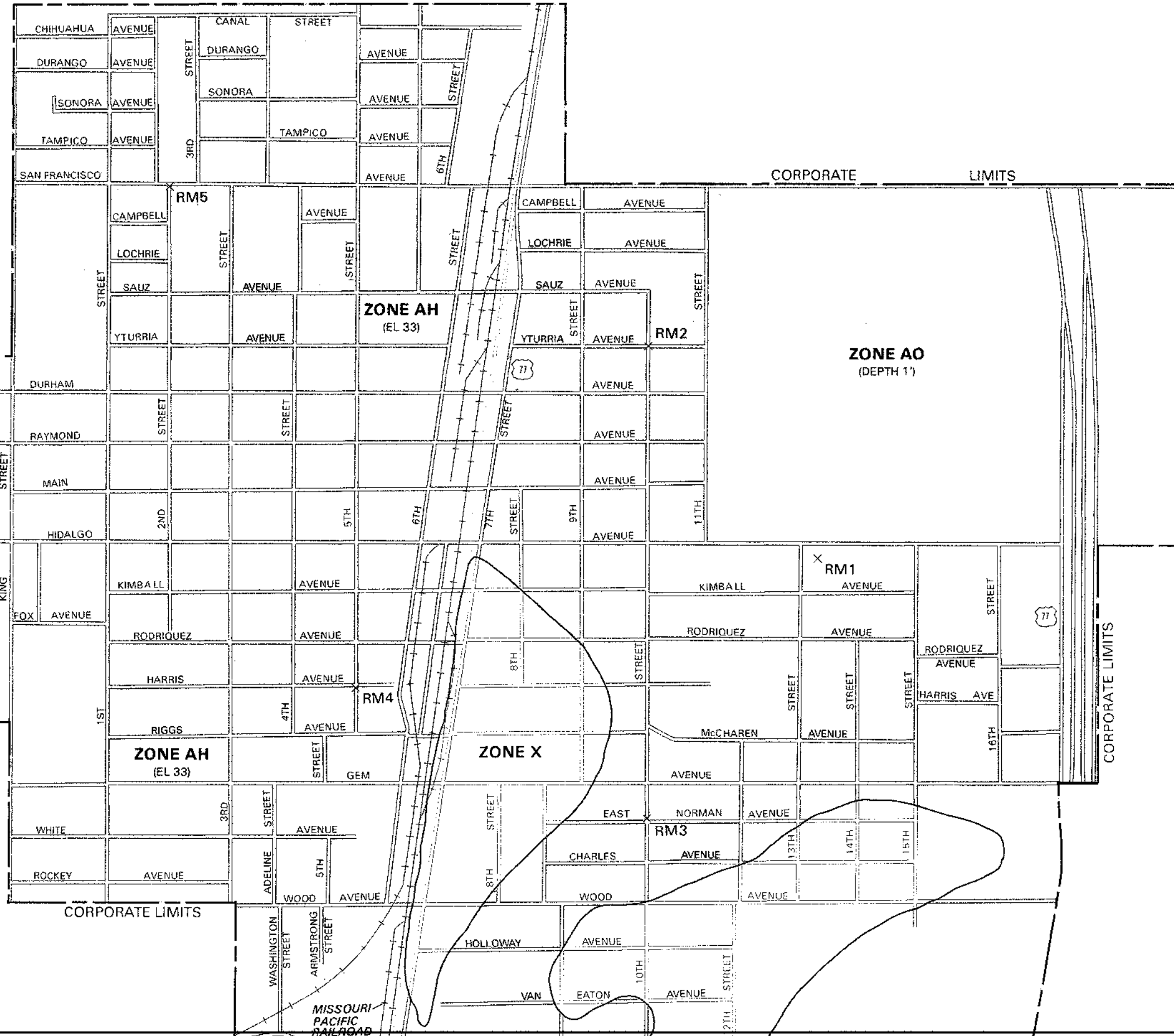
MAP REVISED:

JANUARY 5, 1989



Federal Emergency Management Agency

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APPROXIMATE SCALE



NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
**and**  
**STREET INDEX**

CITY OF  
**RAYMONDVILLE,**  
**TEXAS**  
 WILLACY COUNTY

ONLY PANEL PRINTED

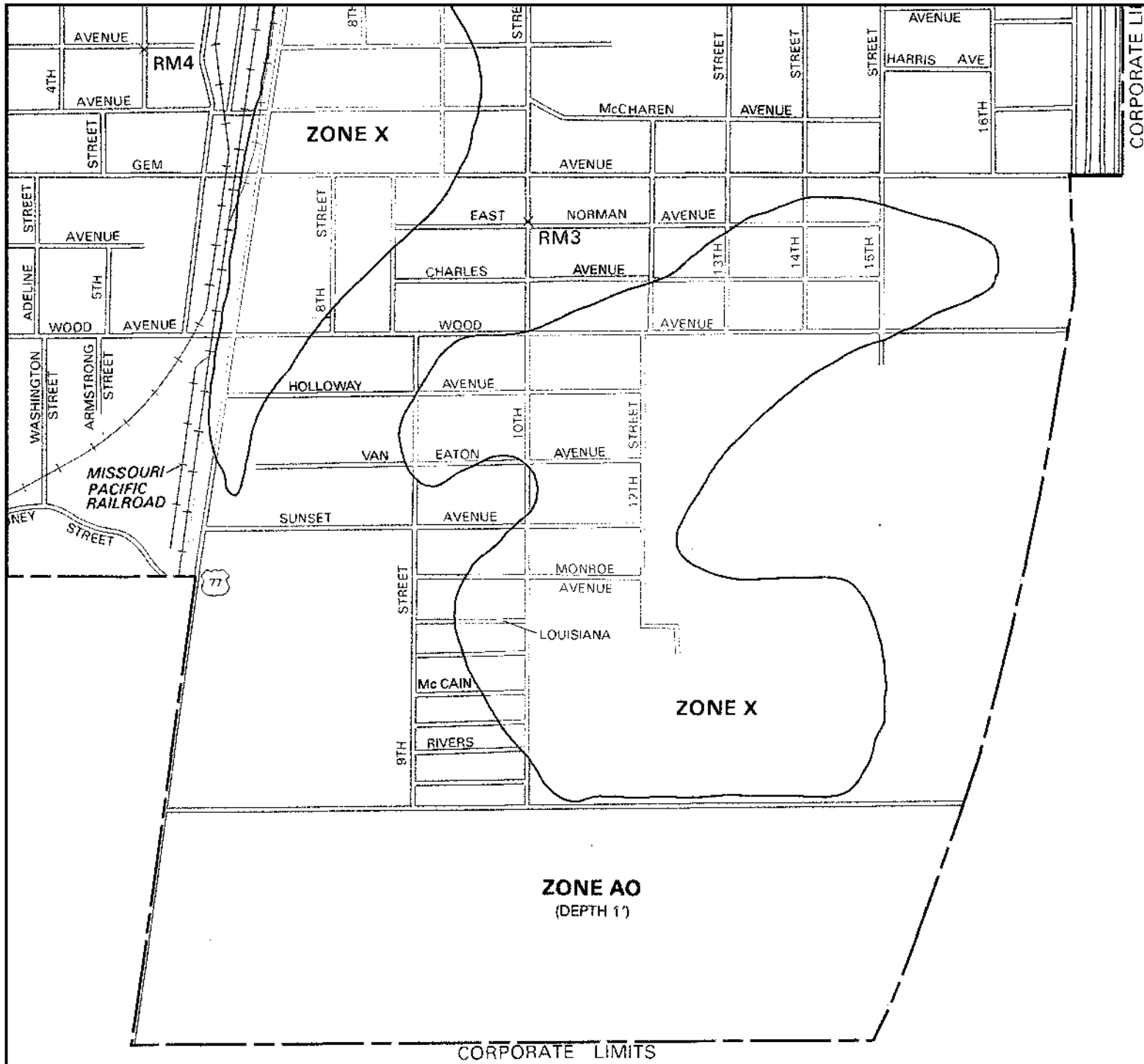
**COMMUNITY-PANEL NUMBER**  
 480666 0005 D

**MAP REVISED:**  
 JANUARY 5, 1989



Federal Emergency Management Agency

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# FLOOD PRONE STREET INDEX

## NOTE TO USER

This index provides a list of all streets shown on the Flood Insurance Rate Map (FIRM) that are partially or totally within Special Flood Hazard Areas (SFHAs). This index should not be used as an authoritative source for determining whether specific streets, properties, or buildings are within an SFHA. This index is intended to be used only as a guide for determining the relative location of the street in question on the FIRM panel.

## KEY

BAKER STREET ..... (A2)  
 street name ..... grid location

## NAMED STREETS

- ADELIN E STREET ..... (B4)
- ARMSTRONG STREET ..... (B4)
- CAMPBELL AVENUE ..... (B3)
- CANAL STREET ..... (B2)
- CHARLES AVENUE ..... (C4)
- CHIHUAHUA AVENUE ..... (A2)
- CUN EY STR E T ..... (B5)
- DURANGO AVENUE ..... (A2)
- DURHAM AVENUE ..... (A3)
- EAST NORMAN AVENUE ..... (C4)
- FOX AVENUE ..... (A4)
- GEM AVENUE ..... (B4)
- HARRIS AVENUE ..... (B4)
- HIDALGO AVENUE ..... (A4)
- HOLLOWAY AVENUE ..... (C4)
- KIMBALL AVENUE ..... (B4)
- KING STREET ..... (A4)
- LOCHRIF AVENUE ..... (B3)
- LOUISIANA ..... (C5)
- MAIN AVENUE ..... (A3)
- Mc CAIN ..... (C5)
- Mc CHAREN AVENUE ..... (C4)
- MONROE AVENUE ..... (C5)
- RAYMOND AVENUE ..... (A3)
- RIGGS AVENUE ..... (B4)
- RIVERS ..... (C5)
- ROCKEY AVENUE ..... (A4)
- RODRIGUEZ AVENUE ..... (B4)
- SAN FRANCISCO AVENUE ..... (A3)
- SAUZ AVENUE ..... (B3)
- SONORA AVENUE ..... (B3)
- SUNSET AVENUE ..... (C5)
- TAMPICO AVENUE ..... (A3)
- U S ROUTE 77 ..... (C3)
- VAN EATON AVENUE ..... (C5)
- WASHINGTON STREET ..... (B4)
- WHITE AVENUE ..... (A4)
- WOOD AVENUE ..... (B4)
- YTURRIA AVENUE ..... (B3)

## NUMBERED STREETS

- 1ST STREET ..... (B4)
- 2ND STREET ..... (B3)
- 3RD STREET ..... (B4)
- 4TH STREET ..... (B4)
- 5TH STREET ..... (B4)
- 6TH STREET ..... (B3)
- 7TH STREET ..... (C3)
- 8TH STREET ..... (C4)
- 9TH STREET ..... (C5)



APPROXIMATE SCALE



## NATIONAL FLOOD INSURANCE PROGRAM

# FIRM FLOOD INSURANCE RATE MAP and STREET INDEX

CITY OF  
RAYMONDVILLE,  
TEXAS  
WILLACY COUNTY

ONLY PANEL PRINTED

COMMUNITY-PANEL NUMBER

480666 0005 D

MAP REVISED:

JANUARY 5, 1989



Federal Emergency Management Agency

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Home

**GALVESTON DISTRICT**

## Planning & Environmental Branch

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### Lower Rio Grande Basin, Texas Flood Control and Major Drainage, Raymondville Drain Project

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#### Documents:

- | [Intent to Prepare a Draft Supplemental Environmental Impact Statement for the Lower Rio Grand Basin, Texas, Flood Control and Major Drainage, Raymondville Drain Project](#)
- | [Notice of Studies and Initial Public Scoping Meeting for the Lower Rio Grande Basin, Texas Flood Control and Major Drainage, Raymondville Drain Project General Reevaluation Study and Supplemental Environmental Impact Statement](#)

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#### [Standard Disclaimers](#)

The POC for this page is:

Rick Medina, CESWG-PE-P

[Richard.Medina@swg02.usace.army.mil](mailto:Richard.Medina@swg02.usace.army.mil)

P.O. Box 1229

Galveston, TX 77553-1229

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Updated: August 16, 2004

**BILLING CODE: 3710-52**

**DEPARTMENT OF DEFENSE**

**Department of the Army; Corps of Engineers**

**Intent to Prepare a Draft Supplemental Environmental Impact Statement for the Lower Rio Grand Basin, Texas, Flood Control and Major Drainage, Raymondville Drain Project**

**AGENCY:** Department of the Army, U.S. Army Corps of Engineers, DOD.

**ACTION:** Notice of intent.

**SUMMARY:** The Raymondville Drain Project is part of the Lower Rio Grande Basin Project which was authorized by Section 401 of the Water Resources and Development Act of 1986 (Pub. L. 99-962). The proposed Draft Supplemental Environmental Impact Statement (DSEIS) will evaluate alternatives in the Raymondville Drain Project watershed to identify the most acceptable alternative to reduce and control flooding in Willacy and Hidalgo Counties, Texas. Alternatives are intended to provide flood protection and drainage to a watershed area of approximately 322 square miles including the City of Raymondville and surrounding rural and agricultural areas of Hidalgo and Willacy Counties. The local sponsor for the project is Hidalgo County Drainage District No. 1.

**FOR FURTHER INFORMATION:** Questions about the proposed action and DSEIS can be answered by: Ms Kristy Morten, Environmental Lead, P.O. Box 1229, Galveston, TX 77553-1229; fax: (409) 766-3064; email: kristy.l.morten@usace.army.mil.

## **SUPPLEMENTAL INFORMATION:**

*1. Proposed Action.* The DSEIS will be an integral part of a General Reevaluation Report (GRR) that will present the results of a new plan to provide flood control and agricultural drainage improvements to the City of Raymondville and Willacy and Hidalgo Counties, as authorized by the Water Resources Development Act of 1986 (WRDA 86). The Raymondville Drain is one of three elements of the authorized Lower Rio Grande Basin Project. The Phase 1 General Design Memorandum (GDM) and Programmatic EIS were completed in August 1982 and approved in the September 1982.

A Limited Reevaluation Report (LRR) completed in 1997 concluded that the Federal project for flood control and major drainage at Raymondville was still economically and environmentally feasible. However, Willacy County, the local sponsor, could not support the project because of financial reasons. Hidalgo and Willacy Counties have again expressed an interest in pursuing a flood control project under this authorization. Given the last LRR completion nearly 7 years ago, a GRR and SEIS will be completed by the Corps of Engineers in partnership with Hidalgo County Drainage District #1 as the Lead Sponsor to assure that the project recommended will be safe, functional, economically justified, and environmentally acceptable and that the requirements of the National Environmental Policy Act (NEPA) have been met.

*2. Alternatives.* The alternatives that will be evaluated in the GRR and SEIS include: (1) Non-structural measures that would include acquisition and removal, flood proofing, or raising of existing structures; (2) Channelization along the Raymondville

Drain; (3) Earthen levees of various heights and lengths; (4) Combinations of the above measures; and (5) No action.


3. *Scoping.* The scoping process will involve Federal, State, and local agencies and other interested persons and organizations. A series of scoping meetings and workshops will be conducted in Hidalgo and Willacy Counties, Texas to discuss various issues associated with proposed flood protection and drainage measures. Initial Public Scoping Meetings will be held July 21, 2004 at the UTPA Center for Border Economic Study (IT2 Building) in Edinburg, TX from 7:00pm - 8:30pm and July 22, 2004 at the Raymondville Public Library in Raymondville, TX from 7:00pm - 8:30pm.

If you cannot attend the public meetings and have information or questions concerning the study, written comments will be accepted for 30 days following the meetings or until August 22, 2004.

4. *Coordination.* Further coordination with environmental agencies will be conducted under the NEPA, the Fish and Wildlife Coordination Act, the Endangered Species Act, the Clean Water Act, the National Historic Preservation Act, the Magnuson-Stevens Fishery Conservation and Management Act (Essential Fish Habitat), Farmland Protection Policy Act and the Coastal Zone Management Act under the Texas Coastal Management Program.

5. *DSEIS Preparation.* It is estimated that the DEIS will be available to the public for review and comment in November 2007.

Carolyn E. Murphy  
Chief, Environmental Section


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## Query Results

**0 PRECIPITATION** event(s) were reported in **Willacy County, Texas** between **01/01/1950** and **06/30/2004**.

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## Query Results

**10 FLOOD** event(s) were reported in **Willacy County, Texas** between **01/01/1950** and **06/30/2004**.

**Mag:** Magnitude  
**Dth:** Deaths  
**Inj:** Injuries  
**PrD:** Property Damage  
**CrD:** Crop Damage

Click on *Location or County* to display Details.

### Texas

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 <a href="#">Santa Monica</a>	04/04/1995	1930	Thunderstorm Winds/ Flood	N/A	0	0	10K	0
2 <a href="#">Countywide</a>	04/04/1995	2030	Thunderstorm Winds/ Flood	N/A	0	0	10K	30K
3 <a href="#">Countywide</a>	10/05/1996	02:00 AM	Flash Flood	N/A	0	0	0	0
4 <a href="#">TXZ254&gt;255 - 255</a>	10/11/1997	03:30 PM	Flood	N/A	0	0	42K	0
5 <a href="#">La Sara</a>	10/13/1998	07:30 AM	Flash Flood	N/A	0	0	0	0
6 <a href="#">La Sara</a>	09/09/2001	06:00 PM	Flash Flood	N/A	0	0	0	0
7 <a href="#">Raymondville</a>	09/19/2002	11:00 PM	Flash Flood	N/A	0	0	0	0
8 <a href="#">San Perlita</a>	11/02/2002	07:00 AM	Flood	N/A	0	0	0	0
9 <a href="#">TXZ253&gt;255</a>	09/19/2003	06:00 PM	Flood	N/A	0	0	1.9M	0
10 <a href="#">TXZ249&gt;250 - 252&gt;255</a>	10/13/2003	09:00 AM	Flood	N/A	0	0	21.9M	0
TOTALS:					0	0	23.842M	30K


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## Event Record Details

Event: **Thunderstorm Winds/ Flood** State: **Texas**  
Begin Date: **04 Apr 1995, 1930 CDT** [Map of Counties](#)  
Begin Location: **Santa Monica** County: **Willacy**  
End Location: **Not Known**  
Magnitude: **0**  
Fatalities: **0**  
Injuries: **0**  
Property **\$ 10.0K**  
Damage:  
Crop Damage: **\$ 0.0**

### Description:

**Widespread wind and hail (0.50) damage to crops countywide with numerous roads and streets flooded. Rainfall totals of two to six inches were reported. Near Santa Monica, power poles were blown down, palm trees were topped, a barn was destroyed, and several autos were washed into a ditch.**

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## Event Record Details

Event: **Thunderstorm Winds/ Flood** State: **Texas**  
Begin Date: **04 Apr 1995, 2030 CDT** [Map of Counties](#)  
Begin Location: **Countywide** County: **Willacy**  
End Location: **Not Known**  
Magnitude: **0**  
Fatalities: **0**  
Injuries: **0**  
Property **\$ 10.0K**  
Damage:  
Crop Damage: **\$ 30.0K**

### Description:

**Widespread wind and hail (0.50) damage to crops countywide with numerous roads and streets flooded. Rainfall totals of two to six inches were reported. Near Santa Monica, power poles were blown down, palm trees were topped, a barn was destroyed, and several autos were washed into a ditch.**

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## Event Record Details

Event: **Flash Flood** State: **Texas**  
Begin Date: **05 Oct 1996, 02:00:00 AM CST** [Map of Counties](#)  
Begin Location: **Countywide** County: **Willacy**  
End Date: **06 Oct 1996, 12:00:00 PM CST**  
End Location: **Countywide**  
Magnitude: **0**  
Fatalities: **0**  
Injuries: **0**  
Property \$ **0.0**  
Damage:  
Crop Damage: \$ **0.0**

### Description:

**Rain on Fringe of Tropical Storm Josephine/T.D. 10 caused totals of six inches or more causing flooding of streets and low spots.**

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## Event Record Details

Event: <b>Flood</b>	State: <b>Texas</b>
Begin Date: <b>11 Oct 1997, 03:30:00 PM CST</b>	<a href="#">Map of Counties</a>
Begin Location: <b>Not Known</b>	Forecast Zones affected: <b>Cameron, Cameron, Willacy</b>
End Date: <b>13 Oct 1997, 06:00:00 PM CST</b>	
End Location: <b>Not Known</b>	
Magnitude: <b>0</b>	
Fatalities: <b>0</b>	
Injuries: <b>0</b>	
Property Damage: <b>\$ 42.4K</b>	
Crop Damage: <b>\$ 0.0</b>	

### Description:

**Extensive flooding in Brownsville, San Beinito, and Los Fresnos in Cameron County.  
Flooding confined to Raymondville, San Perlito, and Santa Monica in Willacy County.**

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## Event Record Details

Event: <b>Flash Flood</b>	State: <b>Texas</b>
Begin Date: <b>13 Oct 1998, 07:30:00 AM CST</b>	<a href="#">Map of Counties</a>
Begin Location: <b>La Sara</b>	County: <b>Willacy</b>
End Date: <b>13 Oct 1998, 09:30:00 AM CST</b>	
End Location: <b>La Sara</b>	
Magnitude: <b>0</b>	
Fatalities: <b>0</b>	
Injuries: <b>0</b>	
Property Damage: <b>\$ 0.0</b>	
Crop Damage: <b>\$ 0.0</b>	

### Description:

**Highway 1015 closed due to high water.**

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## Event Record Details

Event: <b>Flash Flood</b>	State: <b>Texas</b>
Begin Date: <b>09 Sep 2001, 06:00:00 PM CST</b>	<a href="#">Map of Counties</a>
Begin Location: <b>La Sara</b>	County: <b>Willacy</b>
End Date: <b>09 Sep 2001, 07:00:00 PM CST</b>	
End Location: <b>La Sara</b>	
Magnitude: <b>0</b>	
Fatalities: <b>0</b>	
Injuries: <b>0</b>	
Property Damage: <b>\$ 0.0</b>	
Crop Damage: <b>\$ 0.0</b>	

### Description:

**The Willacy County Sheriff's Department reported widespread flooding in the town of La Sara. High water was also reported to be covering portions of FM 490, FM 1015, and FM 88, as well as State Highway 186.**

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## Event Record Details

Event: <b>Flash Flood</b>	State: <b>Texas</b>
Begin Date: <b>19 Sep 2002, 11:00:00 PM CST</b>	<a href="#">Map of Counties</a>
Begin Location: <b>Raymondville</b>	County: <b>Willacy</b>
End Date: <b>20 Sep 2002, 01:00:00 AM CST</b>	
End Location: <b>Raymondville</b>	
Magnitude: <b>0</b>	
Fatalities: <b>0</b>	
Injuries: <b>0</b>	
Property Damage: <b>\$ 0.0</b>	
Crop Damage: <b>\$ 0.0</b>	

### Description:

**Intense thunderstorms produced flash flooding of homes and city streets in Raymondville. Portions of Highway 186 near Raymondville were also closed due to floodwaters.**

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## Event Record Details

Event: <b>Flood</b>	State: <b>Texas</b>
Begin Date: <b>02 Nov 2002, 07:00:00 AM CST</b>	<a href="#">Map of Counties</a>
Begin Location: <b>San Perlita</b>	County: <b>Willacy</b>
End Date: <b>09 Nov 2002, 07:00:00 AM CST</b>	
End Location: <b>San Perlita</b>	
Magnitude: <b>0</b>	
Fatalities: <b>0</b>	
Injuries: <b>0</b>	
Property Damage: <b>\$ 0.0</b>	
Crop Damage: <b>\$ 0.0</b>	

### Description:

**Heavy rains and runoff produced flash flooding and ponding of water in San Perlita. The flooding affected farmlands, homes and roads.**

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## Event Record Details

Event: <b>Flood</b>	State: <b>Texas</b>
Begin Date: <b>19 Sep 2003, 06:00:00 PM CST</b>	<a href="#">Map of Counties</a>
Begin Location: <b>Not Known</b>	Forecast Zones affected: <b>Cameron, Hidalgo, Willacy</b>
End Date: <b>30 Sep 2003, 12:00:00 PM CST</b>	
End Location: <b>Not Known</b>	
Magnitude: <b>0</b>	
Fatalities: <b>0</b>	
Injuries: <b>0</b>	
Property Damage: <b>\$ 1.9M</b>	
Crop Damage: <b>\$ 0.0</b>	

### Description:

Heavy rains were widespread across Deep South Texas during the period. Monthly rainfall totals ranged from 7 to 15 inches. Portions of Hidalgo, Willacy and Cameron counties experienced heavy rains during a 5 day period from 17th through the 21st resulting in long-lasting flooding of low-lying areas. During this period, rainfall totals averaged 5 to 9 inches over Hidalgo County, with 6 inches over Willacy County. Cameron County received 6 to 12 inches of rain, with Bayview, reporting 12.74 inches, 12.05 inches falling at Port Isabel, 9.69 falling at Los Fresnos, and 7.87 inches at Brownsville. The heavy rains caused extensive flooding of urban areas. Damage reports from Cameron county officials indicate, that approximately 467 homes were affected by flooding rains. Another 175 homes and businesses in Hidalgo and Willacy counties were also affected. The region had experienced heavy rainfall much of the previous week due to abundant tropical moisture from the Gulf of Mexico. The rainfall led to saturated soil moisture values and low flash flood guidance values. From the 19th on, heavy rainfall was caused by a slow moving tropical wave in combination with a cold front and moisture from the Gulf of Mexico. The American Red Cross opened an emergency shelter in the San Benito area of Cameron County which housed 223 people, primarily from the Green Valley acres subdivision and from areas surrounding the City of Los Fresnos. The Salvation Army provided over 3200 meals for individuals impacted by the flooding, while the Texas Baptist Men Association provided 2100 hot meals and over 1000 showers.

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## Event Record Details

Event: **Flood**  
Begin Date: **13 Oct 2003, 09:00:00 AM CST**  
Begin Location: **Not Known**  
End Date: **27 Oct 2003, 12:00:00 PM CST**  
End Location: **Not Known**  
Magnitude: **0**  
Fatalities: **0**  
Injuries: **0**  
Property **\$ 21.9M**  
Damage:  
Crop Damage: **\$ 0.0**

State: **Texas**  
[Map of Counties](#)  
Forecast **Brooks, Cameron,**  
Zones **Hidalgo, Jim Hogg,**  
affected: **Starr, Willacy**

### Description:

A strong weather disturbance combined with abundant tropical moisture across the region to produce intense rainfall across Deep South Texas during the period. The heaviest rains fell across Brooks, Jim Hogg, Starr, Hidalgo, Cameron and Willacy counties. La Joya in western Hidalgo county received over 13 inches of rain, Harlingen received 11 inches, with 10 inches falling at Mc Cook and Falfurrias. Unofficial reports of 14 inches of rain falling over southern Brooks county. The heavy rains over Starr county caused a rise of Los Olmos Creek. The creek crested at 13 feet at Rio Grande City, on Oct 14, flood stage is 10 feet. The creek quickly fell from flood stage that same afternoon. Numerous homes along Los Olmos Creek suffered water damage. The heavy rains across the rest of Deep South Texas caused flooding over mostly low lying, flood prone areas. Over 550 homes across Deep South Texas suffered minor to moderate damage due to the rising flood waters. The flooding in Brooks county resulted in the closure of U.S. Highway 281 for several days. Emergency shelters were established in Hidalgo, Brooks and Starr counties to house evacuees.

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## HAZARD PROFILE WORKSHEET

<b>HAZARD:</b> CITY OF RAYMONDVILLE (Flood)	
<b>POTENTIAL SEVERITY OF IMPACT:</b>	
Substantial	<ul style="list-style-type: none"> <li>• Multiple deaths</li> <li>• Complete shutdown of facilities for 30 days or more.</li> <li>• More than 50 percent of property destroyed or with major damage.</li> </ul>
Major ✓	<ul style="list-style-type: none"> <li>• Injuries and/or illnesses result in permanent disability.</li> <li>• Complete shutdown of critical facilities for at least 2 weeks.</li> <li>• More than 25 percent of property destroyed or with major damage.</li> </ul>
Minor	<ul style="list-style-type: none"> <li>• Injuries and/or illnesses do not result in permanent disability.</li> <li>• Complete shutdown of critical facilities for more than 1 week.</li> <li>• More than 10 percent of property destroyed or with major damage.</li> </ul>
Limited	<ul style="list-style-type: none"> <li>• Injuries and/or illnesses are treatable with first aid.</li> <li>• Minor quality of life lost.</li> <li>• Shutdown of critical facilities and services for 24 hours or less.</li> <li>• Less than 10 percent of property destroyed or with major damage.</li> </ul>
<b>FREQUENCY OF OCCURRENCE:</b>	
<input type="checkbox"/> Highly likely: Event probable in next year. <input checked="" type="checkbox"/> Likely: Event probable in next 3 years. <input type="checkbox"/> Occasional: Event possible in next 5 years. <input type="checkbox"/> Unlikely: Event possible in next 10 years.	<b>SEASONAL PATTERN:</b>
	April - October
<b>LIST SOURCE DOCUMENTS, STUDIES, MAPS, ETC, THAT IDENTIFY AREAS POTENTIALLY AFFECTED:</b>	
HISTORICAL DATA: City Hall files, FEMA, National Weather Service historical data  City area is small enough where the entire city is affected and at risk.	
<b>PROBABLE DURATION:</b> One to two weeks	
<b>WARNING TIME (Potential Speed of Onset):</b>	
<input checked="" type="checkbox"/> Minimal (or no) warning. <input type="checkbox"/> 3 to 6 hours warning. <input type="checkbox"/> 6 to 12 hours warning. <input type="checkbox"/> More than 12 hours warning.	
<b>CASCADING POTENTIAL:</b>	
<b>EXISTING WARNING SYSTEMS:</b>	
National Weather Service County Civil Defense Department Local News Stations	

## HAZARD PROFILE WORKSHEET

<b>HAZARD:</b> CITY OF RAYMONDVILLE (Hurricane)	
<b>POTENTIAL SEVERITY OF IMPACT:</b>	
Substantial	<ul style="list-style-type: none"> <li>• Multiple deaths</li> <li>• Complete shutdown of facilities for 30 days or more.</li> <li>• More than 50 percent of property destroyed or with major damage.</li> </ul>
Major ✓	<ul style="list-style-type: none"> <li>• Injuries and/or illnesses result in permanent disability.</li> <li>• Complete shutdown of critical facilities for at least 2 weeks.</li> <li>• More than 25 percent of property destroyed or with major damage.</li> </ul>
Minor	<ul style="list-style-type: none"> <li>• Injuries and/or illnesses do not result in permanent disability.</li> <li>• Complete shutdown of critical facilities for more than 1 week.</li> <li>• More than 10 percent of property destroyed or with major damage.</li> </ul>
Limited	<ul style="list-style-type: none"> <li>• Injuries and/or illnesses are treatable with first aid.</li> <li>• Minor quality of life lost.</li> <li>• Shutdown of critical facilities and services for 24 hours or less.</li> <li>• Less than 10 percent of property destroyed or with major damage.</li> </ul>
<b>FREQUENCY OF OCCURRENCE:</b>	
<input type="checkbox"/> Highly likely: Event probable in next year. <input checked="" type="checkbox"/> Likely: Event probable in next 3 years. <input type="checkbox"/> Occasional: Event possible in next 5 years. <input type="checkbox"/> Unlikely: Event possible in next 10 years.	
<b>SEASONAL PATTERN:</b>	
June-October	
<b>LIST SOURCE DOCUMENTS, STUDIES, MAPS, ETC, THAT IDENTIFY AREAS POTENTIALLY AFFECTED:</b>	
HISTORICAL DATA: City Hall files, FEMA, National Weather Service historical data  City area is small enough where the entire City is at risk.	
<b>PROBABLE DURATION:</b>	
One to two weeks of emergency conditions with additional two to four weeks of cleanup work	
<b>WARNING TIME (Potential Speed of Onset):</b>	
<input type="checkbox"/> Minimal (or no) warning. <input type="checkbox"/> 3 to 6 hours warning. <input type="checkbox"/> 6 to 12 hours warning. <input checked="" type="checkbox"/> More than 12 hours warning.	
<b>CASCADING POTENTIAL:</b>	
<b>EXISTING WARNING SYSTEMS:</b>	
National Weather Service National Hurricane Center County Civil Defense & Local News	

## Appendix 3 to Annex P

<b>NOTICE OF INTEREST AND HAZARD MITIGATION TEAM REPORT</b>
-------------------------------------------------------------

Jurisdiction: City of Raymondville County: Willacy Date: 11/1/03

1. Hazard Mitigation Coordinator/Project Officer: Address: City of Raymondville 142 S. 7th Street Raymondville, Texas 78580 Phone#: (956) 689-2443 Fax#: (956) 689-0981 E-mail: raycity@granderiver.net	
2. Impact Area:  CITYWIDE	
3. Hazard Identification:  FLOOD	
4. Incident Period:	
5. Number of Previous Events Involving this Hazard:	
6. Number of Residents at Risk from this Hazard: Citywide Population: 9,733	
7. Background and Discussion: Entire city would be affected. The entire city is in a flood zone as identified by FEMA.	
8. Hazard Mitigation Team Recommendations:  NO TEAM	
<b>Work Element # 1</b>	
Mitigation Action: Add additional lateral drain ditches in order to move water out of the City faster. Also, improve drainage structures in city.	
Lead Agency:	City of Raymondville
Estimated Cost:	\$ 2,000,000
Funding Method:	Hazard Mitigation and other grants as well as local match.
Schedule:	Approximately 5 years

HAZARD IMPACT and RISK SUMMARY

Hazard	Sector	Frequency of Occurrence	Warning Time	Potential Severity	Risk Level	Priority*
HURRICANE	CITYWIDE	<input checked="" type="checkbox"/> Highly Likely	<input type="checkbox"/> Minimal or None	<input checked="" type="checkbox"/> Substantial	<input checked="" type="checkbox"/> Very High	HIGH
		<input type="checkbox"/> Occasional	<input type="checkbox"/> 3 to 6 hours	<input type="checkbox"/> Major	<input type="checkbox"/> High	
FLOOD	CITYWIDE	<input checked="" type="checkbox"/> Highly Likely	<input checked="" type="checkbox"/> More than 12 hours	<input checked="" type="checkbox"/> Substantial	<input checked="" type="checkbox"/> Very High	HIGH
		<input type="checkbox"/> Occasional	<input type="checkbox"/> 6 to 12 hours	<input type="checkbox"/> Major	<input type="checkbox"/> High	
		<input type="checkbox"/> Unlikely	<input type="checkbox"/> More than 12 hours	<input type="checkbox"/> Limited	<input type="checkbox"/> Minimal	
		<input type="checkbox"/> Highly Likely	<input type="checkbox"/> Minimal or None	<input type="checkbox"/> Substantial	<input type="checkbox"/> Very High	
		<input type="checkbox"/> Likely	<input type="checkbox"/> 3 to 6 hours	<input type="checkbox"/> Major	<input type="checkbox"/> High	
		<input type="checkbox"/> Occasional	<input type="checkbox"/> 6 to 12 hours	<input type="checkbox"/> Minor	<input type="checkbox"/> Limited	
		<input type="checkbox"/> Unlikely	<input type="checkbox"/> More than 12 hours	<input type="checkbox"/> Limited	<input type="checkbox"/> Minimal	
		<input type="checkbox"/> Highly Likely	<input type="checkbox"/> Minimal or None	<input type="checkbox"/> Substantial	<input type="checkbox"/> Very High	
		<input type="checkbox"/> Likely	<input type="checkbox"/> 3 to 6 hours	<input type="checkbox"/> Major	<input type="checkbox"/> High	
		<input type="checkbox"/> Occasional	<input type="checkbox"/> 6 to 12 hours	<input type="checkbox"/> Minor	<input type="checkbox"/> Limited	
		<input type="checkbox"/> Unlikely	<input type="checkbox"/> More than 12 hours	<input type="checkbox"/> Limited	<input type="checkbox"/> Minimal	
		<input type="checkbox"/> Highly Likely	<input type="checkbox"/> Minimal or None	<input type="checkbox"/> Substantial	<input type="checkbox"/> Very High	
		<input type="checkbox"/> Likely	<input type="checkbox"/> 3 to 6 hours	<input type="checkbox"/> Major	<input type="checkbox"/> High	
		<input type="checkbox"/> Occasional	<input type="checkbox"/> 6 to 12 hours	<input type="checkbox"/> Minor	<input type="checkbox"/> Limited	
		<input type="checkbox"/> Unlikely	<input type="checkbox"/> More than 12 hours	<input type="checkbox"/> Limited	<input type="checkbox"/> Minimal	

\* High, Medium, Low

VULNERABILITY AND RISK ASSESSMENT WORKSHEET

11/1/03

HAZARD: Flood

SECTOR: Citywide

DATE:

Page 1 of 2

Vulnerability Group	Very High Risk People and facilities located in known risk areas (e.g. Hurricane risk area, floodway, 100-year floodplain, vulnerable zones around HAZMAT site, active fault line, etc.)	High Risk People and facilities located in areas that have previously experienced impacts from hazards and/or in areas where impacts from hazards are possible and probable (e.g. 500-year floodplain, fringe areas along waterways, inland areas beyond coast, "tornado alley", etc.)	Limited Risk People and facilities located in areas that have low frequency history of impacts from hazards and/or in areas where impact is possible but not probable.	Minimal Risk People and facilities located in areas with no history of occurrence of hazards and/or in areas where impact is not possible or probable.
<p>People Fullire City Population 9,733 Citywide Risk</p>	9,733	9,733	9,733	9,733 Citywide
<p>Housing Units 4 Trailer Parks 4 Senior Centers 3 Apartment Complexes 1,100</p>	1,100	1,100	1,100	1,100
<p>Critical Facilities No Hospitals Nursing Home 100</p>	100	100	100	100
<p>Special Facilities 4 Schools 3 Prisons/Jails 4,200</p>	4,200	4,200	4,200	4,200



	Very High Risk People and facilities located in known risk areas (i.e. Hurricane risk area, floodway, 100-year floodplain, vulnerable zones around HAZMAT site, etc.)	High Risk People and facility located in areas that have previously experienced impacts from hazards and/or in areas where impacts from hazards are possible and probable (i.e. 500+ year floodplain, fringe areas along waterways, inland areas beyond coast, "ornado alley", etc.)	Limited Risk People and facilities located in areas that have low frequency listing of impacts from hazards and/or in areas where impact is possible but not probable.	Minimal Risk People and facilities located in areas with history of occurrence of hazards and/or in areas where impact is not possible or probable.
Infrastructure and Lifelines 1 Railroad 1 Major Gas Line City Water Lines City Sewer Lines	9,733 Citywide Risk	9,733 Citywide Risk	9,733 Citywide Risk	9,733 Citywide Risk
HAZMAT Facilities 1 Gin/Coop	9,733 Citywide Risk	9,733 Citywide Risk	9,733 Citywide Risk	9,733 Citywide Risk
Commercial Facilities Downtown Area Industrial Park	1,550	1,550	1,550	1,550

VULNERABILITY AND RISK ASSESSMENT WORKSHEET

HAZARD: Hurricane

SECTOR: Citywide

DATE: 11/1/03

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Vulnerability Group	Very High Risk	High Risk	Limited Risk	Minimal Risk
<p>People and facilities located in known risk areas (e.g. Hurricane risk area, floodway, 100-year floodplain, vulnerable zones around HAZMAT site, active fault line, etc.)</p>	<p>People and facilities located in areas that have previously experienced impacts from hazards and/or in areas where impacts from hazards are possible and probable (e.g. 500-year floodplain, fringe areas along waterways, inland areas beyond coast, "tornado alley", etc.)</p>	<p>People and facilities located in areas that have low frequency history of impacts from hazards and/or in areas where impact is possible but not probable.</p>	<p>People and facilities located in areas with no history of occurrence of hazards and/or in areas where impact is not possible or probable.</p>	
<p>Entire City Population 9,733</p>	<p>9,733 Citywide Risk</p>	<p>9,733 Citywide Risk</p>	<p>9,733 Citywide Risk</p>	
<p>Housing Units 4 Trailer Parks 4 Senior Centers 3 Apartment Complexes 1,100</p>	<p>1,100</p>	<p>1,100</p>	<p>1,100</p>	
<p>Critical Facilities No Hospitals 1 Nursing Home 100</p>	<p>100</p>	<p>100</p>	<p>100</p>	
<p>Special Facilities 4 Schools 3 Parks/Jails 4,200</p>	<p>4,200</p>	<p>4,200</p>	<p>4,200</p>	

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Vulnerability Group	Very High Risk People and facilities located in known risk areas (i.e. Hurricane risk area, floodway, 100-year floodplain, vulnerable zones around HAZMAT site, etc.)	High Risk People and facility located in areas that have previously experienced impacts from hazards and/or in areas where impacts from hazards are possible and probable (i.e. 500+ year floodplain, fringe areas along waterways, inland areas beyond coast, "tornado alley", etc.)	Limited Risk People and facilities located in areas that have low frequency listing of impacts from hazards and/or in areas where impact is possible but not probable.	Minimal Risk People and facilities located in areas with history of occurrence of hazards and/or in areas where impact is not possible or probable.
Infrastructure 1 Lifelines 1 Railroad 1 Major Gas Lines City Water Lines City Sewer Lines	9,733 Citywide Risk	9,733 Citywide Risk	9,733 Citywide Risk	9,733 Citywide Risk
HAZMAT Facilities 1 Gin/Coop	9,733 Citywide Risk	9,733 Citywide Risk	9,733 Citywide Risk	9,733 Citywide Risk
Commercial Facilities 1 Downtown Area 1 Industrial Park	1,550	1,550	1,550	1,550

### Coastal Models:

TYPE	PROGRAM	DEVELOPED BY	AVAILABLE FROM	COMMENTS	PUBLIC DOMAIN <sup>1</sup>
Coastal Storm Surges	FEMA Surge (1988)	Tetra Tech, Inc.; Engineering Methods & Applications; Greenhorne & O'Mara; Camp, Dresser & McKee, Inc.	The Mod Team 3601 Eisenhower Avenue Alexandria, VA 22304	Incorporates modified NWS-23 model for hurricanes and Joint Probability Method. Reportedly more accurate for water elevations than water currents.	Yes
	Advanced Circulation Model (ADCIRC) 2DDI (2003)	Johannes Westerink, University of Notre Dame and Rick Luettich, University of North Carolina at Chapel Hill, Institute of Marine Sciences for USACE Coastal and Hydraulics Laboratory	Nick Krauss Coastal and Hydraulics Laboratory 3909 Halls Ferry Road Vicksburg, MS 39180-6199 Also can be purchased from software vendors as a component of SWM.	Finite element 2-D hydrodynamic model; the version 2DDI is vertically-integrated and solves a vertically-integrated continuity equation for water surface elevation; no storm or hurricane windfield models or statistical analysis tools are included with model, they must be acquired separately; ADCIRC performs well using Vince Cardone's planetary boundary layer model windfields; statistical analyses using ADCIRC model storm surge simulations are compatible with the USACE Empirical Simulation Technique (EST) as well as joint probability methods.	Yes for flood insurance study purposes
	ODISTIM (1975)	Coastal Consultants, Inc.	The Mod Team 3601 Eisenhower Avenue Alexandria, VA 22304	Computes wind-driven surges propagating in estuaries or rivers described by one-dimensional elements, but only for northeasters since wind direction is fixed.	Yes
	Northeaster Model (1978)	Stone & Webster Engineering Corp.	The Mod Team 3601 Eisenhower Avenue Alexandria, VA 22304	Accommodates asymmetrical geometry for extratropical storms but requires separate program to compute resultant coastal surge for winds and pressures.	Yes
	FLOW2D (1975) <sup>2</sup>	Resource Analysis, Inc.	Camp, Dresser, & McKee, Inc. Ten Cambridge Center Cambridge, MA 02142	Unsteady flood flow for estuaries and floodplains, but no direct wind effects are considered.	No
	TABS RMA2 v. 4.3 (October 1996)	U.S. Army Corps of Engineers	Coastal Engineering Research Center Department of the Army Waterways Experiment Station Corps of Engineers 3909 Halls Ferry Road Vicksburg, MS 39180-6199	Two-dimensional steady/unsteady flow model, for water levels and velocities. Computes finite element solution of the Reynolds form of the Navier-Stokes equations for turbulent flows.	Yes
	MIKE 21 HD/NHD 2002D	DHI Water and Environment	DHI Inc. 301 South State Street Newton, PA 18940	Solves the non-linear depth-averaged equations of continuity and conservation of momentum. Computes water levels and flows based on a variety of forcing functions. Can include wave-driven currents and setup. Uses a finite difference grid with dynamic nesting grid capabilities. Directly resolving small scale features such as narrow inland channels may result in a large computational costs.	No
	DYNLET	U.S. Army Corps	Coastal and Hydraulics Laboratory	One-dimensional model of	Yes

		of Engineers	Engineering Research and Development Center 3909 Halls Ferry Road Vicksburg, MS 39180-6199	dynamic behavior of tidal flow at inlets. Can be used to predict tide dominated velocities and water level fluctuations at an inlet and interior back bay system. DYNLET solves the full one-dimensional shallow water equations using an implicit finite difference solution.	
Coastal Wave Heights	WHAFIS 3.0 (1988)	Dames & Moore, revised by Greenhorne & O'Mara	The Mod Team 3601 Eisenhower Avenue Alexandria, VA 22304	Defines wave heights associated with 100-year flood in coastal areas using modern wave action treatment; incorporates 1977 NAS recommendations on basic approximations for wind speeds, wave breaking criterion, and controlling wave height.	Yes
	WHAFIS 3.0 GL (1993)	Dames & Moore, Greenhorne & O'Mara, Dewberry	The Mod Team 3601 Eisenhower Avenue Alexandria, VA 22304	Identical wave treatments as WHAFIS 3.0, but with programmed reduction of wind speeds for U.S. shorelines of the Great Lakes.	Yes
	RCPWAVE (1986)	U.S. Army Corps of Engineers	Coastal Engineering Research Center Department of the Army Waterways Experiment Station Corps of Engineers 3909 Halls Ferry Road Vicksburg, MS 39180-6199	Treats linear, monochromatic waves propagating over grid giving coastal bathymetry, providing nearshore wave heights pertinent to proper spacing between transects or to magnitudes of wave setup.	Yes
	CHAMP 1.2 (2004)	Dewberry	The Mod Team 3601 Eisenhower Avenue Alexandria, VA 22304 <a href="http://www.fema.gov/fhm/frm_soft.shtm">http://www.fema.gov/fhm/frm_soft.shtm</a>	Coastal Hazard Analysis Modeling Program (CHAMP) is a Windows-based program used for wave height analyses (enhanced WHAFIS 3.0) and provides summary tables and graphics for mapping.	Yes
	MIKE 21 Offshore Spectral Wave Model (OSW) 2002D	DHI Water and Environment	DHI Inc. 301 South State Street Newton, PA 18940	Two-dimensional dynamic wind-wave growth model. Discretizes spectrum in frequency and direction. Does not include breaking. Appropriate for providing regional wave conditions in deep and intermediate depths, providing boundary data for nearshore modeling or basic analysis.	No
	MIKE 21 Nearshore Spectral Wave Model (NSW) 2002D	DHI Water and Environment	DHI Inc. 301 South State Street Newton, PA 18940	Two-dimensional stationary model for propagation of waves into the nearshore zone (refraction, shoaling, breaking, bed friction, and wind-wave growth). Based on the conservation equation for the spectral wave action density; similar to HISWA model. Obstructions not directly resolvable in the grid, must be modeled with grid bed roughness coefficients.	No
Coastal Wave Effects	RUNUP 2.0 (1990)	Stone & Webster Engineering Corp., revised by Dewberry	The Mod Team 3601 Eisenhower Avenue Alexandria, VA 22304 <a href="http://www.fema.gov/fhm/frm_soft.shtm">http://www.fema.gov/fhm/frm_soft.shtm</a>	Executes 1978 guidance by USACE defining wave runup on shore barrier with specified approach and storm conditions; mean wave description determines mean runup	Yes

				elevation.	
GLWRM (1992)	U.S. Army Corps of Engineers	Department of the Army Detroit District, Corps of Engineers 477 Michigan Avenue Detroit, MI 48266		Developed particularly to analyze wave runup for the three types of situations most frequently encountered on U.S. shorelines of the Great Lakes: sand beach, sloping riprap revetment, and vertical wall.	Yes
ACES 1.07 (1992)	U.S. Army Corps of Engineers	Coastal Engineering Research Center Department of the Army Waterways Experiment Station Corps of Engineers 3909 Halls Ferry Road Vicksburg, MS 39180-6199		Used for restricted fetch wave growth analysis and runup on vertical structures or revetments.	Yes
CHAMP 1.12 (2004)	Dewberry	The Mod Team 3601 Eisenhower Avenue Alexandria, VA 22304 <a href="http://www.fema.gov/fhm/frm_soft.shtm">http://www.fema.gov/fhm/frm_soft.shtm</a>		CHAMP is a Windows-based program used for storm- induced erosion treatments (enhanced EROSION) and wave runup analyses (enhanced RUNUP 2.0), and provides summary tables and graphics for mapping.	Yes

## RESOLUTION

WHEREAS The City of Raymondville, Texas has experienced flood hazards that result in public safety hazards and damage to private and public property;

WHEREAS the flood mitigation planning process set forth by the State of Texas and the Federal Emergency Management Agency offers the opportunity to consider flood hazards and risks, and to indemnify mitigation to reduce future risk;

WHEREAS the State of Texas is providing flood mitigation funds to support development of the flood mitigation plan;

WHEREAS a *Flood Mitigation Plan* has been developed by the Flood Mitigation Planning Committee;

WHEREAS the *Flood Mitigation Plan* includes a prioritized list of mitigation actions including activities that, over time, will help minimize and reduce safety threats and damage to private and public property, and

WHEREAS two public meetings were held on November 1 and 2, 2004, to introduce the planning concept and to solicit questions and comment; and a public meeting was held on December 21, 2004, to present the Plan and request comments,

NOW THEREFORE BE IT RESOLVED by the commissioners of the City of Raymondville that;

1. The *Flood Mitigation Plan* is hereby adopted as an official plan of the City of Raymondville, Texas; minor revisions recommended by the Texas Division of Emergency Management and The Texas Water Development Board may be incorporated without further action.
2. The City offices identified in the Plan are hereby directed to pursue implementation of the recommended high priority activities that are assigned to their agencies.
3. Any action proposed by the Plan shall be subject to and contingent upon budget approval, if required, which shall be at the discretion of the City of Raymondville City Commission, and this resolution shall not be interpreted so as to mandate any such appropriations.
4. The City of Raymondville Floodplain Administrator and/or the City Administration are designated to coordinate with other offices and shall periodically report on the activities, accomplishments, and progress of the Plan, and shall communicate such to the Texas Division of Emergency Management and the Texas Water Development Board as required.

Introduced, read and passed by affirmation vote on this \_\_\_\_th date of \_\_\_\_\_ 2004.

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JOE ALEXANDER  
*Mayor*

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MARY GUTIERREZ  
*Commissioner*

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ORLANDO A. CORREA  
*Commissioner*

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EZIQUEL CAVAZOS  
*Commissioner*

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CLIFTON SMITH  
*Commissioner*