CITY OF EL PASO, TEXAS
AGENDA ITEM DEPARTMENT HEAD'S SUMMARY FORM

DEPARTMENT: El Paso Water Utilities Date: March 27, 2009

AGENDA DATE: March 31, 2009

CONTACT PERSON/PHONE: Edmund G. Archuleta, P. E.
President/CEO, El Paso Water Utilities

DISTRICT(S) AFFECTED: (all districts)

SUBJECT:
Discussion and action regarding the Master Stormwater Management Plan for El Paso and the Community Advisory Report as recommended and approved by the El Paso Water Utilities Public Service Board. **(All Districts)** [El Paso Water Utilities Public Service Board, Ed Archuelta, (915) 594-5501]

BACKGROUND / DISCUSSION:
El Paso Water Utilities Public Service Board is charged by the Stormwater Ordinance to bring the Master Stormwater Management Plan to the City Council for approval.

By a Resolution dated March 11, 2009, the El Paso Water Utilities Public Service Board, (PSB), approved the Master Stormwater Management Plan and directed the Chair to forward it to the City Council for their consideration and approval.

ACTION REQUESTED
Approve Master Stormwater Management Plan and adopt the Community Advisory Report with its recommendations.

PRIOR COUNCIL ACTION:
Has the Council previously considered this item or a closely related one?
N/A

AMOUNT AND SOURCE OF FUNDING: N/A

BOARD / COMMISSION ACTION:
Approved by the El Paso Water Utilities Public Service Board by Resolution dated March 11, 2009.

**********REQUIRED AUTHORIZATION**********

LEGAL: (if required)_____

FINANCE: (if required)_____

DEPARTMENT HEAD _____
(Example: if RCA is initiated by Purchasing, client department should sign also)

Information copy to appropriate Deputy City Manager

APPROVED FOR AGENDA:

CITY MANAGER: _____ **DATE:** _____

RESOLUTION

A RESOLUTION AUTHORIZING THE APPROVAL OF THE CITY OF EL PASO MASTER STORMWATER MANAGEMENT PLAN.

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WHEREAS, the City and County experienced serious flood damage during August 2006, resulting in millions of dollars worth of property value losses and damage to critical infrastructure within the City and County; and,

WHEREAS, the El Paso Water Utilities Public Service Board (EPWU-PSB), Stormwater Utility was established in accordance with the City of El Paso Ordinance No. 016668 dated June 19, 2007, with an effective start-up date of March 1, 2008; and,

WHEREAS, URS (with MC*i* as the major sub-consultant) in contract with EPWU-PSB, has developed the "City of El Paso Master Stormwater Management Plan" (SMP) for EPWU/PSB and the City of El Paso and work was begun in March of 2008; developing the SMP, URS held six technical working meetings with major stormwater stakeholders to include The City of El Paso, TxDOT, El Paso County Water Improvement District No. 1 and EPWU; there were also nine coordinating meetings with the Master Plan Advisory Committee; and,

WHEREAS, the purpose of this SMP is to identify a long-term program to improve the drainage infrastructure of El Paso in order to reduce the flood risk to the public and property; more specifically, the SMP was developed to:

- Estimate the stormwater runoff quantities;
- Evaluate major features of the existing stormwater drainage system;
- Identify components of the existing stormwater drainage system that are undersized;
- Identify areas of potential sediment and debris flow;
- Identify risks associated with the existing dams;
- Recommend major stormwater drainage system improvements; and
- Develop a general prioritization of recommended improvements for use in developing a Capital Improvement Program (CIP) based on the available funding from the stormwater fee; and

WHEREAS, the SMP was been presented to the EPWU-PSB and approved by the PSB; and

WHEREAS, in accordance with Ordinance No. 016668, the Master Stormwater Management Plan shall be approved by the City Council,

NOW, THEREFORE, BE IT RESOLVED by the PUBLIC SERVICE BOARD of the City of El Paso, El Paso Water Utilities:

Section 1. That the findings and recitations set out in the preamble to this Resolution are true and correct and are hereby adopted by the Public Service Board and made a part of this Resolution for all purposes.

Section 2. That the Public Service Board hereby accepts and approves the City of El Paso Master Stormwater Management Plan.

Section 3. The Public Service Board hereby directs the Chair to forward a copy of this Resolution to the El Paso City Council for their action.

PASSED, ADOPTED AND APPROVED at a Regular Meeting of the Public Service Board of the City of El Paso Texas, this 11th day of March, 2009, at which meeting a quorum was present, held in accordance with the provisions of V.T.C.A. Government Code, Sections 551.001 *et. seq.*

EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

Chair

ATTEST:

Secretary-Treasurer

APPROVED AS TO FORM:

Lowell M. Stokes, Assistant General Counsel

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EXECUTIVE SUMMARY

The Stormwater Master Plan (SMP) is the product of a process that began with Storm 2006 and included technical evaluations, infrastructure and operational assessments, and a great deal of soul-searching by the community as a whole as it struggled with the impact and future management of such storms. These efforts have led to much-needed improvements in infrastructure, operation and maintenance (O&M), regulation and planning. In many important ways, this document is the results of these efforts.

The main purpose of this SMP is to outline a long-term program to better understand and appropriately improve the drainage infrastructure of El Paso in order to reduce the flood risk to the public and property. More specifically, the SMP was developed to:

- Estimate the stormwater runoff quantities;
- Evaluate major features of the existing stormwater drainage system;
- Identify components of the existing stormwater drainage system that are undersized;
- Identify areas of potential sediment and debris flow;
- Identify risks associated with the existing dams;
- Recommend major stormwater drainage system improvements; and
- Develop a general prioritization of recommended improvements for use in developing a Capital Improvement Program (CIP) based on the available funding from the stormwater fee.

However, this SMP does not stand alone in the goal of reducing potential future flood challenges to the El Paso Community. Major efforts to address flood issues have been made by the City and others in the wake of Storm 2006. This plan builds on the data collection and analytical efforts made previously. The analyses, calculations, and conclusions are only as good as the data upon which they are built so additional effort has been made to enhance that information—and more will need to be done going forward.

This plan builds on the infrastructure improvements made by the City in Storm 2006. Some projects assessed and recommended as part of this effort are directly tied to these earlier, essential efforts.

This plan also works hand-in-glove with the regulatory efforts of the City to limit the adverse stormwater impacts of future development on other property. This plan is focused on key existing issues that already are major problems for the community.

The City's recently adopted Drainage Design Manual (DDM) is the primary vehicle for preventing future problems. The standards and criteria found in the DDM are minimum standards required to prevent new development from negatively impacting the flood risk

of other property owners. According to the DDM, future development of property must include mitigating measures in order to match historic flow (i.e., not increase the runoff onto other properties). This requirement of the DDM needs to be executed in order for this SMP to be successful. Therefore, a recommendation to the City is that El Paso Water Utilities (EPWU) be included in the review of planning and design phases of future developments. This recommended level of coordination will keep EPWU informed of future stormwater infrastructure and provide opportunity for compliance with the SMP and DDM. This coordination is currently being done for water and wastewater infrastructure and should be expanded to include selected stormwater infrastructure.

This study considered all parts of the City for evaluation but then focused its attention on areas where flood risk is particularly high. This process allowed the evaluation and planning efforts to focus on major threats and produced a more cost-effective and useful plan than a broader and more costly effort might have produced. The results of this analysis are 99 recommended major system improvements costing an estimated $570 million. EPWU staff separately identified another $80 million in localized drainage issues. That brings the total stormwater needs up to $650 million.

The purpose of the SMP is to identify deficiencies in the existing system, alternatives for improvements, and the recommended solutions. The CIP is a separate document from the SMP, because the CIP identifies the program of improvements specific to the budget associated with the stormwater fee. EPWU continues to look for additional funding sources for stormwater improvements listed in the SMP. Any other funding sources available in the future should use the SMP for the basis of the program of improvements.

The amount of improvements identified in the plan exceeds the available funding that can reasonably be anticipated for the near future. However, the improvements can be prioritized to get a disproportionate benefit early in the program. In the first three years, $65 million should be available from the stormwater fee to address needed projects - 10 percent (%) of the identified need. However, based on preliminary prioritization, over 50% of the flood risk identified in the SMP can be addressed or reduced with projects envisioned in the proposed Three-Year CIP. Additional benefits such as improved access to Interstate Highway 10 (IH-10) and major arterials, as well as other health and safety improvements, will also be achieved by these projects. These improvements are enhanced by subsequent projects identified in the plan.

The SMP Community Advisory Committee (CAC), established by EPWU in conjunction with this planning effort, has been an integral part of this process. They have reviewed the proposed Three-Year CIP and will recommend a final prioritization of the projects identified in this plan.

The SMP reflects a reasoned, balanced, and cost-effective approach to addressing the current flood and drainage issues faced by El Paso. It uses standards consistent with those used by other communities in Texas and the Southwest and because of these will

likely be received well by regulators, insurers, infrastructure financier, and other parties. Along with previous efforts made in the wake of Storm 2006, it can form the basis of significant reduction to flood risk, economic, transportation, and health and safety issues in the El Paso community.

Table 8-1. Project Cost Summary

Region	System	Project Number	Issue to be addressed	Description of Improvements	Total Cost
Central	Government Hills	CE1	Multiple street intersections along Government Hills Channel do not have sufficiently sized drainage inlets. Undersized inlets restrict water from entering the channel and contribute to localized flooding at the crossings.	Expand the street inlets at Altura, Hastings, Cambridge and Cumberland to allow street flow to enter the channel without flooding surrounding properties. Also, add Austin High Pond upstream from the channel to decrease the flow entering the street inlets.	$850,000
Central	Government Hills	CE2	Multiple culverts along Government Hills Channel are undersized and contribute to channel flooding in localized areas.	Enlarge culverts at Cambridge, Cumberland, Chester and Trowbridge to increase the overall capacity of the Government Hills Channel to convey the 100-year storm.	$2,060,000
Central	Government Hills	CE3	The Government Hills System consists of a 90-inch pressurized conduit that outfalls into the Rio Grande. The design capacity is 375 cfs but has been reduced to 50 cfs. The reduction in flow is a direct result of multiple tie-ins along the system which cause localized flooding along minor tie-ins.	The Government Hills System will be modified to reflect as built conditions. This will enable the system to remain pressurized from Boone Street Basin to the Rio Grande. The flow through the 90-inch conduit will increase from a current capacity of 50 cfs.	$6,672,000
Central	Cebada	CE4 Phase 1	Conveyance problems through Cebada Reservoir and Magnolia systems cause major flooding on IH-10 and on Cebada Road.	Clearing and relocating of existing utilities in Cebada Outfall Conduit (In Progress). Expansion of Magnolia Reservoir (In Progress). Construct Copia Street Pond.	$4,740,000
Central	Cebada	CE4 Phase 2	Conveyance problems through Cebada Reservoir and Magnolia systems cause major flooding on IH-10 and on Cebada Road.	Magnolia storm drains, Pump Station, and Force Main to Rio Grande.	$24,739,000
Central	Cebada	CE4 Phase 3	Conveyance problems through Cebada Reservoir and Magnolia systems cause major flooding on IH-10 and on Cebada Road.	Railroad Pond and concrete-lined channel from Cebada to RR Pond.	$7,407,000
Central	Dallas	CE5 Phase 1	The Dallas Reservoir does not properly discharge flow into the Rio Grande when river levels are high. This causes a back up and flooding occurs along the system at multiple locations.	Add a 115 cfs pump station which discharges into a new 42-inch force main running parallel to the existing eastern discharge conduit at Dallas Reservoir. Sever tie-ins of eastern discharge conduit to Line D and Cebada System and construct an extension of the line from the point where the tie-in to the Cebada system was severed. 50-year protection.	$19,290,000
Central	Dallas	CE5 Phase 2	The Dallas Reservoir does not properly discharge flow into the Rio Grande when river levels are high. This causes a back up and flooding occurs along the system at multiple locations.	Increase capacity of pump station from 115 cfs to 370 cfs.	$7,728,000
Central	Dallas	Dam 10 Upgrade	Dam No. 10, Memphis Avenue Dam - Upgrade to meet 2007 TCEQ Standards (dam not regulated per 2009 TCEQ rules).	Improve Dam No. 10 per Work Order 3, Task 4 Report by raising existing embankment, construct 4-foot wall on embankment and extend 36-inch outlet pipe.	$834,214
Central	Cebada	Dam 4 Upgrade	Dam No. 4, Memphis Avenue Dam - Upgrade to meet 2007 TCEQ Standards (dam not regulated per 2009 TCEQ rules).	Improve Dam No. 4 per Work Order 3, Task 4 Report by raising crest, and extending auxiliary spillway.	$1,049,249

Table 8-1. Project Cost Summary (Continued)

Region	System	Project Number	Issue to be addressed	Description of Improvements	Total Cost
Central	Cebada	Dam 5 Upgrade	Dam No. 5, Memphis Avenue Dam - Upgrade to meet 2007 TCEQ Standards (dam not regulated per 2009 TCEQ rules).	Improve Dam No.5 per Work Order 3, Task 4 Report by raising west embankment, construct 3-foot wall on east side and reinforce embankment.	$837,768
Central	Dallas	Dam 9 Upgrade	Dam No. 9 has CMP pipe outlet that has higher risk of failure than RCP.	Replace CMP principal spillway on Dam No. 9.	$300,000
Central	Government Hills	Pershing Dam Upgrade	Pershing Dam - Upgrade to reduce frequency of flooding through auxiliary spillway.	Improve Pershing Dam per Work Order 3, Task 4 Report by extending and raising auxiliary spillway.	$696,306
Central	Dallas	Upgrade Dam 7	Dam crest is estimated to overtop at slightly greater that 100-year flood.	Increase dam crest or improve spillway (TBD).	$500,000
Central	Government Hills	Van Buren Dam	Van Buren Dam -.Upgrade to meet 2009 TCEQ Hydraulic Safety Standards.	Improve Van Buren Dam per Work Order 3, Task 4 Report by increasing flood pool and plugging one of two outlets.	$2,516,830
East	Phelps Dodge	EA1 Phase 1	Undersized culvert crossings, street flows travel too far over flat slopes causing flooding.	Culverts: Two 8-foot by 4-foot CBCs at Edgemere Blvd./Airway Avenue, two 8-foot by 4-foot CBCs at Edgemere Blvd./Robert E. Lee Crossing; remove french drain at Railroad Crossing and connect concrete channel.	$1,215,000
East	Phelps Dodge	EA1 Phase 2	Undersized culvert crossings, street flows travel too far over flat slopes causing flooding.	Add storm drain system including 48-inch RCP, 60-inch RCP, and 8-foot by 4-foot CBC.	$6,490,000
East	Americas Ten Basin	EA10 Phase 1	Undersized crossings, unfinished earthen channels, and sediment transfer clogging culverts.	Build sediment/detention basin upstream of Paseo del Este Drive.	$4,642,000
East	Americas Ten Basin	EA10 Phase 2	Undersized crossings, unfinished earthen channels, and sediment transfer clogging culverts.	Concrete line channels below proposed sediment/detention basin and concrete line earthen channels between concrete sections.	$1,424,000
East	Phelps Dodge	EA2	Undersized culvert crossing.	Construction of sediment basin west of US 54.	$653,000
East	Phelps Dodge	EA3 Phase 1	Undersized channel and flooding problems upstream of channel.	Increase channel capacity down to retention basin.	$792,000
East	Phelps Dodge	EA3 Phase 2	Undersized channel and flooding problems upstream of channel.	Add storm drain system within streets to reduce street flooding issues.	$4,043,000
East	Phelps Dodge	EA4	Street flows travel too far over flat slopes causing flooding, street closures and damage.	Storm drain system consisting of 54-inch RCP and 66-inch RCP.	$8,999,000
East	Phelps Dodge	EA5 Phase 1	Street flows flooding at Interstate crossing.	Add to existing storm drain system to increase capacity and reduce street and commercial flooding by getting flows to Giles Basin Dam more effectively.	$9,074,000
East	Phelps Dodge	EA5 Phase 2	Street flows flooding at Interstate crossing.	Add new storm drain system to reduce street by getting flows to Giles Basin Dam more effectively.	$3,158,000
East	Lomaland Basin	EA6 Phase 1	Street flows travel too far over flat slopes causing flooding, street closures, and damage.	Storm drain system consisting of 48-inch RCP to 66-inch RCP, 7-foot by 4-foot CBC, 9-foot by 5-foot CBC, and 10-foot by 5-foot CBC to handle flows from surrounding residential areas.	$15,590,000
East	Lomaland Basin	EA6 Phase 2	Street flows travel too far over flat slopes causing flooding, street closures, and damage.	Storm drain system consisting of 66-inch RCP and 9-foot by 5-foot CBC to handle flows from surrounding residential areas.	$10,353,000

Table 8-1. Project Cost Summary (Continued)

Region	System	Project Number	Issue to be addressed	Description of Improvements	Total Cost
East	Lomaland Basin	EA6 Phase 3	Street flows travel too far over flat slopes causing flooding, street closures, and damage.	Storm drain system consisting of 60-inch RCP and 7-foot by 4-foot CBC to handle flows from surrounding residential areas.	$5,177,000
East	Lomaland Basin	EA6 Phase 4	Street flows travel too far over flat slopes causing flooding, street closures, and damage.	Storm drain system consisting of 54-inch RCP, 66-inch RCP and 7-foot by 4-foot CBC to handle flows from surrounding residential areas.	$6,197,000
East	Lomaland Basin	EA6 Phase 5	Street flows travel too far over flat slopes causing flooding, street closures, and damage.	Storm drain system consisting of 48-inch RCP and 60-inch RCP to handle flows from surrounding residential areas.	$2,717,000
East	Lomaland Basin	EA7 Phase 1	Runoff flooding streets because it does not enter Jesuit Basin effectively.	Addition of 36-inch RCP, 48-inch RCP, 60-inch RCP and 10-foot by 4-foot CBC storm drain system to capture flows from residential and commercial areas before flooding at Lee Trevino and James Watt.	$11,244,000
East	Lomaland Basin	EA7 Phase 2	Runoff flooding streets because it does not enter Jesuit Basin effectively.	Addition of 54-inch RCP and 8-foot by 5-foot CBC storm drain system to capture flows from residential and commercial areas before flooding at Kaiser Dr and Gateway West.	$6,434,000
East	Lomaland Basin	EA7 Phase 3	Runoff flooding streets because it does not enter Jesuit Basin effectively.	Addition of 36-inch RCP, 42-inch RCP and 48-inch RCP storm drain system to capture flows from residential and commercial areas before flooding at Bessemer Dr and Lee Trevino.	$4,343,000
East	Americas Basin	EA8 Phase 1	Runoff from surrounding commercial areas flooding streets because of ineffective routing to Bluff Channel.	Increase size of Bluff Channel to a 20-foot bottom width from Rojas Dr to Esther Lama Dr and upgrade crossing at Esther Lama Dr to three 10-foot by 5-foot CBCs.	$5,926,000
East	Americas Basin	EA8 Phase 2	Runoff from surrounding commercial areas flooding streets because of ineffective routing to Bluff Channel.	Addition of 24-inch RCP to 60-inch RCP storm drain system added to surrounding commercial lots and streets to prevent flooding in Zaragosa Road and George Dieter Drive, and also IH-10 George Dieter intersection.	$8,422,000
East	Americas Ten Basin	EA9 Phase 1	Undersized crossings, unfinished earthen channels, and sediment transfer clogging culverts.	Build sediment/detention basin upstream of Paseo del Este Drive	$5,769,000
East	Americas Ten Basin	EA9 Phase 2	Undersized crossings, unfinished earthen channels, and sediment transfer clogging culverts.	Concrete line channels below proposed sediment/detention basin and concrete line earthen channels between concrete sections.	$2,026,000
Mission Valley	Basin A	MV1	The pump station at Basin A does not have capacity for the 100-year storm event. Additional flow is contributed back into the Playa Drain.	Upgrade the existing pump station at Basin A by installing new pumps (525 cfs total capacity). Project proposed by CH2M HILL.	$19,076,000
Mission Valley	Mesa Drain Upstream and Downstream	MV10	Mesa Drain is significantly undersized.	Expand Mesa Drain 20 feet in width on the south side of the channel where feasible. Also, line portions of channel with concrete that cannot be expanded and line 20 feet upstream of all crossings with concrete.	$6,262,000

Table 8-1. Project Cost Summary (Continued)

Region	System	Project Number	Issue to be addressed	Description of Improvements	Total Cost
Mission Valley	Basin A	MV2 Phase 1	Basin B currently serves as detention storage for the upper portion of the Playa Drain and the neighborhoods surrounding the basin. After leaving the basin, water flows through a conduit and enters the lower portion of the Playa Drain where it contributes to the capacity problems of the drain.	Install a new pump station (165 cfs total capacity) and conduit in the portion of Basin B west of Mimosa Avenue to pump water to the Rio Grande River. Excavate and regrade the slope in Basin B so that water flows to the pump station. Install new culverts.	$10,413,000
Mission Valley	Basin A	MV2 Phase 2	Basin B currently serves as detention storage for the upper portion of the Playa Drain and the neighborhoods surrounding the basin. After leaving the basin, water flows through a conduit and enters the lower portion of the Playa Drain where it contributes to the capacity problems of the drain.	Expand pump station by installing an additional 165 cfs pump and conduit.	$6,023,000
Mission Valley	Basin G	MV3	The Middle Drain is contributing flow to the Mesa Drain Interceptor causing capacity and tailwater issues. There is need for additional storage along the Interceptor System in Mission Valley.	Excavate the City-owned Feather Lake II property and divert all flow from the Middle Drain to it via conduit. Install a small pump station at basin. Flow back into the Mesa Drain Interceptor from the basin will be controlled by automatic gates.	$10,724,000
Mission Valley	Basin G	MV4	The Franklin Drain is contributing flow to the Middle Drain Interceptor causing capacity and tailwater issues. There is a need for additional storage along the Interceptor System in Mission Valley.	Create a detention basin along the Middle Drain Interceptor and divert flow from the Franklin Drain to it via conduit. Install a small pump station at basin. Flow back into the Middle Drain Interceptor from the basin will be controlled by automatic gate	$16,203,000
Mission Valley	Basin G	MV5 Phase 1	The current configuration and capacity of Basin G is causing tailwater to significantly restrict the capacity of the major drains and Interceptor System in Mission Valley. There is a need for additional storage in Basin G.	Excavate existing Basin G area to a depth of 20 feet, replace the undersized crossings at Carl Longuemare and Southside, and re-grade the Franklin Drain Interceptor so that water will flow to the basin from both the Playa Drain and the Interceptor System.	$6,236,000
Mission Valley	Basin G	MV5 Phase 2	The current configuration and capacity of Basin G is causing tailwater to significantly restrict the capacity of the major drains and Interceptor System in Mission Valley. There is a need for additional storage in Basin G.	Upgrade the existing pump station at Basin G by installing new pumps (820 cfs capacity total) and installing new conduits to the Rio Grande River.	$27,038,000
Mission Valley	Basin A	MV6	There are flooding issues on Alameda Drive (SH20) between Paisano Drive and El Paso Drive	Install a storm drain system along the affected area of Alameda Drive that empties into Playa Drain just north of the intersection with Delta Drive.	$42,879,000
Mission Valley	Basin G	MV7	The following crossing on Playa Drain is undersized: Just Downstream of Yarbrough Drive (one 36-inch RCP).	Remove the undersized culvert and replace it with a culvert having the same capacity as the upstream cross section. The replaced culvert will not interfere with the channel width or road surface elevation.	$95,000

Table 8-1. Project Cost Summary (Continued)

Region	System	Project Number	Issue to be addressed	Description of Improvements	Total Cost
Mission Valley	Basin G	MV8	Basin C is currently serving as a detention area for water from surrounding neighborhoods. After leaving the basin, water enters the Playa Drain where it contributes to the capacity problems of the drain.	Install a new pump station (160 cfs total capacity) and conduits at Basin C to pump water from the basin to the Rio Grande River. Excavate the basin so it is three feet below the channel elevation of Playa Drain. Install new culverts under Independence Drive.	$10,741,000
Mission Valley	Mesa Drain Downstream	MV9	The elevation of the channel banks along the lower portion of Mesa Drain is preventing the top portion of the Feather Lake capacity from being utilized.	Construct a parapet wall along both sides of Mesa Drain from Le Barron Road to Feather Lake to raise the channel bank elevation.	$4,777,000
Northeast	Fort Bliss Sump	Keltner Dam Upgrade	Keltner Dam - Upgrade to meet 2007 TCEQ Standards (dam not regulated per 2009 TCEQ Standards).	Improve Keltner Dam per Work Order 3, Task 4 Report.	$719,303
Northeast	Fort Bliss Sump	NE1	The following crossings on Railroad Channel are undersized: Falcon Avenue (one 18-inch RCP) Waycross Avenue (one 12-inch RCP) Wren Drive (one 18-inch RCP) Lexington Drive (one 18-inch RCP) Crossing S. of Falcon Avenue (one 12-inch RCP)	Replacement of five crossing structures.	$922,000
Northeast	Fort Bliss Sump	NE2	The following crossing on Railroad Channel Downstream is undersized: east of Julian Drive (five 8-foot by 4-foot CBCs).	Replacement of one crossing structure.	$402,000
Northeast	Fort Bliss Sump	NE3 Phase 1	1. Tobin Drain is significantly undersized with the exception of the far downstream end. 2. Crossing capacities are well below the 10-year flow.	Expansion of channel from Alps to Hollings. Construction of new portion of Tobin Drain parallel to Hollings from Hollings to Hondo Pass. Replacement of three crossing structures.	$7,595,000
Northeast	Fort Bliss Sump	NE3 Phase 2	1. Tobin Drain is significantly undersized with the exception of the far downstream end. 2. Crossing capacities are well below the 10-year flow.	Expansion of the portion of Tobin Drain from Wren to Alps. Expansion and lining of Tobin Drain from Sanders to Wren. Replacement of two crossing structures.	$10,210,000
Northeast	Fort Bliss Sump	NE3 Phase 3	1. Tobin Drain is significantly undersized with the exception of the far downstream end. 2. Crossing capacities are well below the 10-year flow.	Expansion of Tobin Drain from Threadgill to Sanders. Replacement of one crossing structure.	$6,412,000
Northeast	Fort Bliss Sump	NE4	1. The following crossing on Range Dam Outlet Channel is undersized (<10-year): Raymond Telles Drive (one 2-foot by 2-foot CBC). 2. Downstream junction of Range Dam Outlet Channel and Tobin Drain Channel identified by EPWU as issue and thus included in cost table.	Remove and replace undersized crossing and modify downstream junction.	$1,430,000

Table 8-1. Project Cost Summary (Continued)

Region	System	Project Number	Issue to be addressed	Description of Improvements	Total Cost
Northeast	Fort Bliss Sump	NE5	1. The following crossings on Clearview Channel are undersized (<10-year): Morningside Circle (three 36-inch CMPs) and Byron Drive (three 36-inch CMPs). 2. There is a sediment problem in the upstream portion of Clearview Channel.	Replace two crossing structures and construct new sediment basin.	$1,686,000
Northeast	Fort Bliss Sump	NE6	1. Erosion along Lincoln Avenue due to flows in the downstream portion of Johnson Channel. 2. One undersized crossing was identified on Johnson Channel beneath a dead-end road in a vacant lot, but is not causing any serious problems.	Construct new retention basin.	$521,000
Northeast	Northeast Ponding	NE7 Phase 1	Northeast Channel No. 2 is significantly undersized (<10-year) with undersized crossings and serious erosion problems.	Expansion and lining of portion NE Channel 2 in progress.	$7,020,000
Northeast	Northeast Ponding	NE7 Phase 2	Northeast Channel No. 2 is significantly undersized (<10-year) with undersized crossings and serious erosion problems.	Expansion and lining of remaining channel.	$9,513,000
Northeast	Northeast Ponding	NE7 Phase 3	Northeast Channel No. 2 has high sediment loads due to large upstream deposits.	Construction of sediment basin west of US 54.	$7,933,000
Northeast	Northeast Ponding	NE7 Phase 4	Northeast Channel No. 2 is significantly undersized.	Construction of detention with Phase 2 sediment basin.	$15,416,000
Northeast	Range Dam	NE8 Phase 1	1. Flooding on Fairbanks Drive. 2. High sediment load from Castner Range.	Construction of sediment basin west of US 54. Improve US 54 culvert outlet.	$2,836,000
Northeast	Range Dam	NE8 Phase 2	Flow in Fairbanks Drive bypasses the entrance to Electric Ditch Channel resulting in downstream flooding.	Construction of cross sectional inlets.	$1,350,000
Northeast	Range Dam	NE9	Flooding and erosion issues at the intersection of Hondo Pass Avenue and Hondo Pass Drive due to flow from Northgate Diversion Channel.	Installation of pipes to convey flow to Northgate Dam.	$736,000
Northwest	West Central	Keystone Dam Upgrade	Keystone Dam - Upgrade to control existing seepage.	Stabilize downstream slope with toe-drain and berm.	$539,353
Northwest	Doniphan Ditch	NW1	This section of Doniphan Ditch is severely undersized with undersized crossings.	Increase the capacity of three culvert crossings. Increase the capacity of the channel to detain some volume making a linear "Heritage Park/Loop Trail." Grade the section north of Sunset Drive to drain to White Spur Drain.	$2,150,000
Northwest	Keystone Dam	NW10	Ridge View Channel has two undersized crossings.	Increase capacity of two box culverts.	$564,000
Northwest	Keystone Dam	NW11	Ojo De Agua Arroyo has three undersized crossings. Identified upstream sediment source.	Increase capacity of three box culverts. Construct sediment basin.	$1,947,000

Table 8-1. Project Cost Summary (Continued)

Region	System	Project Number	Issue to be addressed	Description of Improvements	Total Cost
Northwest	Montoya Drain	NW12	Northern section of Doniphan Ditch is undersized.	Increase the capacity of the channel to detain some volume making a linear "Heritage Park/Loop Trail."	$151,000
Northwest	Montoya Drain	NW13	North section of Montoya Drain has eight undersized crossings.	Increase capacity of eight culverts.	$3,814,000
Northwest	Montoya Drain	NW14	Mid section of Montoya Drain has three undersized culverts and the channel is undersized.	Increase the capacity of three culvert crossings. Increase the capacity of the channel to detain some volume making a linear "Heritage Park/Loop Trail."	$3,595,000
Northwest	Montoya Drain	NW15	Lower section of Montoya Drain has three undersized culverts and the channel is undersized. This section of the drain is in New Mexico.	Increase the capacity of three culvert crossings. Increase the capacity of the channel to detain some volume making a linear "Heritage Park/Loop Trail." Install an automatic gate at confluence with river.	$4,590,000
Northwest	Montoya Drain	NW16	East extent of White Spur Drain is undersized.	Increase channel capacity. May need a storm drain system due to limited ROW.	$758,000
Northwest	Montoya Drain	NW17	White Spur Drain has two undersized crossings.	Increase capacity of crossings.	$391,000
Northwest	Oxidation Dam	NW18	Mesa Hills Channel has known sediment/debris issues.	Purchase and enhance existing debris/sediment basin.	$521,000
Northwest	Oxidation Dam	NW19	Silver Springs Channel has identified upstream sediment source.	Construct detention basin or dam.	$4,905,000
Northwest	Doniphan Ditch	NW2	This section of Doniphan Ditch has five undersized crossings and the channel is undersized. There is a known sediment issue.	Increase the capacity of three culvert crossings and two bridges. Increase the capacity of the channel to detain some volume making a linear "Heritage Park/Loop Trail." Construct a sediment basin.	$5,192,000
Northwest	Vinton	NW21	For the upper portion of Flow Path No. 45A, the roadway serves as the channel and does not contain the flow.	Construct a diversion channel to FP 45 and a sediment/detention basin on FP 45.	$21,812,000
Northwest	Vinton	NW22	The lower portion of Flow Path No. 45A has six undersized culverts and the channel is undersized.	Increase the capacity of the two culvert crossings and the channel in the residential area only.	$809,000
Northwest	Vinton	NW23	The lower portion of Flow Path No. 45 has three undersized crossings.	Increase the capacity of three crossings.	$3,288,000
Northwest	Vinton	NW24	The mid portion of Flow Path No. No. 45 has four undersized crossings and the channel is undersized.	Increase the capacity of the four crossings and the channel.	$3,217,000
Northwest	Vinton	NW25	For the upper portion of Flow Path No. 45, the channel is undersized and there is identified upstream sediment source.	The detention/sediment basin is to be constructed as part of NW21. Increase the capacity of the channel based on the outflow from the detention basin.	$120,000
Northwest	Oxidation Dam	NW20	Spring Crest Channel has identified upstream debris and sediment sources.	There is an existing debris/sediment basin. Would need maintenance permit or easement. Is in bedrock so could be expensive to expand.	$659,000
Northwest	Doniphan Ditch	NW3	Pump station outlet pipes discharges to Keystone Dam outlet conduit.	Install conduits that discharge to Doniphan Ditch.	$232,000

Table 8-1. Project Cost Summary (Continued)

Region	System	Project Number	Issue to be addressed	Description of Improvements	Total Cost
Northwest	Flow Paths	NW4	Flow Path No. 38 has three undersized crossings.	Increase the capacity of three culvert crossings	$458,000
Northwest	Flow Paths	NW5	Flow Path No. 39A has one undersized crossing and historical blow out of berm redirecting flow.	Create sediment/detention upstream to reduce peak flow at divergence point. Concrete line 90-degree bend in channel.	$10,850,000
Northwest	Flow Paths	NW6	Flow Path No. 40 has one undersized crossing and part of channel undersized. Identified upstream sediment and debris source.	Increase culvert size and construct a debris basin.	$3,525,000
Northwest	Keystone Dam	NW7	Arroyo 4 has four undersized crossings.	Construct detention basin at El Puente, increase capacity of four culvert crossings.	$3,027,000
Northwest	Keystone Dam	NW8	Arroyo 5 has one undersized crossing.	Increase capacity of one long culvert.	$1,900,000
Northwest	Keystone Dam	NW9	High Ridge Channel has two undersized crossings.	Increase capacity of two box culverts.	$1,409,000
West Central	West Central	WC1	Canterbury Channel has an identified upstream debris source.	Construct a debris basin.	$375,000
West Central	West Central	WC2	Flow Path No. 20 has identified upstream debris sources. There are two undersized culverts.	Construct two debris/detention basins.	$4,379,000
West Central	West Central	WC3	The lower portion of Flow Path No. 20 has an undersized culvert and channel.	Increase capacity of channel and crossing.	$2,923,000
West Central	West Central	WC4	Flow Path No. 21 has one undersized crossing.	Increase the capacity of the Mesa Street crossing. The other crossing is a low water crossing.	$7,246,000
West Central	West Central	WC5	The lower portion of Flow Path No. 21 has an undersized culvert and channel.	Increase crossing and channel capacity.	$2,907,000
West Central	West Central	WC6	For the upper portion of Flow Path No. 23, the channel and six culverts are undersized. There is an identified upstream sediment source.	Increase the capacity of two CBC culverts. Construct one low water crossing. Construct a storm drain system to bypass the undersized portion of the channel and three culverts.	$20,925,000
West Central	West Central	WC7	The lower portion of Flow Path No. 23 has three undersized culverts and discharges to Americas Canal.	Increase capacity of three crossings.	$1,825,000
West Central	West Central	WC8	Paragon Channel has an identified upstream debris source.	Construct a debris basin.	$687,000
		Flood Early Warning System	Some dams have elevated (but low) risk of piping failure, but high potential consequences.	Provide early warning.	$200,000

Stormwater Master Plan

El Paso City Council

March 31, 2009

Timeline

August 2006	June 2007	March 2008	Sept. 2008 - Feb. 2009	Feb. 2009	March 2009
•Stormwater system problems exposed •Stormwater Function distributed among multiple City departments •Lack of Stormwater Management Plan, adequate funding, resources and preventative maintenance	•City Council creates Stormwater Utility managed by PSB •Drainage design manual created	•PSB takes over Stormwater Utility •Master Planning of Stormwater Infrastructure begins •Budget adopted, personnel hired, equipment acquired, program begins •Customer billing starts	•Stormwater Community Advisory Committee – 9 meetings •Technical Advisory Committee meets	•Stormwater Master Plan finalized with SWCAC recommen-dations	•Stormwater Master Plan and SWCAC recommendations go to PSB and City Council •Design for year one projects begin •Construction to begin Fall 2009

Agenda

- The Need for the Plan
- Overview of the Stormwater Master Planning Process
- Components of the Stormwater Master Plan
- Community Advisory Committee
- Capital Project Locations CIP Years 1-3
- Annual Localized Flooding Mitigation
- Open Space and Park/Ponds
- Summary
- Questions

The Need for the Plan

- Storm 2006 Destruction
  - Federally-Declared Disaster August 15, 2006
  - FEMA Public Assistance Topped $8 Million
  - Federal Disaster Aid for Individuals Approached $12 Million
- Storm 2006 Infrastructure Failures
  - Pump Stations (under-sized pumps, force mains)
  - Channels (concrete lining)
  - Culverts (undersized)
  - Storm Drains (undersized)
  - Dams / Ponds (erosion/outlets)

The Need for the Plan

- Causes for Infrastructure Failures
  - Insufficient Capacity / Design
  - Increased Demand on Maintenance
  - Insufficient Sediment/Debris Collection
- Lack of Dedicated Funding
  - The Desert-Effect – Drainage Not a Priority
  - Major System Upgrade Needed
  - Maintenance Needed
  - Watershed-Level Planning Needed
- City Ordinance
  - Stormwater Master Plan Completed in 1 Year

Overview of the Stormwater Master Planning Process

- 100-Year Design Storm
  - Standard Design Storm for Southwest Cities Similar to El Paso
  - A.k.a., 1% Annual Chance Storm Event
  - Definition
    - A storm event that has a 1 in 100 chance of happening in any year
    - Statistical probability based on historical rainfall measurements
  - Can occur year after year

Overview of the Stormwater Master Planning Process

- Collect Data
- Review Previous Studies
- Identify Locations for Proposed Rainfall and Flow Gages
- Rank Major Drainage Paths by Flood Risk
- Identify Systems for Improvements
- Develop Cost Curves for Likely Types of Improvements
  - Estimated Construction Costs Plus Contingencies
  - Estimate Based on Current Cost Data

Overview of the Stormwater Master Planning Process

- Develop Alternatives
  - Develop a ranked suite of alternatives for each identified problem
  - Determine "most favorable" alternative
  - Develop initial ranking of alternatives for the CIP
- Prioritize Projects
  - Flooding of Real Property
  - Flooding of IH10
  - Debris Risk
  - Flooding of Major Arterial Roadways
  - Critical emergency routes
  - Major Roadways
  - Maintenance
  - Localized Flooding
- Prioritize Need for Dam Upgrades

Overview of the Stormwater Master Planning Process

- Provide Outreach and Transparency
  - Technical Advisor Committee
    - Primarily EPWU & City
    - TXDOT
    - Irrigation District
    - IBWC
  - Community Advisory Committee
    - Input into Planning Process
    - Available for Future Consultations
  - Public Comment
  - Presentations to Local Organizations
    - 14 Completed / 14 Scheduled / More to Come
  - Reaching Beyond the City
    - Vinton
    - Socorro
    - Canutillo
    - Westway

Clogged Concrete Box Culvert

Components of the Stormwater Master Plan

- Identify Existing Systems
  - Capacity and Performance
  - Sediment and Debris Flow
- Identify Problem Areas
- Recommend Improvements
  - Approx. 100 Major Projects
  - Localized Flooding Projects
  - Open Space, Park Pond Projects

- Prioritize Projects
- Design Considerations
  - Use of Green Design Concepts
  - Incorporate Committee Community Values

Community Advisory Committee

- Created by PSB with City Council Input
- Input into Planning Process
  - Learn about stormwater management and existing infrastructure
  - Develop a list of community values
  - Review the criteria developed by the technical team in prioritizing stormwater and open space projects
  - Review the recommended priority list of projects and make recommendations
- Committee Meetings Open to the Public

Broad-Based Representation

- 30+ Members Cross-Section of Community
  - Neighborhood Associations
  - Business Community
  - Recreational Interests
  - Environmental Interests
  - School Districts and UTEP
  - Local, State and Federal Agencies

Community Values

- Safety
- Aesthetics
- Dual Use
- Natural Systems

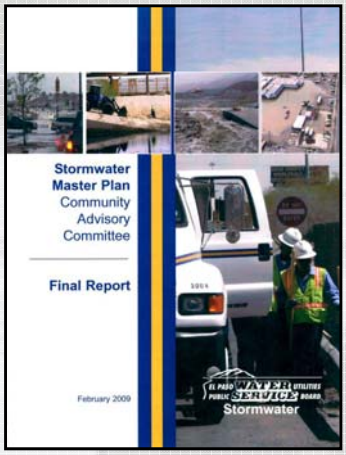
- Consider Community Values in all Designs

Committee Process

- Nine Meetings
  - Including System Tour
- Technical Support and Presentations
  - URS Project Team
  - City of El Paso
  - EPWU Staff
- Discussed Presentations, Asked Questions, Got Answers
- Recommended Better Ways to Communicate About CIP Projects

Main Recommendations

- Agreed with CIP priority list and debt financing to put flood protection in place sooner
- Cash funding for open space acquisitions and Saipan park pond
- Annual localized flooding fund: communication and cooperation with city is essential



Stormwater Management Policy Recommendations

- Drainage Design Manual should provide adequate stormwater management in future developments
- Manage stormwater consistent with community values
- Drainage Design Manual should cover county also
- Develop policy to encourage green design in CIP
- Develop BMPs for land development to mitigate runoff and maximize natural drainage features
- EPWU should be involved in reviews of proposed drainage infrastructure of future developments

Ponding Areas Recommendations

- Allow natural vegetation on slopes to provide habitat – provided this doesn't interfere with access and function of pond
- Maximize beneficial use of silt removed from ponds

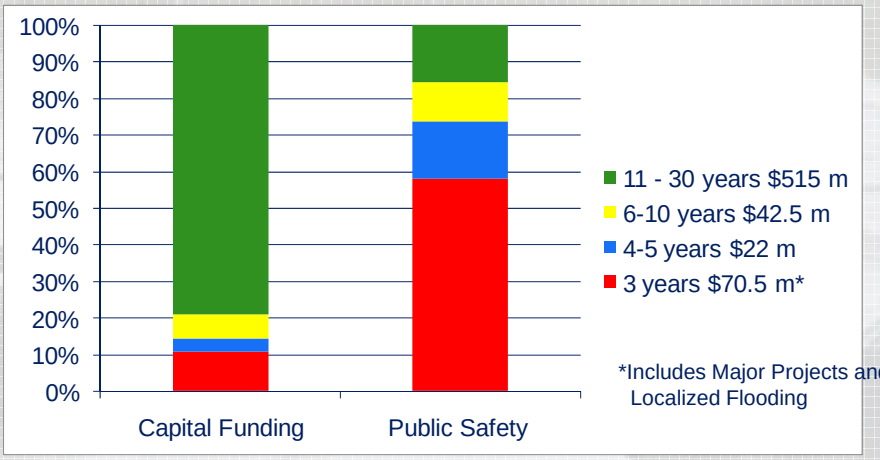
Public Information and Education Recommendations

- Encourage EPWU to update an oversight group on open space and CIP progress
- Tell residents how they can protect property
- Conduct outreach on projects both in design and construction phases
- Identify CIP projects with signage to show how fees are being used

CIP Years 1-3
Allocated Funding

CIP Year	Major Project Funds	Localized Flooding	Open Space 10% appropriation	Total Funding
FY 08-09	$0	$0	$1.7M	$1.7 M
FY 09-10	$37.5 M	$1 M	$1.5 M	$40 M
FY 10-11	$17.5 M	$1 M	$1.5 M	$20 M
FY 11-12	$12.5 M	$1 M	$1.5 M	$15 M
Total	$67.5 M 15 Projects	$3 M	$6.2 M	$76.7 M

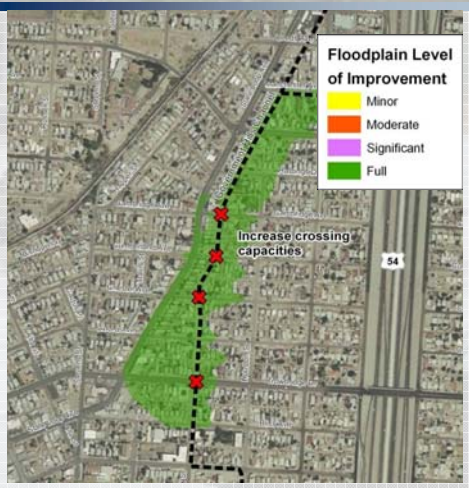
Capital Program vs. Flood Risk Improvement



Capital Project Locations
CIP Years 1-3

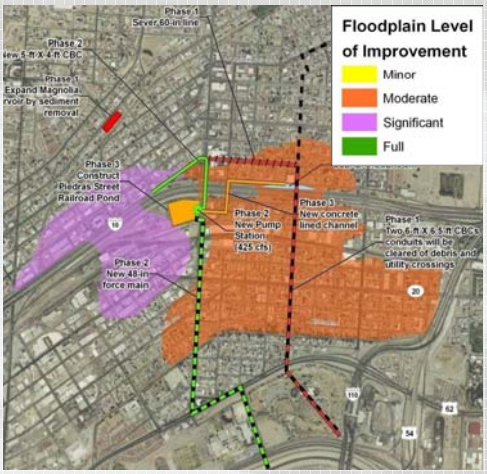
Copia/Hwy 54 (CE1&2)

- Level of Protection
  - 10 yr to 100 yr
- Total Project Cost
  - $850,000 (CE1)
  - $2,000,000 (CE2)
- Number of Properties Improved
  - 442
- Residential Value Improved
  - $14,445,000
- Commercial/Industrial Improved
  - $1,059,000
- Significant Benefits
  - Reduced arterial flooding
  - Reduced property flooding



Central/IH10 (CE4)

- Level of Protection
  - 10 yr to 20 yr (Phase 1)
  - 20 yr to 100 yr (Phase 2)
- Total Cost
  - $4,740,000 (Phase 1)
  - $24,250,000 (Phase 2)
- Number of Properties Improved
  - 1,276
- Residential Value Improved
  - $38,361,000
- Commercial/Industrial Improved
  - $89,657,000
- Significant Benefits
  - Reduced flooding on IH10
  - Reduced arterial flooding
  - Reduced property flooding

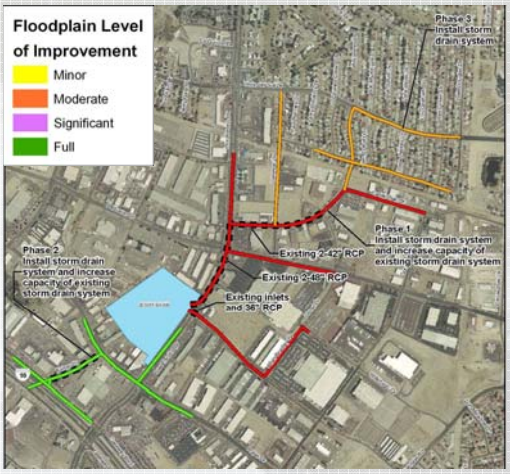


Van Buren Dam

- Level of Protection
  - Upgraded to TCEQ standards
- Total Cost
  - $2,510,000
- Number of Properties Improved
  - 368
- Residential Value Improved
  - $26,756,681
- Commercial/Industrial Improved
  - $6,074,000
- Significant Benefits
  - Upgrade Van Buren Dam to meet TCEQ standards
  - Reduce downstream flooding

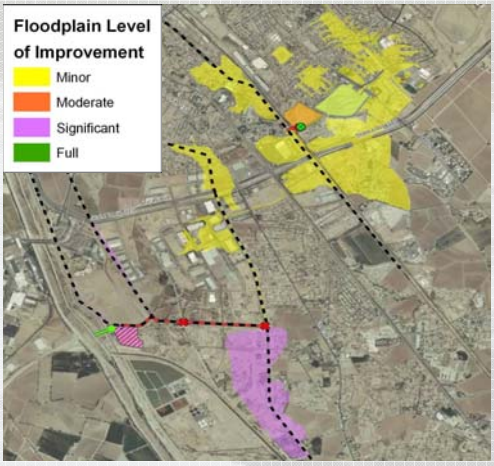
Lee Trevino

- Level of Protection
  - 2 yr to 80 yr
- Total Project Cost
  - $5,000,000 (Phase 1a)
- Number of Properties Improved
  - 0
- Residential Value Improved
  - $0
- Commercial/Industrial Improved
  - $0
- Significant Benefits
  - Reduced flooding on Lee Trevino
  - Reduced property flooding



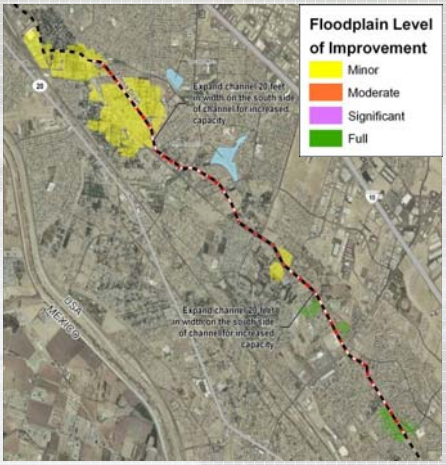
Mission Valley/Americas (MV5)

- Level of Protection
  - 10 yr to 100 yr
- Total Project Cost
  - $6,000,000
- Number of Properties Improved
  - 1,083
- Residential Value Improved
  - $64,846,000
- Commercial/Industrial Improved
  - $111,807,000
- Significant Benefits
  - Initial phase of a project to reduce flooding of large areas in Mission Valley



Mission Valley/Lomaland (MV10)

- Level of Protection
  - 10 yr to 100 yr
- Total Project Cost
  - $4,500,000 ($3,000,000 in CIP yr 1 & $1,500,000 in CIP yr 3)
- Number of Properties Improved
  - 947
- Residential Value Improved
  - $59,855,000
- Commercial/Industrial Improved
  - $39,814,000
- Significant Benefits
  - Reduce property flooding
  - Reduce arterial flooding
  - Potential for linear parks, trails



Doniphan – Mesa to Sunland (NW1)

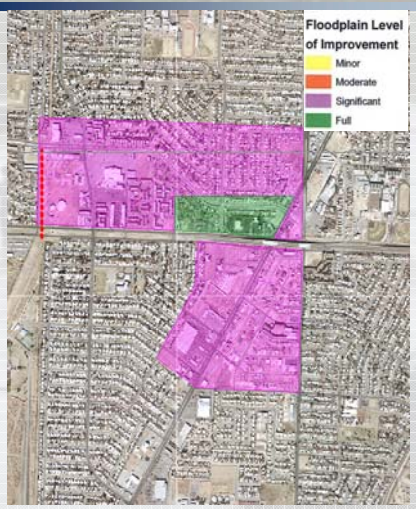
- Level of Protection
  - 2 yr to 100 yr
- Total Project Cost
  - $2,510,000
- Number of Properties Improved
  - 439
- Residential Value Improved
  - $36,489,000
- Commercial/Industrial Improved
  - $23,429,000
- Significant Benefits
  - Reduced arterial flooding
  - Reduced property flooding
  - Potential for linear park, trails

Doniphan – Sunland to Paisano (NW2)

- Level of Protection
  - 2 yr to 100 yr
- Total Project Cost
  - $5,000,000
- Number of Properties Improved
  - 33
- Residential Value Improved
  - $104,000
- Commercial/Industrial Improved
  - $7,056,000
- Significant Benefits
  - Reduced arterial flooding
  - Reduced property flooding
  - Potential for linear park, trails

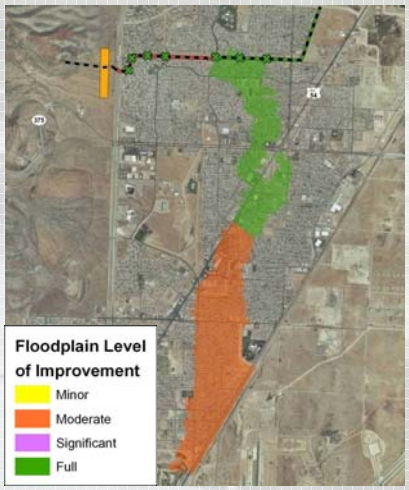
Electric Street From Fairbanks to Transmountain (Alcan Flooding)

- Level of Protection
  - 20 yr to 100 yr
- Total cost
  - $1,000,000
- Number of Properties Improved
  - 507
- Residential Value Improved
  - $89,500,000
- Commercial/Industrial Improved
  - $43,000,000
- Significant Benefits
  - Reduce arterial flooding
  - Reduce property flooding



Sun Valley to Ft. Bliss Golf Course

- Level of Protection
  - 5 yr to 100 yr
- Total Cost
  - $9,513,000
- Number of Properties Improved
  - 4,180
- Residential Value Improved
  - $316,437,000
- Commercial/Industrial Improved
  - $113,030,000
- Significant Benefits
  - Reduced arterial flooding
  - Reduced property flooding



Protection of Property CIP Years 1-3

- Total Value of Property Affected = $1.1 billion
  - Residential property = $647 million
  - Commercial property = $435 million
- Project Costs = $67.5 million

Annual Localized Flooding Mitigation

- EPWU and City have identified approximately 200 areas with localized flooding issues
- EPWU will allocate $1,000,000 annually to address these issues
- Will be addressed in coordination with other City projects to maximize impacts

Open Space and Park/Ponds

Fiscal Year	Proposed Funding
FY 2008-09	$1.7 million
FY 2009-10	$1.5 million
FY 2010-11	$1.5 million
FY 2011-12	$1.5 million
Total Available	$6.2 million

Stormwater Open Space Land

Location	Acreage
Enchanted Hills Basin	154
Cloudview Arroyo	18
Mesa Drain	105
NE Channel 2	30
Silver Springs Dam	34
Mesa Hills Channel	6
Doniphan Ditch	11
Featherlake II	23
Johnson Basin	4
Franklin Mountains	227
Westside Master Plan	619
Total	**1,249**

Enchanted Hills Basin

Cloudview Arroyo

Silver Springs

Mesa Hills

Doniphan Ditch

Franklin Mountain

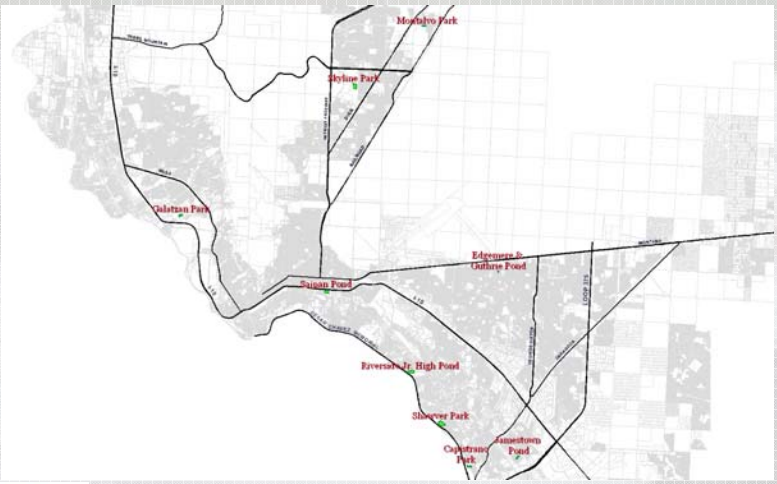
Northeast Channel

Johnson Basin

Mesa Drain

Feather Lake Expansion

Proposed Park Ponds



Potential Park Pond Projects

Park Ponds							
	Location	District	Sq. Ft.	Acres	Stormwater Utility Costs (Soil, Sod, and Shrubs @ $1/SF)	City of El Paso Costs (Irrigation @ $35K/Acre)	Total Estimated Cost
1	Saipan	3	364,000	8.36	$364,000	$292,470	$656,470
2	Shawver	7	700,000	16.07	$700,000	$562,443	$1,262,443
3	Skyline	4	595,000	13.70	$595,000	$478,076	$1,073,076
4	Galatzan/Oxidation Pond	8	233,000	5.35	$233,000	$187,213	$420,213
5	Tiger Eye @ Northeast Ph I	4	160,000	3.67	$160,000	$128,558	$288,558
6	Capistrano Ph I	6	141,300	3.24	$141,300	$113,533	$254,833
7	Edgemere and Guthrie	5	62,000	1.42	$62,000	$49,816	$111,816
8	Vocational @ Riverside Jr. High	3	575,000	13.20	$575,000	$462,006	$1,037,006
9	Jamestown	6	124,700	2.86	$124,700	$100,195	$224,895
	Subtotals		**2,955,000**	**67.87**	**$2,955,000**	**$2,374,311**	**$5,329,311**

Saipan Park/Pond Before

Saipan Park/Pond After

Galatzan Park

Skyline Park

Montalvo Park/Tiger Eye

Shawver Park

Capistrano Park

Riverside Jr. High Pond

Jamestown Pond

Edgemere & Guthrie Pond

Summary

- Dedicated Funding
  - Reducing Flood Risk
  - Increasing Public Safety
- CIP Project Selection – Biggest Bang for the Buck
  - To Reduce Flood Risk for $1.1 Billion in Property
  - Through $67.5 Million in Projects
- Open Space Funds
  - Acquire 1200 Acres of Open Space to Preserve Arroyos
  - Help City Convert up to 9 Ponds for Recreational Use (e.g., Soccer Fields)
- $1 Million Annual Dedicated To Addressing Localized Flooding Issues
- EPWU Outreach And Transparency
  - Community Advisory Committee Input
  - Educating Community

Stormwater Master Plan

Questions