



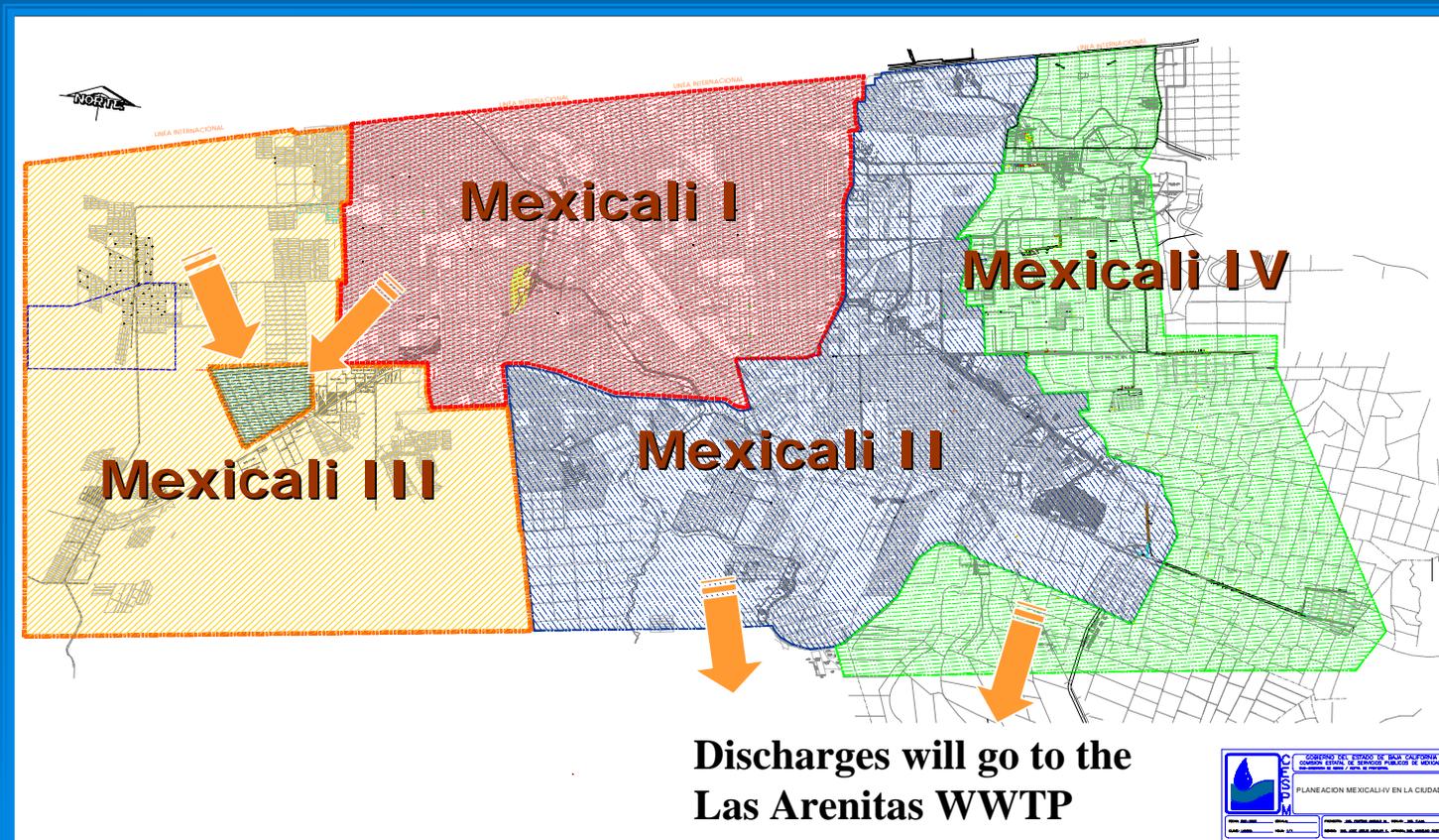
U.S.- Mexico Collaboration on Wastewater Infrastructure Serving the City of Mexicali, Baja California

EPA Border Infrastructure Construction Program
May 2005

EPA-supported Wastewater Projects in Mexicali

- Past: Planning, Immediate Need Projects & Mexicali I Project
- **Present: Mexicali II Project**
- Future

City of Mexicali Planning Areas



Mexicali II Project

- Remove 14 mgd of raw sewage currently discharging into the New River
- Convey the sewage for treatment to Las Arenitas, 26 km south of the City of Mexicali
- Construction is underway with completion projected in 2006.



Water Quality Benefits of Removing 14 mgd of Raw Sewage

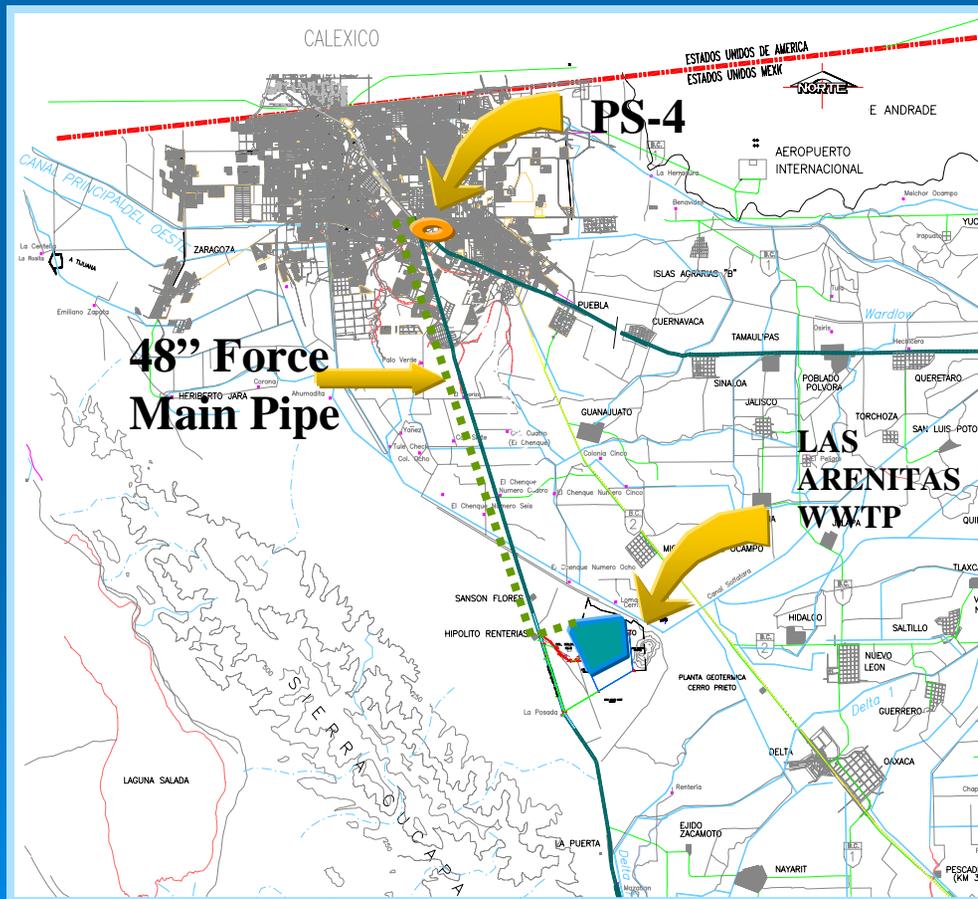
- Remove the majority of **Pathogens**
- Increase **Dissolved Oxygen** & decrease **Odors** with a 43% reduction in BOD in the New River at the border
- Improve the **Clarity** of the New River with a 65% reduction in TSS
- Reduce **Nutrients** reaching the Salton Sea with a 10% reduction in phosphates
- Reduce **Volatile Organic Chemicals** with an enhanced Mexicali Monitoring and Pretreatment Program

Project Components

- Upgrade Pump Station 4
- Installation of 9 km of force main pipe
- Purchase and install additional
17 km of force main pipe
- Construct Las Arenitas Wastewater
Treatment Plant

Mexicali II Project

Mexicali II Project: Treatment of Mexicali II Area Wastewater at Las Arenitas WWTP



Cost Estimate	Millions of USD
Installation of force main pipe - Phase 1 (9 Km)	1.1
Purchase and install force main pipe – Phase 2 (17 km)	10.0
Upgrade Pump Station 4	3.0
Las Arenitas WWTP	11.8
	\$ 25.9



Sewage is collected but treatment capacity is lacking



Solidaridad Collector

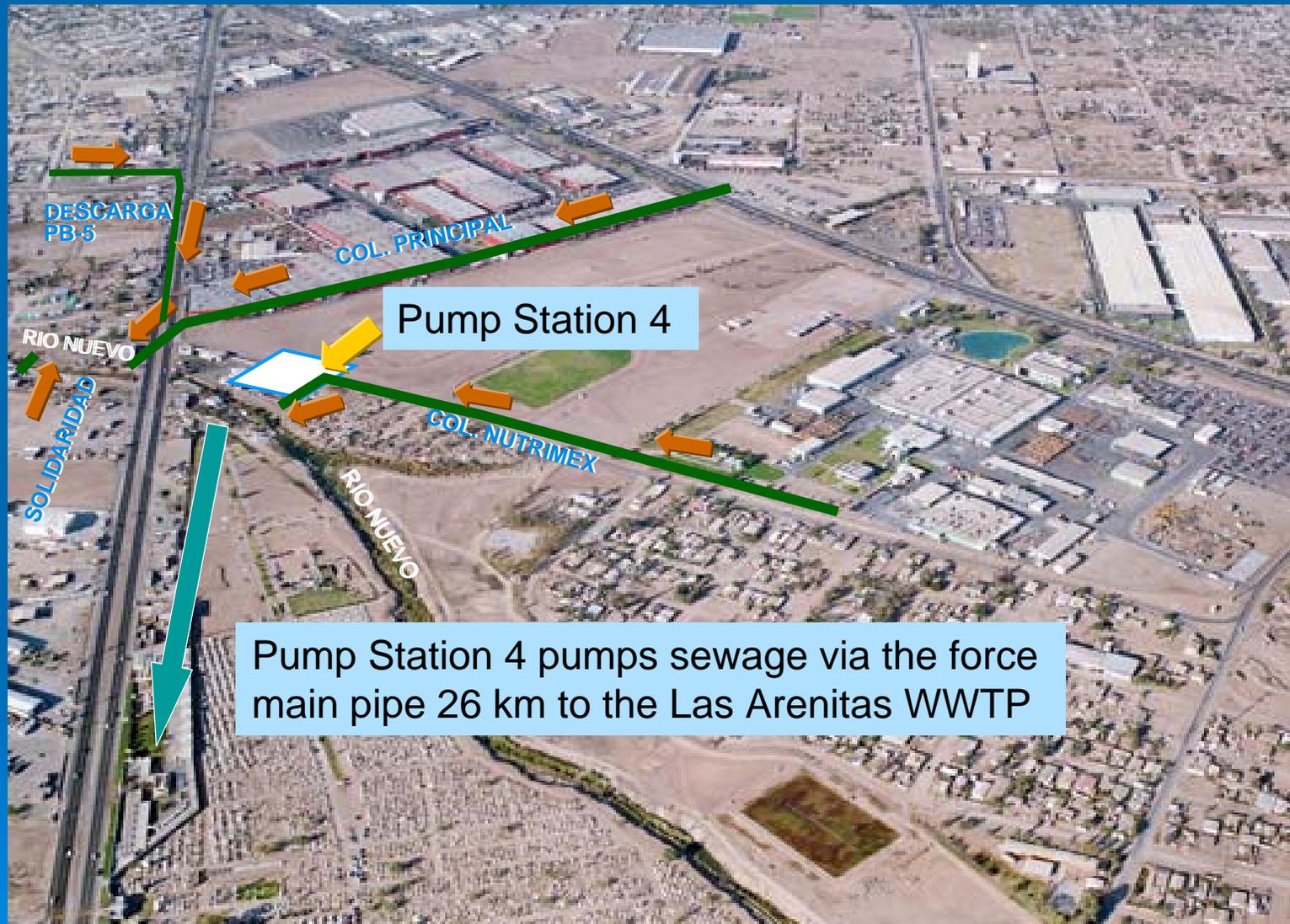


Pump Station 5



Principal Collector

Locations of Significant Sewage Discharges: Pump Station 4, Principal Collector, Solidaridad Collector & Nutrimex Collector



Pump Station 4 Upgrade

- Upgrade of Pump Station 4 bid out
- Estimated Cost: \$3M USD
- Est. Construction Period: 6 months



Mexicali II Project

Installation of 9 km of Force Main

- 9 km of Pipe from Pump Station 4 to El Choropo: Phase 1
- Pipe procured under Mexicali I project
- Cost: \$1.1M USD
- Completed March 2004
- Construction Period: 5 months



Mexicali II Project

Procurement of 17 km of Force Main

- 48-inch Ductile Iron Pipe procured in December 2004
- Cost: \$8.5M USD
- Initial 6 km of pipe delivered in Feb. 2005
- Final delivery no later than July 2005



Mexicali II Project

Installation of 17 km of Force Main

- Pipe installation started on March 30th
- Cost: \$1.5M USD
- Est. Construction Period: 10 months

Mexicali II Project



Las Arenitas Treatment Plant



- 20 mgd plant to treat flows projected through year 2014
- Total Estimated Cost: \$11.8M USD
- Construction began on April 18, 2005
- Estimated Construction Period: 14 months

Las Arenitas WWTP Discharge

- Treated wastewater from Las Arenitas WWTP will be discharged into a series of agricultural canals and travel 46 km southward before reaching the Rio Hardy, a tributary to the Colorado River Delta.
- The flow represents about 10% of the current New River flow at the border about 1% of the flows into the Salton Sea.

Monitoring & Pretreatment Program

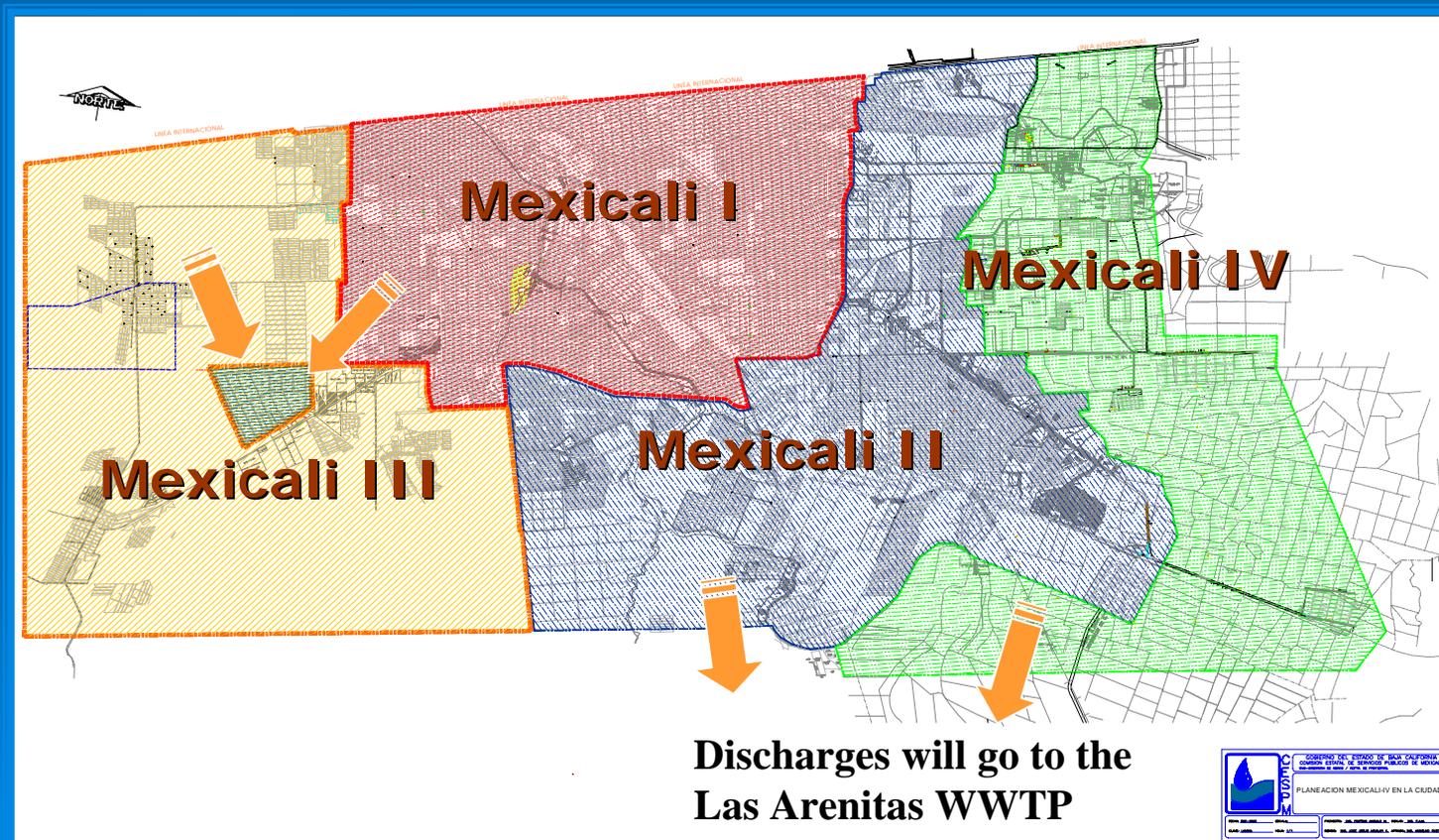
As part of the Mexicali II Project:

- CESPM developed a Monitoring & Pretreatment Program for significant industrial and commercial dischargers.
- CESPM is implementing this program in coordination with the Department of Ecology. The program includes monitoring and inspection of over 300 dischargers.

EPA-supported Wastewater Projects in Mexicali

- **Past: Planning,
Immediate Need Projects
& Mexicali I Project**
 - Present: Mexicali II
 - Future
- 

City of Mexicali Planning Areas



Infrastructure Planning

A collaborative facility planning effort began in 1996 to improve:

- Sanitary conditions in the Mexicali region
 - The quality of water in the New River flowing across the international boundary into the U.S.
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Infrastructure Planning

- Predates EPA's Border Infrastructure Construction Program
- Initiated with EPA FY1995 Appropriated Funds
- Supported sewer survey and mapping
- Resulted in the Immediate Need Projects, Mexicali I Projects and Mexicali II Project

Immediate Need Projects

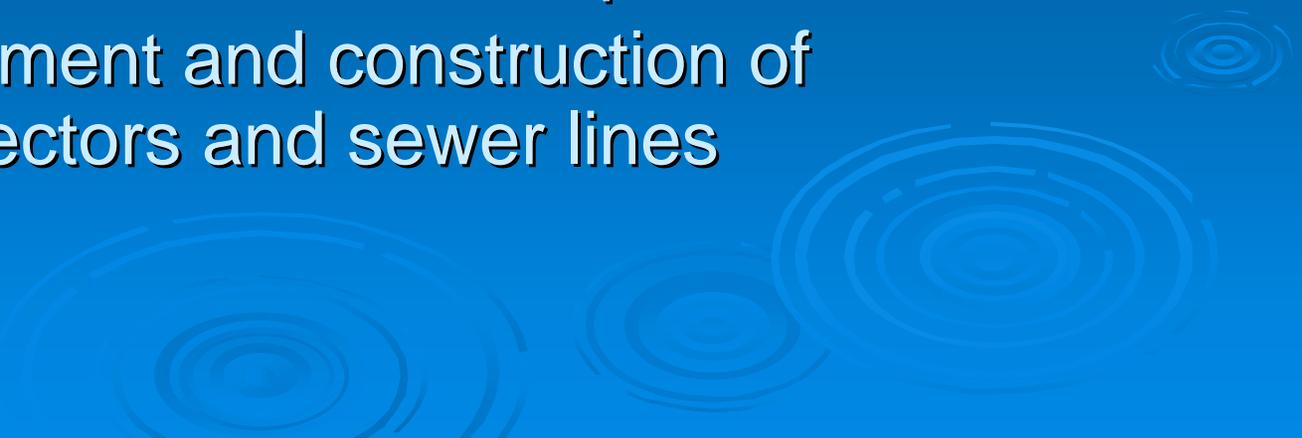
- Upgrade and Rehabilitate existing collection and treatment system
- Completed in 1997
- Total Cost: \$7.5M USD
- U.S. Investment: \$4.1M USD



Pump Station 2 improvements

Mexicali I Project

Improve wastewater services in the Mexicali I, II and III planning areas:

- First-time service to 46 colonias
 - Construction, rehabilitation and expansion of pumping stations and wastewater treatment plant
 - Replacement and construction of collectors and sewer lines
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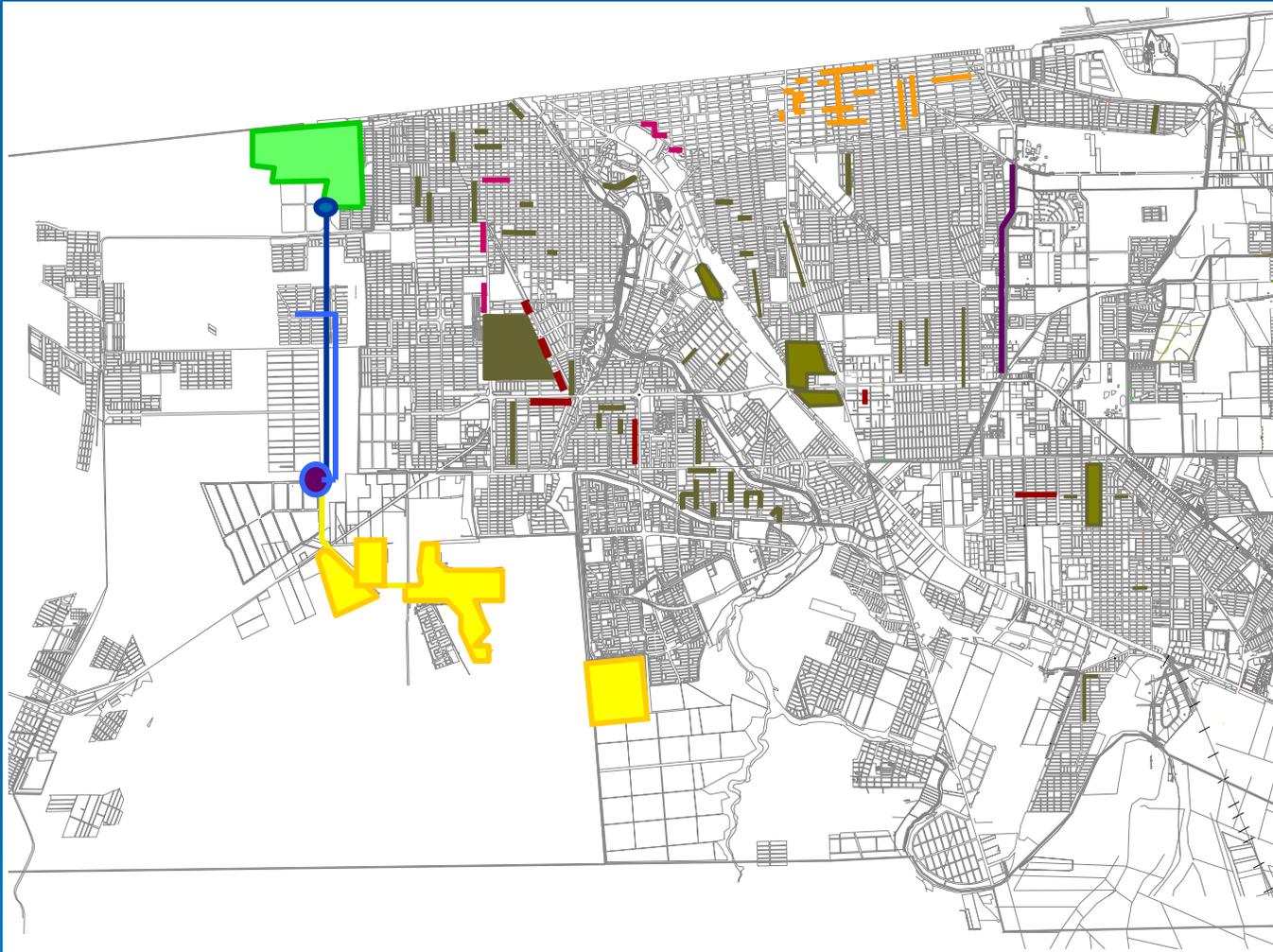
Mexicali I Project

- Construction, rehabilitation and expansion of facilities to serve Mexicali
- Total Cost: \$51.5M USD*
- U.S. Investment: \$23.6M USD
- Completion in mid-2005



* Does not include Japanese Bank loan

CESPM-EPA Mexicali I Projects



COLECTORES

- Norte
- Cuyutlán
- Villafontana
- Periférico

SUBCOLECTORES

- Anáhuac
- Cuatrociénegas
- Valle Dorado
- Lázaro Cárdenas
- Cárcamo de bombeo y emisor

REDES DE ALC. SANITARIO

- Col. Colosio y Ampliación
- Frac. Mayos
- Frac. Aztecas
- Frac. Misión de San Ignacio
- Col. Cachanillas
- Reposiciones de subcolectores en diferentes puntos de la cd.
- Colector Calz. Luis D. Colosio

REDES

- Colonia Zaragoza
- Colonia Ahumadita
- Lotes Diversos
- Poblado San Fernando
- Poblado Río Colorado
- Colonia Mezquital
- Poblado Xochimilco
- Colonia Voluntad
- Colector Voluntad
- Subcolector Voluntad
- Construcción de la Estación de Bombeo de A.R. PB-8 (Zaragoza), en Mexicali, B.C.
- Construcción del Colector de A.S. Col. Orizaba



Wastewater Service in Mexicali

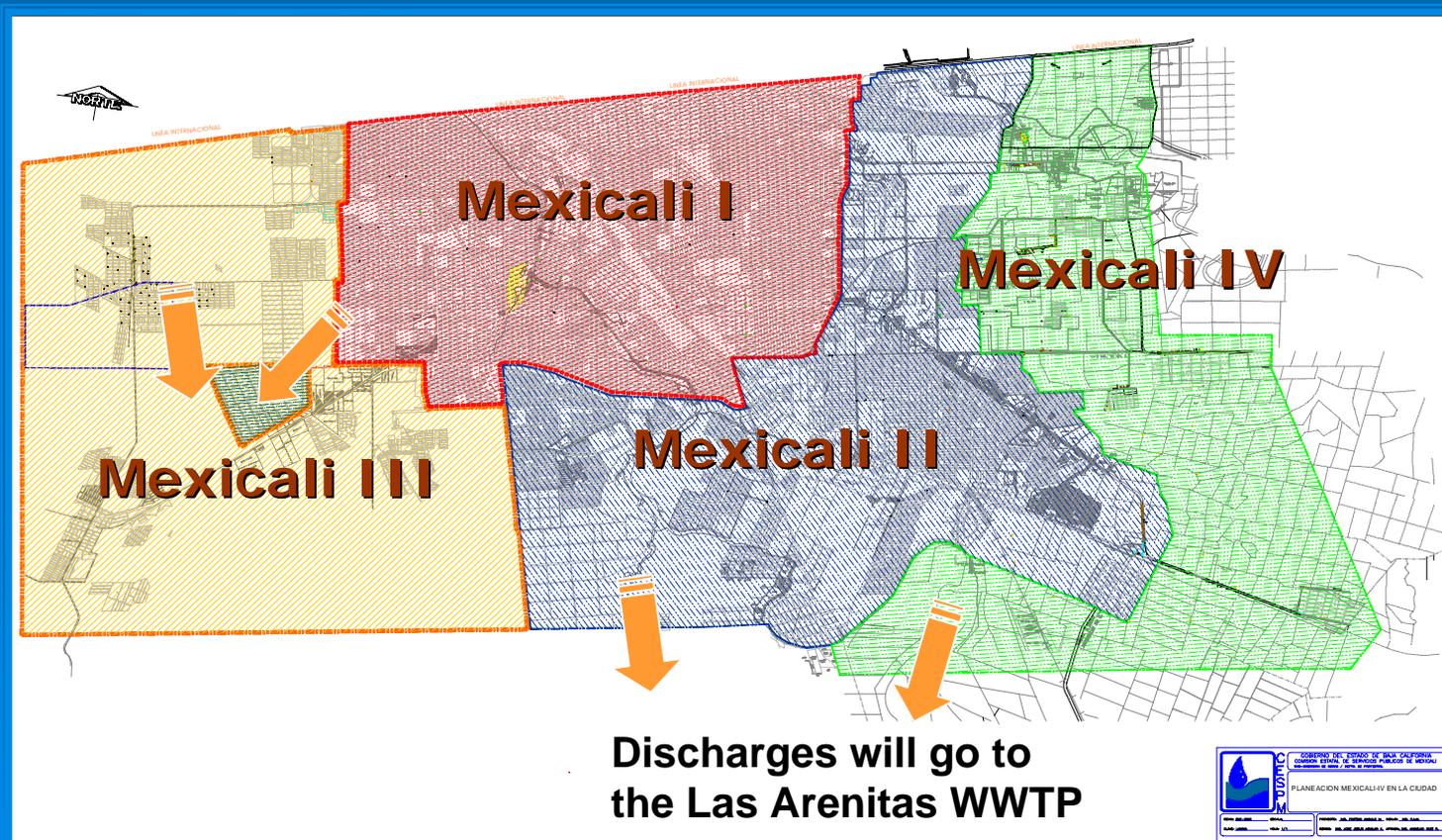
Completion of the Mexicali I and Mexicali II projects will provide:

- Wastewater service to over 650,000 residents
- 100% service in the Mexicali I and II planning areas and
- Improved water quality in the New River

EPA-supported Wastewater Projects in Mexicali

- Past: Planning, Immediate Need Projects & Mexicali I Project
 - Present: Mexicali II
 - **Future: Mexicali IV**
- 

Mexicali Wastewater Service Planning Areas



U.S.- Mexico Collaboration on Wastewater Infrastructure Serving the City of Mexicali

- Mexicali I projects are complete
- Mexicali II projects are in construction and will be completed in 2006, less than 2 years from now
- CESPMS is pursuing projects to address needs in the growing Mexicali IV area
- Binational Technical Committee will continue to meet and oversee progress on projects

Border Infrastructure Program

- EPA has provided between \$100 million to \$500 million a year since 1996 to address water and wastewater infrastructure issues.
 - EPA funds of \$500 million since 1996 have supported over 50 projects with a total cost of \$1.3 billion
 - 6 million border residents have benefited from improved access to safe drinking water and wastewater infrastructure
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- The bottom right portion of the slide features a decorative graphic of several concentric, light blue circles that resemble ripples on water, set against the dark blue background.

What does the Border Infrastructure Program mean for California?

This EPA program provides funds for

- Project development through the Project Development Assistance Program (PDAP) and
- Facilities construction through Border Environment Infrastructure Fund (BEIF) grants.

PDAP-Funded Projects in CA

PDAP Project for CA		PDAP Amount Authorized (US\$)
1	Brawley Planning & Preliminary Engineering	299,482
2	Calexico Financial Study	19,900
3	Heber Alternatives Analysis, Feasibility Study & Step II	179,148
4	Palo Verde Water Sample Analysis	9,220
5	Seeley Planning, Financial Analysis & Step II	249,617
6	Blythe Preliminary Engineering & Environmental Assessment	174,586
7	Desert Shores Master Plans, Financial Analysis & Step II	147,782
8	Desert Shores Quality Assurance Plan & Final Design	80,550
9	El Centro Planning	234,226
10	Brawley Preliminary Engineering & Feasibility Study	69,700
11	Niland Preliminary Engineering, Environmental and Financial Analysis	136,625
12	Calipatria Preliminary Engineering, Environmental and Financial Analysis	136,625
Total:		1,737,461

Years 1997 – 2004

BEIF-Funded Projects in CA

BEIF Project for CA		Population to Benefit	Project Cost (US \$) (Cert.)	BEIF Amount Authorized (US\$)
1	Brawley, CA	26,770	13,761,638	6,390,736
2	Calexico, CA	26,400	11,330,000	6,477,128
3	Desert Shores, CA	1,208	1,203,000	193,869
4	Heber, CA (1)	3,400	3,383,800	1,082,725
5	Heber, CA (2)	-	6,872,871	2,528,375
	<i>Heber, CA (2) (additional funds)</i>	-	-	1,515,146
	<i>Heber, CA (2) (Contingency)</i>	-	-	219,240
6	San Diego, CA (SBWRP)	1,200,000	99,588,000	17,202,462
	<i>Deobligation Westmorland, CA</i>			<i>(200,200)</i>
7	Westmorland, CA	2,300	4,407,220	1,977,500
		1,260,078	140,546,529	Total: 37,386,981

PDAP-Funded Projects in B.C.

PDAP Project for Baja California		PDAP Amount Authorized (US\$)
1	Mexicali Follow Up Actions: Closure & Recovery Study, O&M Study	180,584
2	Tecate Evaluation of Wastewater Treatment System, Step II Doc	139,978
3	Tijuana Survey & Mapping of the Water and Wastewater System	492,680
4	Ensenada Design, Step II Doc. & Feasibility Study	49,500
5	Tecate Development of a Leak Detection Study	202,809
6	Tecate Feasibility Study, Sludge Management	104,176
7	Tijuana Step II & Environmental Impact	33,804
8	Mexicali Financial, Environmental, Mexican Environmental	102,224
Years 1997 – 2004		Total: 1,305,755

BEIF-Funded Projects in B.C.

BEIF Project for B.C.		Population to Benefit	Project Cost (US \$) (Cert.)	BEIF Amount Authorized (US\$)
1	Mexicali, BC (Mexicali I)	635,000	54,973,527	20,620,000
2	Mexicali, BC (Mexicali II)	-	30,161,574	12,854,050
3	Tecate, BC	66,164	10,050,994	3,718,780
	<i>Tecate, BC (increase)</i>	-	-	650,000
4	Tijuana, BC (Par. Lines)	1,310,000	27,430,000	16,000,000
5	Tijuana, BC (Sana)	-	42,014,409	18,007,204
		2,011,164	164,630,504	Total: 71,850,034

Other Projects Funded in CA & BC

Other Project for CA & BC		Population to Benefit	Project Cost (US \$) (Cert.)	Other Amount Authorized (US\$)
1	International WWTP	-	240,000,000	240,000,000
2	Tijuana Master Plan	-	2,000,000	2,000,000
3	Mexicali Planning & Immediate Needs	-	13,400,000	10,000,000
		-	255,400,000	Total: 252,000,000

Tribal Projects in the Border Region of CA

Program	# of Projects	\$ Awarded
Tribal Border	12	14,328,417
Tribal WWTSA	1	141,000
Tribal DWTSA	1	550,000
TOTALS	14	15,019,417

Summary of EPA-Funded Projects in CA and Baja CA

- BEIF/Other: \$361M for 15 Projects
- PDAP: \$3M for 20 Projects
- Tribal: \$15M for 14 Projects

EPA has invested \$380M in 49 Projects that have benefits in CA.

Common Goals of protecting public health and the environment

