# **Border Environment Cooperation Commission Paisano Valley Water Project in El Paso, Texas**

1.	General Criteria						
1.a Project Type							
Project Name:	Paisano Valley Water Project in El Paso, Texas						
Project Sector:	Domestic Water and Water Conservation						
1.b Project Category							
Category:	Community Environmental Infrastructure Project – Community-wide impact						
1.c Project Location and Co	ommunity Profile						
Community:	City of El Paso, Texas, United States.						
Location:	The project will be developed within the city of El Paso, located in the western part of the State of Texas. El Paso is situated in the Chihuahuan Desert and borders the city of Ciudad Juarez, Chihuahua, Mexico to the south; the city of Sunland Park, New Mexico to the west, and Hudspeth County, Texas, to the east. The city of Las Cruces, New Mexico, is approximately 45 miles to the north.						
Location within the border:	The project is located within the 62.5 mi (100 km) of the US-Mexico border area and is adjacent to the border.						
Figure:	Figure 1.1 shows the location of the city of El Paso, TX.						

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Demographics	
Current population:	609,415 residents
Reference:	US Census Bureau Population Estimates, Year: 2006
Growth rate:	1.1% average annual rate of growth over 2000-2009
Reference:	US Census Bureau, Year: 2000
Economically active population:	255,667 residents
Reference:	US Census Bureau, Year: 2008
Median household income:	\$32,124
References:	US Census Bureau, Year: 2000
Economic activity:	Commerce and services
Below poverty line:	22.2%

Services					
Community:	El Paso, Texas				
Water Distribution System					
Water coverage:	99%				
Pipe length :	2,488 miles				
Number of water hookups:	183,791				
Water supply source:	Surface water (Rio Grande) and Ground water (Hueco and Mesilla Aquifers)				
Reference:	El Paso Water Utilities (EPWU)				
Water Treatment System					
Water Treatment Plant (WTP) and treatment technologies:	- Robertson-Umbenhauer WTP: 20 million gallons per day (MGD) conventional treatment process.				
	- Jonathan Rogers WTP: 60 MGD conventional treatment process.				
	- Upper Valley WTP and other Arsenic Facilities: 41 MGD conventional flocculation/sedimentation/filtration to remove arsenic and granular iron media to absorb Arsenic				
	- Kay Bailey Hutchison Desalination Plant: 27.5 MGD reverse osmosis treatment process				
Wastewater Collection System					
Wastewater collection coverage:	96%				
Sewer length:	2,120 miles				
Number of sewer connections:	174,662				
Reference:	EPWU				
Wastewater Treatment					
Wastewater treatment coverage:	98%				
Wastewater treatment plants (WWTP) and treatment	<ul> <li>Haskell R. Street WWTP: 27.7 MGD Conventional Activated Sludge Process</li> </ul>				
technologies:	- Roberto R. Bustamante WWTP: 39 MGD Conventional Activated Sludge Process with a 14 MGD undergoing expansion				

	<ul> <li>Northwest WWTP: 17.5 MGD Conventional Activated Sludge Process</li> </ul>
	<ul> <li>Fred Harvey Water Reclamation Plant: 10 MGD</li> <li>Powdered Activated Carbon Activated Sludge Process</li> </ul>
Sludge disposal:	Sludge is dewatered and stabilized to be finally disposed in City's landfill
Reference:	EPWU
Stormwater Drainage System	
Stormwater lift stations:	16
Dams:	38
Detention/retention ponds:	270
Open channels:	103 miles
Agricultural drains:	48 miles
Storm drain conduits:	More than 500 miles
Storm drain inlets:	4,100
Reference:	EPWU
Street Paving	
Street paving coverage:	99.9%
Reference:	EPWU
1.d Legal Authority	
Project applicant:	Public Service Board (PSB)
Legal representative:	Bob Andron
Legal instrument to demonstrate legal authority:	Certificate of Convenience and Necessity No. 10211. The EPWU provides service within the City of El Paso and outside within its Extra Territorial Jurisdiction.
Date of instrument:	June 13, 1998
Compliance with agreements:	<ul> <li>1889 International Boundary Convention</li> <li>1944 Water Treaty</li> <li>1983 La Paz Agreement, or Border Environment Agreement</li> </ul>

	<ul> <li>1990 Integrated Border Environmental Plan (IBEP)</li> <li>1994 North American Free Trade Agreement (NAFTA)</li> <li>Border 2012 Program</li> </ul>
1.e. Project Summary	
Project description and scope:	The project consists of the replacement of an existing 36-inch waterline with a new 48-inch bi-directional transfer waterline. The project consists of four phases, however only Phases I and II will be certified at this time.
	Phase I involves the design and construction services for approximately 8,500 linear feet of 48-inch potable water main. Phase I will tie into the existing 54-inch waterline at the intersection of Racetrack Drive and Torres which has a 48-inch section, continue south in an easement adjacent to Paisano and cross Paisano to tie in to the existing 36-inch waterline at Executive Center Blvd.
	Phase II involves the design and construction services for approximately 4,940 linear feet of 48-inch potable water main. Phase II will tie into Phase I and continue along Paisano to the American Canal.
Benefited population:	117,407 residents
Number of connections served:	39,136
Project cost:	\$18 million
Project map:	Figure 1.2 shows the location of the proposed improvements in the project area and the limits of the project phases.

Figure 1.2 Project Location.

1.f Project Justification	
Project justification:	Over the past 31 years, the existing 36-inch pre-stressed concrete cylinder pipe (PCCP) along Paisano, installed in 1955, has failed 15 times, 7 of which have been in the past 6 years. Due to small leaks and massive ruptures, the 36- inch waterline has exceeded its useful life. This prompted EPWU to subsequently evaluate, design and construct a new reliable waterline for bi-directional transfer of water from West to Central in the winter months and from Central to West in the summer months. This waterline is a critical component of EPWU's water system. In addition, the Distribution System Model Report recommended that the existing transmission main be replaced with a larger new transmission main to allow for additional capacity during drought conditions.
	The purpose of this project is to improve the quality of life for residents of the City of El Paso by preventing massive and potential life-threatening waterline ruptures as well as conserving water and protecting the environment and existing infrastructure.

The project's implementation would bring about the following benefits:

- Prevent life-threatening accidents caused by massive ruptures of waterline to enhance public safety and protect human life.
- Increase capacity and provide bi-directional flow to transfer 16.437 MGD to satisfy peak summer day demands in El Paso's Upper Valley and 10.5 MGD to satisfy peak drought day demands in Central El Paso.
- Address climate change adaptability initiatives by increasing water distribution capacity and provide bi-directional flow during drought conditions allowing for additional reliability in the system.
- Prevention of considerable excess of water on streets within the project area.
- Provide adequate water distribution service to residents in the project area.
- Improve quality of life by reducing sources of pollution resulting from standing gushing water on streets near public areas.
- Prevent loss or damages to environmental infrastructure. It is estimated that eliminating recurrent repairs could save between \$50,000 and \$200,000 per repair. The existing waterline has experienced four breaks in the past two years.
- Energy saved by the implementation of the project is estimated to be 79,891 KWH and a carbon footprint of 110,250 pounds of CO<sub>2</sub> over a 20 year period.
- Lessen erosion in the project area by reducing waterline leaks and failures.
- The proposed improvements will allow the city to conserve approximately 1 million gallons of water per year by eliminating ruptures on the waterline. This water loss equates to \$52,560 dollars over a 20 year period.
- Protect the City of Sunland Park, New Mexico from potential flooding.

The waterline failure history indicates that the pipeline failures have occurred primarily due to corrosion of the steel cylinder in the pipe barrel. Based on inspection of the failed pipe sections, the corrosion of the pipeline has occurred primarily due to corrosive soils in combination with fluctuating ground water levels due to the proximity of the Rio Grande. No cathodic protection system exists on the 36-inch pipeline, further exacerbating the corrosion. Any slight crack or fissure in the concrete coating allows moisture to penetrate to the steel cylinder promoting corrosion over time.

Information provided by the EPWU has exhibited 15 failures. The predominant pipe failures occurred due to developed holes in the pipe cylinder due to corrosion. Other failures include a corroded bell, a blown joint and a crack around the pipe. The following Table 1.1 indicates the waterline failure history:

Date	Failure type
05/09/76	Hole in pipe
03/27/80	Cracked around
05/15/81	Hole in pipe
07/28/89	Hole in pipe
11/02/89	Hole in pipe
04/29/92	Hole in pipe
04/29/92	Hole in pipe
02/23/93	Corroded bell
11/26/04	Hole in pipe
11/26/04	Hole in pipe
11/28/04	Hole in pipe
03/20/08	Cracked pipe
04/13/09	Hole in pipe
10/20/09	Cracked pipe
03/12/10	Cracked pipe

#### Table 1.1 Existing 36-inch Water Line Failure History

Figure 1.3 illustrates the most recent waterline failure disaster.

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Figure 1.3 Waterline rupture.

Urgency of the project or consequences of no action:

The lack of an adequate water distribution system jeopardizes the life and health of area residents, including the risks of low pressures and interruption of service. Massive ruptures in the project area can result in significant surface runoff as the paved ground cannot absorb the water at the rate required exceeding the ground surface's infiltration capacity. Rapid inundation of the area may be caused by these events.

In addition, gushing water can contribute to water contamination potentially resulting in epidemics of waterborne and arboviral diseases.

The implementation of the project would prevent massive ruptures and protect human lives by providing adequate and reliable water distribution service to residents within the project area and during drought conditions.

Figure 1.4 illustrates the damages to the existing transmission waterline and infrastructure.



### **Pending Issues:**

None.

### **Criterion Summary:**

The project falls within BECC priority sectors and complies with BECC's General Criterion.

# 2. Human Health and Environment

2.a Compliance with Applica	able Environmental Laws and Regulations.
Environmental and Public Health needs to be addressed by the proposed project:	<ul> <li>The lack of an adequate water distribution system jeopardizes the life and health of area residents. The adverse human health consequences of massive ruptures and flooding are complex and far- reaching which include physical injuries. Approximately 39,136 households will be directly benefited from project implementation while improving their water service and reducing life- threatening accidents.</li> </ul>
	- The inappropriate water distribution can contribute to water contamination by having standing gushing water accumulated on the streets, potentially resulting in waterborne and arboviral diseases.
	- The implementation of the project would prevent future flooding and provide adequate water distribution service to residents within the project area.
	- The project will address climate change adaptability by increasing water distribution capacity and reliability of service as well as providing bi-directional flow during drought conditions.
	- Potential damages to environmental infrastructure would be prevented by having an adequate water distribution system that can distribute water efficiently. It is estimated that eliminating recurrent repairs could save between \$50,000 and \$200,000 per repair. Existing waterline has experienced four breaks in the past two years.
	- Lessen erosion in the project area by reducing waterline leaks and failures.
	- The proposed improvements will allow the city to conserve approximately 1 million gallons of water per year by eliminating ruptures on the waterline. This water loss equates to \$52,560 dollars over a 20 year period.

The project meets the following applicable environmental laws and regulations:

- Protect the city of Sunland Park, New Mexico from flooding and overflows.
- The project complies with Texas Administrative Code, Title 30, Part 1, Chapter 290 (§290.44) Water Distribution.
- The project will comply with the PSB-El Paso Water Utilities Public Water System Registration No. 0710002 issued by the Texas Commission on Environmental Quality (TCEQ).
- EPWU will notify TCEQ Executive Director to obtain project approval prior to construction as established in Texas Administrative Code, Title 30, Part 1, Chapter 290 (§290.39)(j) General Provisions, Changes in Existing Systems or Supplies. In addition, EPWU will submit the required Stormwater Plan as part of the construction permits.
- For projects involving excavation or construction of detention structures, a depth of no more than 20 feet was recommended to be in compliance with regulatory requirements for the City of El Paso Code.
- EPWU has coordinated with Texas Department of Transportation (TxDOT) and final approval will be provided as part of the construction permits.
- Coordination with the following agencies has taken place:
  - City of El Paso
  - International Boundary and Water Commission
    - Comisión Internacional de Límites y Aguas

# 2.b Human Health and Environmental Impacts.

Human Health Impacts	
Direct and indirect benefits:	- Prevent life-threatening floods caused by massive waterline ruptures events to enhance public safety and protection of human life. The implementation of the project could prevent flooding for 39,136 households.

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	- The project would reduce risk for transmission of waterborne and arboviral diseases caused by the lack of appropriate water distribution system.
	- The project would reduce human contact with potential contaminated standing water.
	- The project will reduce the risks associated with low pressures and/or interruption of service.
Health statistics:	- Waterborne and arboviral diseases are secondary effects of interruption of service and floods. Low water pressures can result in backflows and cross contamination.
	- Waterborne diseases are caused by pathogenic microorganisms that are directly transmitted as a result of inadequate standing water and wastewater disposal practices and unsafe water supplies. An individual may become ill after being in contact with water that has been contaminated with these organisms.
	- Waterborne diseases may be caused by protozoan, viruses, bacteria, and intestinal parasites.
	- Arboviral diseases are caused by a variety of viruses that are transmitted by arthropods (e.g. mosquitoes, sandflies, ticks). Arboviral diseases include West Nile virus, dengue, yellow fever, and other less common infections.
	- In the past few years, several cases of waterborne and arboviral diseases were reported to the County of El Paso.
Supporting figures:	The following table shows waterborne and arboviral diseases for the city and county of El Paso, TX provided by El Paso City-County Health and Environmental District in their Notifiable Conditions Report for the past five years.

No. of Cases							
Disease	2005	2006	2007	2008	2009		
Amebiasis	0	3	0	2	2		
Botulism, wound	0	1	0	2	1		
Campylobacteriosis	20	42	42	24	24		
Cryptosporidiosis	1	1	2	6	6		
Cyclosporiasis	0	0	0	0	0		
Dengue	0	0	0	0	0		
Escherichia coli, enterohemorrhagic	0	1	1	1	1		
Hepatitis A (acute)	37	18	15	22	22		
Malaria	0	1	0	1	1		
Poliomyelitis, acute paralytic	0	0	0	0	0		
Salmonellosis	70	97	119	122	122		
Typhoid Fever	0	0	1	0	0		
Vibrio infection, including cholera	0	0	0	0	0		
West Nile Virus – Fever	0	0	0	6	6		
West Nile Virus – Neuroinvasive	0	1	27	18	18		

Table 2.1	Waterborne	and A	rboviral	diseases	in	El Paso.	Texas

### **Environmental Impacts**

**Direct and indirect benefits:** 

- The proposed improvements will reduce environmental risks associated to inadequate water distribution system. The proposed project will assist the EPWU adequately distribute water in the project areas in compliance with existing federal and state laws and regulations.
- The project will allow the replacement of the existing 36-inch water transmission main. The proposed project is anticipated to have no impact on the ecosystem, the flora, fauna and on animal migration routes.
- In January 2006, an *Environmental Site Assessment* (ESA), a Cultural Resources Survey, and a Reconnaissance Level Geotechnical Evaluation were conducted to assess the potential environmental, archeological, and geotechnical issues.
- A cultural resources pedestrian survey was conducted and concluded that there is no evidence of anthropological assets that may be affected by the replacement of the water distribution pipes in

the project area. Should any historical and/or archaeological remains be found, it is standard procedure for EPWU to stop all construction activities and contact the appropriate agencies for further guidance.

- A geotechnical review of the pipeline route alternatives was conducted using available published information and a preliminary field investigation. General observations along the primary alternative corridors are described in the Basis of Design Report.
- Proposed project will improve the protection of the current infrastructure.
- Existing infrastructure will be improved to be able to distribute water adequately to avoid damages to environmental infrastructure as experienced in the April of 2009.
- The project would reduce potential contamination of standing water, considered a secondary effect of flooding, potentially contaminated by oils and grease from streets, which would be discharged into the Rio Grande River.
- The proposed improvements will allow the city to conserve approximately 1 million gallons of water per year by potentially eliminating ruptures on the waterline. This water loss equates to \$52,560 dollars over a 20 year period.
- The implementation of the project will provide energy savings equivalent to a carbon footprint of 110,250 pounds of CO<sub>2</sub> over a 20 year period.
- The project will assist in climate change adaptability by providing a more reliable water system during drought conditions.
- Figure 2.1 shows several damages and costly repairs by the lack of adequate water distribution infrastructure in the project area.



Figure 2.1 Waterline Failures.

**Environmental impacts:** 

The existing site conditions and an evaluation of construction options were considered for the project in the *Route Feasibility Assessment Report*. Furthermore, although there were not any additional environmental concerns identified during the *Environmental Site Assessment*, the following precautions should be addressed in the design and construction of the pipeline for these environmentally sensitive areas.

The project is aimed at improving the conveyance of drinking water through the city.

Potential impacts include the following:

Construction Phase

- Fugitive dust emissions
- Air pollutant emissions from construction machinery
- Exposure of air pollutants from contaminated soil
- Potential disposal of contaminated soil and water

-	Temporary roadway blockages and presence of
	workers in the area

Mitigation measures include:

**Mitigation measures:** 

**Impacts:** 

- Application of treated wastewater to reduce fugitive dust emissions
- Vehicle tune ups to reduce emissions
- Placement of warning signage to prevent potentially hazardous situations.
- A safety plan for pipeline excavation addressing potential lead and arsenic exposure by field personnel along contaminated areas south of Executive Center Blvd will be developed.
- Air monitoring for lead and arsenic to verify compliance within OSHA Permissible Exposure Limits (PELs) and National Ambient Air Quality Standards (NAAQS) will be conducted. If PELs are exceeded, OSHA worker protection equipment and requirements must be implemented.
- Additional soil testing will be conducted to determine if the heavy metal concentrations exceed the EPA's hazardous waste limits. Soils exceeding the limits require disposal as a hazardous waste.
- Dewatering activities during construction will require monitoring of water quality as well as to complying with water disposal practices.
- Additional information will be obtained to determine the potential impact of the two leaking petroleum storage tanks facilities located in the proposed route. Contaminated groundwater will require treatment and/or disposal as per TCEQ requirements.

The environmental impact resulting from the project implementation will be positive overall, given that:

- The project will increase water distribution efficiency, in addition to reducing environmental contamination and increasing water conservation.
- The project will improve the quality of life of area residents by curtailing potential health and life hazards.

JUNE 28, 2010

	<ul> <li>The proposed improvements would prevent future damages to current environmental infrastructure and prevent erosion and sedimentation of the area.</li> <li>The project will promote initiative for climate change adaptability.</li> </ul>
Transboundary Impacts	
	The project will not have any negative transboundary impact.
	EPWU has coordinated with International Boundary and Water Commission (IBWC) since July 2006 to obtain property information and comments on preliminary design. In a letter dated June 25, 2010 the IBWC state it has no comments or concerns with the project, with the understanding that Phase II is not in IBWC right away.
	The Comisión Internacional de Límites y Aguas states in a letter dated June 28, 2010 to have no comments to Phases I and II of the project.
Formal Environmental Clearance	
Environmental Clearance:	The project consisting of replacement of the existing water transmission main located in a disturbed area do not required environmental clearance.
	During the evaluation of the project alternatives, the following entities and agencies were contacted to discuss their requirements relative to the various routes: IBWC, TxDOT, and mining company ASARCO.
	The design will meet the requirement of a minimum 5 foot cover between the top of the pipe and existing ground elevation as required in the EPWU Design Manual.

# **Pending Issues:**

None.

### **Criterion Summary:**

The project complies with BECC's Human Health and Environment Criterion.

# 3. Technical Feasibility

# **3.a Technical Aspects**

# **Project Development Requirements**

Project components	The project consists of the replacement of an existing 36- inch waterline with a new 48-inch bi-directional transfer waterline. The project will consist of four phases, as described below, however only Phase I and II will be certified at this time.
	approximately 8,500 linear feet of 48-inch potable water main. Phase I will tie into the existing 54-inch waterline at the intersection of Racetrack Drive and Torres which has a 48-inch section, continue south in an easement adjacent to Paisano and cross Paisano to tie in to the existing 36-inch waterline at Executive Center. The work associated with Phase I consists of furnishing and installing approximately 8,500 linear feet of 48-inch steel or ductile iron pipe; manways, blow off and combination air/vacuum valves with associated precast concrete manholes; tie-ins to existing waterlines, 60-inch bored steel casings, trench safety, grubbing, storm water pollution control plan, traffic control on TxDOT streets, grubbing, and all other facilities described in the plans and specifications. Final design is 95% complete and anticipated to be finalized by July 2010. The construction of the project is planned to begin in September 2010.
	Phase II involves the design and bid phase services for approximately 4,940 linear feet of 48-inch potable water main. Phase II will tie into Phase I and continue along Paisano to the American Canal. The final design for Phase II was initiated on May 2010 and it is expected to begin construction in October 2011.
Design criteria:	The design criteria for the Paisano Valley Water Project includes hydraulic requirements of the project, external load conditions on the pipe, material requirements, installation requirements, pipeline specifications, and fitting and valves applicable to the recommended alignment. The guidelines presented in the EPWU's <i>Design Standards for Water and Sanitary Sewer</i> <i>Facilities (Design Standards)</i> was used to develop suitable design criteria for this project. In the absence of

EPWU Design Standards, the design consultant Brown and Caldwell design standards were used.

The EPWU modeling verified the minimum allowable pipeline sizes to provide the required flows within the available hydraulic heads between the end of the 54-inch pipeline located at Racetrack Drive and the Sunset Reservoir. Table 3.1 below summarizes the hydraulic characteristics for the recommended alignment from Racetrack Drive to University of Texas at El Paso (UTEP) parking lot on Schuster Ave.

Based upon the hydraulic analysis performed by EPWU and the current operating conditions of the existing 36inch pipeline, the internal operating design pressure for the transmission main is estimated at 85 pounds per square inch (PSI) operating pressure and a 100 PSI surge pressure allowance. Therefore, the design pressure for the transmission main is 125 PSI and a test pressure of 225 PSI to allow for surge pressure.

The depth of cover will vary at certain locations including the railroad, highway, culverts, and other major crossings. Additionally, the pipe is designed to carry the backfill dead load plus any superimposed live loads. Live loads for H-20 traffic will be included when crossing all roads and E-80 for the borings beneath the railroads.

Condition	Flow (MGD)	Pipe Dia. (in)	Pipe Length to UTEP Parking Lot	Pipe Length UTEP to Sunset Res.	Total Pipe Length	H.G. @ Racetrack Dr.	H.G. @ Executive	HG. @ Sunset Res.	
2015 Pk Summer Day 2015 Pk Drought Day	16.437 10.526	30, 36, 48 30, 36, 48	28,440 28,440	2,561 2,561	31,001 31,001	3912.8 <sup>1</sup> 3914.5	3916.0 <sup>2</sup> 3913.1 <sup>4</sup>	3973.2 <sup>3</sup> 3916.1 <sup>5</sup>	
<sup>1</sup> Hydraulic Grade (HG) is based on a new 48-inch pipeline from Executive with a new Booster Station at Sunset to meet HG at Racetrack <sup>2</sup> HG is based on a new 30-inch Slipliner and 36-inch pipeline with new Booster Station at Sunset to meet HG at Executive. Overflow elevation at Executive Reservoir = 3916.00									
<sup>3</sup> The new HG to meet HG at Racetrack									
<sup>4</sup> HG is based on a new 4	48-inch pipeli	ne from Racetrack							
<sup>5</sup> HG is based on a new 3	0-inch Sliplir	er and 36-inch pipel	line with new Bo	oster Station a	at Executive to n	neet HG at Sum	set.		

Table 3.1 Hydraulic Characteristics

	The EPWU will consider implementing Green Building Practices (GBP) during project construction. Green building techniques will consider the abandonment of the existing pipe in place in order to reduce waste by the implementation of the project, installing the new line within unpaved areas to avoid disturbing the existing infrastructure, as well as using the existing material as backfill.
Appropriate Technology	
Assessment of alternatives:	A <i>Route Feasibility Assessment Report</i> was completed in March 2009. A total of nine original route alternatives (plus one tunneling option) were identified from Racetrack Drive to the Sunset Reservoir and UTEP parking lot are described below.
	<b>Alternative 1 - Sun Bowl Drive.</b> Open cut installation of a new 48-inch pipeline from Racetrack Drive to the UTEP parking lot. A portion of this route is along Sun Bowl Drive and due to the system hydraulics, a pump station would be required.
	<b>Alternative No.2 - East 1-10.</b> Open cut installation of a new 48-inch pipeline from Racetrack Drive to the UTEP parking lot. A portion of this route is along the eastern side of I-10.
	<b>Alternative No. 2A - Tunnel Alternative.</b> Open cut installation of a new 48-inch pipeline from Racetrack Drive to the UTEP parking lot similar to Alternative 2. A portion of this route is tunneled installation.
	<b>Alternative No.3 - West 1-10.</b> Open cut installation of a new 48-inch pipeline from Racetrack Drive to the UTEP parking lot. A portion of this route is along the western side of 1-10.
	Alternative No.4 - Paisano Drive. ( <i>Selected</i> <i>Alternative</i> ) Open cut installation of a new 48-inch pipeline from Racetrack Drive to the UTEP parking lot. A portion of this route is along Paisano Drive.
	Alternative No.5 - Railroad. Open cut installation of a new 48-inch pipeline from Racetrack Drive to the UTEP parking lot. A portion of this route is along railroad right-of-way.

Alternative No.6 - Paisano Drive (Rehabilitation of Existing Pipeline). An evaluation for lining the existing 36-inch concrete steel cylinder pipeline was conducted. This alternative is the slip-lining of the entire pipe length from Racetrack Drive to the UTEP parking lot. The system hydraulics requires a pump station and reservoir at Racetrack and a pump station a Sunset Reservoir.

### Alternative No. 7 - Executive Center Water Transfer from Paisano (Rehabilitation of Existing

**Pipeline/Open Cut**). This alternative includes the open cut installation of a 48-inch main from Racetrack Drive to Executi ve Center. The existing pipeline would be sliplined from Executive Center to the UTEP parking lot. Additionally, a new pump station and reservoir would be required at Executive Center to ensure bi-directional flow capabilities. The system hydraulics requires a pump station and reservoir at Executive Center and a pump station a Sunset Reservoir.

Alternative No.8 - Executive Center Water Transfer from Stanton. Subsequent to the lining option, the EPWU requested that two additional routes from Sunset Reservoir to a proposed Executive site be considered. Under this scenario, water would be transferred to the Executive site before continuing to either Racetrack or Sunset. This alternative includes the open cut installation of a new 30-inch pipeline along Stanton Street. The system hydraulics requires a pump station and reservoir at Executive Center and a pump station a Sunset Reservoir.

Alternative 9 - Executive Center Water Transfer from Sunbowl. Similar to Alternative No. 8, this alternative includes the open cut installation of a new 30inch pipeline along Sun Bowl Drive with an intermediate transfer to Executive Center. The system hydraulics requires a pump station and reservoir at Executive Center and a pump station a Sunset Reservoir.

The evaluation considered the data gathered during field reconnaissance, system hydraulics, environmental and engineering considerations to determine the preferred alignment. Final selection of the recommended route was based upon various criteria to include public acceptance, traffic impact, easement acquisition, agency coordination

a	and opinion of probable cost.						
Property and Right-of-Way Requirements							
Requirements: -	The proposed route proceeds along rights of way owned by TxDOT, City of El Paso, Union Pacific and Santa Fe Railroad, IBWC, private property, and UTEP.						
-	Coordination with these agencies and entities has been conducted to obtain appropriate permits.						
-	All easements will be acquired prior to bid advertisement.						

# **Project Tasks and Timelines**

Destants		2010					2011									2012																
Projects	J	F	MA	A N	1 J	J	A	s	0	N D	J	F	М	A	МJ	IJ	A	s	C	N	D	E	J	M	A	M	IJ	J	A	s	ON	
Project Phase I																																
Project Phase II																																
		Fi	nal I	Des	ign				E	Bidd	lin	g P	roc	es	s		С	on	str	uc	tion	ı										

The project schedule provides the timeline to complete the project's final design, bidding process and construction of the Phases I and II. Construction of Phase I is anticipated to be completed in April 2011 and construction of Phase II on May 2012.



Operation plan:	The PSB-EPWU will provide all required resources including equipment and staffing for effective operation and maintenance as wells as regulatory compliance of these facilities.							
Permits, licenses, and other regulatory requirements:	All approvals needed for construction will be obtained once final designs are completed. Construction permits will be obtained as soon as the contracts are awarded when the Notice to Proceed is issued for each project component.							
	The approval of the TCEQ is required for changes in the existing system. The EPWU will submit the Project Notification Letter to the TCEQ for review and approval as part of construction permits.							
Reviewing agencies:	BECC, NADB, TCEQ, IBWC, CILA.							

# Pending Issues:

None.

# **Criterion Summary:**

The project complies with BECC's Technical Feasibility Criterion.

# 4. Financial Feasibility

4.a Verification of Fina	ncial Feasibility											
Financial Conditions	Utility's Audited fir	Utility's Audited financial statements										
mormation presenteu.	Officy's Addited III.	Curry 5 Audited Infancial Statements.										
Summary of financial analysi	is: Utility has enough r expenses and reserv	Utility has enough revenues, after paying for operation expenses and reserves, to service the proposed debt.										
Project total cost, financial st	ructure and other capital	investment plans										
<b>Concept:</b> Engineering, construction, construction supervision, contingencies, and loan closing costs.	US\$ 18.0 million	US\$ 18.0 million										
Total Cost:	US\$ 18.0 million	US\$ 18.0 million										
Financial structure:												
Source	Туре	Amount (US\$ millions)	%									
NADB Loan	Loan	15.00	83.3									
City of El Paso	Equity	3.00	16.7									
Tota	l:	\$ 18.00	100.0									
Dedicated Revenue Source												
Revenue source:	Water and Wastewa	ter Utility's Net Revenu	es.									
4.b Legal Consideration	ons											
Project Administration:	The project will be a staff to manage the potential emergency project.	The project will be managed by the EPWU who has adequate staff to manage the proposed infrastructure and address any potential emergency related to the implementation of the project.										
Financing status:	Bonds to be issued r	right after the project is c	certified.									

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None.

### **Criterion Summary:**

The project complies with BECC's Financial Feasibility Criterion.

# 5. Public Participation

5.a Community Environm wide Impact	ental Infrastructure Projects – Community-
Local Steering Committee	
Date of Establishment:	The Public Service Board was established May 22, 1952, by City Ordinance No. 752 to completely manage and operate the water and wastewater system for the City of El Paso.
Local Steering Committee Members:	The seven-member board of trustees which make up the Public Service Board consists of the Mayor of the City of El Paso and four residents of El Paso County, Texas, who are appointed by the City Council for four year staggered terms.
	The Board is comprised of the following:
	Chair: Richard O. Martinez
	Vice Chair: Maria F. Teran
	Secretary: Richard T. Schoephoerster
	Member: Ruth Katherine Brennand
	Member: Richard C. Bonart
	Member: Edward Escudero
	Member: Mayor John F. Cook
Date of approval of Public Participation Plan:	The Comprehensive Community Participation Plan was approved by the BECC on May 25, 2010.
Public Access to Project Inform	mation
Public access to information:	The sponsor provided adequate 30-day notice of the public meeting on May 22, 2010. The project's technical information was noted as available to the public for review in the meeting notice. The following information was prepared to inform the community about the project:
	- 30-day public notice
	- PSB public meetings
Additional outreach activities:	- Televised PSB Meetings
	<ul> <li>PSB homepage information</li> </ul>
	15D noniepuge miorination

Public meeting:	A public meeting was conducted to inform the public about the environmental, technical and financial aspects of the project. The meeting was held on June 21, 2010.							
Final Public Participation Repo	ort							
Final report:	A Final Public Participation Report was developed to demonstrate that the proposed objectives fully met BECC's public participation criterion.							
Post-Certification Public Participation Efforts								
Post-certification activities:	The project sponsor provided a general description of public participation activities that may be carried out after the project has been certified supporting its implementation and long-term feasibility.							

# **Pending Activities:**

None.

# **Criterion Summary:**

The project complies with BECC's Public Participation Criterion.

# 6. Sustainable Development

6.a Human and Institution	nal Capacity Building
Project operation and Maintenance:	<ul> <li>The project sponsor will be the agency responsible for operating and maintaining the system as it relates to:</li> <li>Water treatment</li> <li>Water distribution</li> </ul>
	The average annual construction budget of the PSB for the last 15 years is approximately \$42.5 million, and could reach \$200 million.
	The sponsor has the institutional and human capacity to operate and maintain the following:
	- Proposed water transmission main
Human and Institutional Capacity Building:	Actions within the scope of the project that contribute to institutional and human capacity building for the PSB include:
	- Provide water distribution services in a continuous, efficient, and cost-effective approach.
	- Operate water distribution system that meets applicable local, state, and federal regulations.
	- Provide training and continuing education to the utility's operating staff that offer essential services to satisfy the needs of the community and provide responsible maintenance of the improved infrastructure.
	- Optimize the use of scarce water resources, and raise public awareness about the importance of water for the community development.
Additional plans or programs:	There is a water reclamation program as part of the wastewater treatment system.
	PSB completed the Water Conservation Plan on January 2006. The Water Conservation Plan holds workshops and training sessions throughout the community on various subjects related to water conservation. There were 182 presentations made to local schools and community groups during the FY 08-09 year, with a goal set at 200 for FY 09-10.

# 6.b Conformance to applicable Local, State, and Regional Regulations and Conservation and Development Plans.

Local and Regional Plans addressed by the project:	<ul> <li>The proposed project conforms to applicable plans and actions described in the following documents: <ul> <li>2004 Distribution System Modeling (DSM) Report.</li> <li>2009 Route Feasibility Assessment</li> <li>EPWU's Design Standards for Water and Sanitary Sewer Facilities (Design Standards)</li> <li>Water Transmission Main Improvements Project Basis of Design Report</li> <li>Water Transmission Main Improvements Project Phase I Design and Specifications</li> </ul> </li> <li>Water Transmission Main Improvements Project Basis of Design Report establishes the need to improve water transmission main within the City of El Paso.</li> <li>The implementation of the project will eliminate risks inherent to inappropriate water distribution management.</li> <li>The project complies with the U.SMexico Border 2012 Environmental Program by meeting Goal 1 (Reduce water contamination) and Objective 4 (promoting improved water utility efficiency). One of the program's guiding principles is to reduce major risks to public health and conserving and restoring the natural environment.</li> </ul>
Laws and regulations met by the project:	<ul> <li>The project meets applicable federal, state and municipal regulations pursuant to water distribution system.</li> <li>The project meets the Public Water System Registration No. 0710002 issued by the TCEQ.</li> <li>EPWU will notify TCEQ Executive Director to obtain project approval prior to construction as established in Texas Administrative Code, Title 30, Part 1, Chapter 290 (§290.39)(j) General Provisions, Changes in Existing Systems or Supplies. In addition, EPWU will submit the required Stormwater Plan as part of the construction permits.</li> </ul>
Impacts to neighboring communities in the U.S.:	The project aims to protect the cities of Sunland Park, NM from potential floodings and overflows.

6.c Natural Resource Conservation	
	The EPWU will consider implementing Green Building Practices (GBP) during project construction. Green building techniques will consider the abandonment of the existing pipe in place in order to reduce waste by the implementation of the project, installing the new line within unpaved areas to avoid disturbing the existing infrastructure, as well as using the existing material as backfill.
6.d Community Development	
	The completion of this project is crucial to the development of the community. The tasks proposed by the project will contribute to the appropriate water distribution management, which in turn will reduce the conditions that favor the proliferation of water-borne diseases. The proposed improvements will promote community development, as it will reduce water borne contamination in the city and improve the quality of life for local residents. The project will help the city achieve a more efficient water distribution system, which in turn will enhance the development of the community, since it will reduce contamination on the streets caused by stalled water. In addition, it supports the harmonious growth of areas that currently receives this inadequate service.

# **Pending Issues:**

None.

# **Criterion Summary:**

The project complies with BECC's Sustainable Development Criterion.

### **Available Documents**

- 2004 Distribution System Modeling (DSM) Report
- Route Feasibility Assessment
- Water Transmission Main Improvements Project Basis of Design Report
- Water Transmission Main Improvements Project Phase I Design and Specifications
- EPWU Methodology for Estimating Water Losses and Carbon Footprint.
- Final Public Participation Report.