## STAFF REPORT **55**

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# CONSIDER ADOPTING A RESOLUTION SUPPORTING INFRASTRUCTURE PROJECTS AND OPERATIONAL CHANGES TO PREVENT TRANSBOUNDARY POLLUTION IN THE TIJUANA RIVER VALLEY

#### **BACKGROUND:**

The Commission has jurisdiction over sovereign land in and near the Tijuana River Valley. The Tijuana River flows through a roughly 1,750-square-mile watershed on both sides of the United States – Mexico border. Nearly three-quarters of the watershed is in Mexico. The river drains into the Pacific Ocean through the 8-square-mile Tijuana River Valley that lies north of the border in San Diego County.

The Tijuana River Valley is located between two heavily populated urban areas, the city of Tijuana in Mexico and the cities of Imperial Beach, Chula Vista, National City, San Diego, and Coronado in the United States. Untreated wastewater flows, contaminated sediment loads, and trash influxes plague the Tijuana River watershed. Just recently, in September 2019, over 100 million gallons of untreated wastewater and runoff flowed through the Tijuana River from Mexico into the United States, resulting in beach closures in San Diego County. Pollution events like this occur regularly because of inadequate infrastructure that becomes overwhelmed with wastewater and debris, and inadequate maintenance and operation of that infrastructure. Wastewater from the city of Tijuana is supposed to be diverted, treated, and discharged 5 miles south of the border before entering the Tijuana River Valley in California. Wet weather, even light rains, can overwhelm the water diversion infrastructure in Mexico, causing untreated wastewater overflow to enter the Tijuana River Valley and Estuary and flow into the Pacific Ocean south of the city of Imperial Beach. These overflows of untreated wastewater, sewage, and debris impede public access and harm public health, directly impacting Public Trust resources, uses, and values throughout the Tijuana River watershed and the San Diego County coastline. The discharged waste has contained contaminants such as mercury, chloroform, ammonia, toluene, dibromochlormethane, oil, grease, and fecal coliform and enterococcus bacteria.

Under a 1944 Treaty between the United States and Mexico, the International Boundary and Water Commission (IBWC) was charged with resolving

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transboundary pollution in the Tijuana River. The IBWC has two sections—the United States Section and the Mexico Section. The United States section is a federal agency that manages the South Bay International Wastewater Treatment Plant and other infrastructure on the United States side of the border that is intended to manage water quality and reduce pollution from entering the United States. Significant population growth, climate change, lack of management resources, and insufficient infrastructure, and operational problems have, however, resulted in a pollution crisis at the border.

Stakeholders have been looking for solutions to the pollution crisis for decades. As staff wrote in a 2017 informational update to the Commission "Although there is no one solution to pursue, it is evident that improved communication and collaboration is beneficial." (<a href="Item-88">Item-88</a>, November 29, 2017</a>). In June 2018, staff reported on several studies assessing potential solutions, including a comprehensive study of short-, mid-, and long-term solutions that the County of San Diego initiated with funding from SB 507 (Hueso, 2017) (SB 507 study). (<a href="Item-102">Item 102</a>, June 28, 2019) These studies progressed enough for staff to conclude in October 2019 that "the solutions are not science fiction—they are commonsense proposals that include, among other things, expanded stormwater diversion structures, increased treatment capacity at the South Bay International Wastewater Treatment Plant, sediment retention basins, and trash collectors, along with improvements to inspection, monitoring, water quality testing, and spill reporting and response procedures." (<a href="Item-77">Item 77</a>, October 24, 2019).

There are a number of options to address the pollution crisis in the Tijuana River Valley. The next steps are to secure funding resources and reach consensus on which solutions should be pursued.

## PROPOSED RESOLUTION:

Stakeholder entities, including the County of San Diego, City of San Diego, City of Imperial Beach, City of Chula Vista, City of Coronado, San Diego Unified Port District, the San Diego Regional Water Quality Control Board, and the Surfrider Foundation, propose to adopt a resolution formally supporting certain infrastructure projects within the United States. These priority projects will eliminate the greatest amount of transboundary flows of waste possible, and as soon as possible. Unified state and local support will greatly assist in ensuring that the federal entities responsible for managing transboundary pollution on the United States side pursue and fund projects that meet the stakeholders' needs.

The proposed priority projects that the resolution would endorse are:

 Diversion of up to 163 million gallons per day to a New South Bay International Wastewater Treatment Plant for Primary Treatment and

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Discharge to Deep Ocean through the South Bay Ocean Outfall, plus Additional Storage at New San Ysidro Basin (SB 507 Study Alternative D)

- Tijuana River Trash Booms and Sedimentation Basins (IBWC's Tijuana River Basin Feasibility Study) (SB 507 Study Alternative K)
- Smuggler's Gulch Trash Boom and In-Line Sedimentation Basin (SB 507 Study Alternative L)
- Smuggler's Gulch Trash Boom and In-Line/Off-Line Sedimentation Basin (SB 507 Study Alternative M)
- Sedimentation and Trash Management in Goat Canyon (SB 507 Study Alternative N)
- Smuggler's Gulch Retrofit Low Flow Diversion (SB 507 Study Alternative O)
- Smuggler's Gulch In-Stream Water Quality Detention Basin (SB 507 Study Alternative P)
- Goat Canyon Retrofit Low Flow Diversion (SB 507 Study Alternative Q)
- Goat Canyon Retrofit In-Stream Water Quality Detention Basin (SB 507 Study Alternative R)

The proposed resolution calls upon the federal government to direct its agencies to analyze these projects and authorize funding to implement them.

#### OTHER PERTINENT INFORMATION:

- 1. This action is consistent with the following strategies in the Commission's Strategic Plan:
  - Strategy 1.1, to deliver the highest levels of public health and safety in the protection, preservation, and responsible economic use of the lands and resources under the Commission's jurisdiction.
  - Strategy 1.2, to provide that the current and future management of ungranted sovereign lands and resources and granted lands, including through strategic partnerships with trustee ports and harbor districts, is consistent with evolving Public Trust principles and values, particularly amid challenges relating to climate change, sea-level rise, public access, and complex land use planning.
  - Strategy 1.3, to protect, expand, and enhance opportunities for public use and access to and along the State's inland and coastal waterways.
- 2. The adoption of the proposed resolution is not a project as defined by the California Environmental Quality Act because it is an administrative action that will not result in direct or indirect physical changes in the environment.

Authority: Public Resources Code section 21065 and California Code of Regulations, Title 14, section 15378, subdivision (b)(5).

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## **EXHIBIT**:

A. Proposed Joint Resolution of State and Local Stakeholders Recommending Project Alternatives and Federal Actions to Eliminate Detrimental Transboundary Flows of Wastes in the Tijuana River Valley

## **RECOMMENDED ACTION:**

It is recommended that the Commission:

## **AUTHORIZATION:**

Adopt the Resolution in substantially the form attached as Exhibit A.

#### EXHIBIT A

# JOINT RESOLUTION OF STATE AND LOCAL STAKEHOLDERS RECOMMENDING PROJECT ALTERNATIVES AND FEDERAL ACTIONS TO ELIMINATE DETRIMENTAL TRANSBOUNDARY FLOWS OF WASTES IN THE TIJUANA RIVER VALLEY

WHEREAS, the signatories of this joint resolution include key State and local stakeholders having vested interests in the Tijuana River Valley and its surrounding environs; all signatories and their respective stakeholders have been significantly and negatively impacted by the effects of transboundary flows of waste in the Tijuana River Valley; and all signatories are unified in identifying project alternatives and actions to eliminate the greatest amount of transboundary flows of waste possible, as soon as possible; and

**WHEREAS**, international transboundary rivers and tributary canyons that carry water across the border from Mexico into the Tijuana River Valley in Southern California are the major source of untreated sewage, trash, sediment, hazardous chemicals, heavy metals, and toxins, which have seriously impacted waters and communities; and

**WHEREAS**, transboundary flows continue to result in clear public health, environmental, and safety issues; these flows have threatened and continue to threaten the health of residents in the United States and Mexico, harm important estuarine land and waters of international significance, force closure of beaches, damage agricultural resources, adversely impact the San Diego County economy; compromise border security, and directly affect United States military readiness; and

**WHEREAS**, a significant amount of untreated sewage, trash, sediment, hazardous chemicals, heavy metals, and toxins have entered southern California through the Tijuana River Watershed since the 1930s; and

WHEREAS, in February 2017, an estimated 143 million gallons of raw sewage flowed into the United States via the Tijuana River and flowed downstream into the Pacific Ocean; the February 2017 transboundary flows are an example of an ongoing condition that has contributed to over two billion gallons of cumulative, verifiable transboundary waste to date and counting; and numerous, repeated transboundary flows have caused beach closures at Border Field State Park for 211 days in 2015; 162 days in 2016, 168 days in 2017, 101 days in 2018, and more than 200 days to date for 2019 as well as closure of beaches along the Pacific coastline from Imperial Beach as far north as Coronado each of those years; and

**WHEREAS**, the presence of pollution is creating unsafe conditions for state, local government and federal agency staff, residents, and visitors on public lands; which

public lands are taxpayer supported and intended to be managed for recreation, resource conservation, and enjoyment by the public; and

**WHEREAS**, water-treatment infrastructure is insufficient to control transboundary pollution through the main channel of the Tijuana River, which poses a significant risk to the public health and safety of residents and the environment on both sides of the border, and places significant economic stress on local governments that are struggling to mitigate the negative impacts of pollution; and

**WHEREAS**, the 1944 treaty between the United States and Mexico regarding *Utilization* of *Waters of the Colorado and Tijuana Rivers and of the Rio Grande* and its implementing Minutes provide for the allocation of flows on transborder rivers between Mexico and the United States, and provide that the nations, through their respective sections of the International Boundary and Water Commission (IBWC) shall "give preferential attention to the solution of all border sanitation problems."; and

**WHEREAS**, in 1990, the United States and Mexico sections of the IBWC issued Minute 283 that provided for the "...the construction and operation of the conveyance, treatment, and final disposal works...[that would] permanently and definitively resolve the existing border sanitation problem..."; and

WHEREAS, in 1993, the United States and Mexico entered into the Agreement Between the Government of the United States of America and the Government of the United Mexican States Concerning the Establishment of a North American Development Bank which created the North American Development Bank to certify and fund environmental infrastructure projects in border-area communities; and

**WHEREAS**, transboundary flows of waste including untreated sewage, trash, sediment, hazardous chemicals, heavy metals, and toxins continue to impact the Tijuana River, Estuary, coastal waters of the Pacific Ocean, and tributary Canyons including Stewart's Drain, Cañon del Sol, Silva Drain, Smuggler's Gulch, Goat Canyon, and Yogurt Canyon; and

**WHEREAS**, the Tijuana River, Estuary, and coastal waters of the Pacific Ocean are listed as impaired water bodies under the Clean Water Act section 303(d) List of Water Quality Limited Waters for numerous constituents including bacterial indicators, trash, ammonia, benthic community effects, eutrophication, low dissolved oxygen, pesticides, phosphorous, sedimentation/siltation, lead, selenium, solids, surfactants, synthetic organic chemicals, total nitrogen, toxicity, trace elements, nickel, thallium, and turbidity; and

**WHEREAS**, in 2009, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) organized the Tijuana River Valley Recovery Team

with over 30 agencies and organizations including the IBWC, City of San Diego, County of San Diego, City of Imperial Beach, United States Fish and Wildlife Service, California Department of Parks and Recreation, WILDCOAST, Surfrider, Tijuana River Valley Equestrian Association, United States Customs and Border Projection (CBP), and the California Coastal Conservancy, to address the transboundary flows of wastes, flooding, and impaired water quality through a multi-agency collaborative approach in lieu of traditional regulatory authorities; and

**WHEREAS**, in 2012, the San Diego Water Board adopted Resolution R9-2012-0030 endorsing the *Tijuana River Valley Recovery Strategy: Living with the Water* (Recovery Strategy), prepared jointly by the member agencies of the Tijuana River Valley Recovery Team, to guide efforts to address sediment, trash and polluted waters to "...clean up the Valley, restore its beneficial uses, and maintain environmental and human values in the Valley."; and

WHEREAS, in 2015, the San Diego Water Board, having received commitments from each of the aforementioned members of the Recovery Team to work together to implement the Recovery Strategy, adopted Resolution R9-2015-0035, renewing its endorsement of the Recovery Strategy and adopted a Five-Year Action Plan to consolidate and focus efforts to address pollution impacts from transboundary flows and recommend "an alternate course of action should the Recovery Team approach fail to attain applicable water quality standards in the Tijuana River Valley within a reasonable period of time."; and

**WHEREAS**, the IBWC subsequently developed Minute 320 with the support of the San Diego Water Board and local agencies including the City of San Diego, City of Imperial Beach, County of San Diego, California Department of Parks and Recreation, and other members of the Tijuana River Valley Recovery Team with the goal of addressing transboundary flows of sediment, trash, and sewage; and

WHEREAS, Congress authorized funding under the United States Environmental Protection Agency's (USEPA) Safe Drinking Water Act and established the State and Tribal Assistance Grants (STAG) program for the United States-Mexico Border Water Infrastructure Program (BWIP) in 1996 to provide grants for high-priority water, wastewater, and storm-water infrastructure projects within 100 kilometers of the southern border; and

**WHEREAS**, in its Fiscal Year 2020 Budget Request, the current federal Administration proposed to not fund BWIP; and

**WHEREAS**, without urgent federal action through BWIP and other federal programs and by federal agencies charged with addressing international pollution flowing through the Tijuana River Valley and into the Pacific Ocean, the People of California, and

visitors impacted by transboundary sewage and toxic waste will continue to suffer from this critical pollution and public health issue; and

WHEREAS, the U.S.- Mexico Border Mayors Association, at their Annual Summit on November 7, 2019, the National Association of Counties, at their Annual Conference on July 15, 2019, the U.S. Conference of Mayors at their Annual Conference on July 1, 2019, and the League of California Cities at their Annual Conference on October 18, 2019 all adopted resolutions calling on the federal and state governments to work together to fund and address this environmental issue; and

WHEREAS, local governments and the public support the state's primary objectives in ensuring compliance with environmental laws including the Clean Water Act, California Porter-Cologne Water Quality Control Act, federal Resource Conservation and Recovery Act, and federal Endangered Species Act; and that those touchstone environmental laws are paramount and must be supported by substantial public investments at all levels of government to maintain a healthy and sustainable environment for current and future residents of California; and

**WHEREAS**, in June 2017, the San Diego Water Board conducted a public Environmental Justice Symposium in which the highest priority Environmental Justice and water quality/community impact identified by the public was the historic and ongoing impacts associated with transboundary flows of waste in the Tijuana River; and

**WHEREAS**, public concerns in response to widespread threats to public health and safety, damage to fish and wildlife resources, and degradation to California's environment resulting from transboundary flows of waste requires urgent action by the federal government; and

**WHEREAS**, in 2017, Governor Brown signed Senate Bill (SB) 507 (Hueso), which allocated \$500,000 to the County of San Diego to commission a study focused on the improvement and protection of natural lands, including the main river channel, in the Tijuana River Valley, and the County of San Diego has drafted an evaluation of potential projects as set forth in its "SB507 Needs and Opportunities Assessment – Alternative Evaluation Matrix (Draft)" (NOA Matrix) that is attached to this Resolution; and

**WHEREAS**, in 2018, U.S. Customs and Border Protection (CBP) conducted monitoring of waters in the Tijuana River and tributary Canyons which monitoring showed repeated exceedances of water quality objectives and reporting over 86 cases of workplace injury reported by CBP Agents and contractors from exposure to polluted transboundary flows; and

**WHEREAS**, AB 74 (Ting, 2019) appropriated \$15 million to assist with the construction of a Tijuana River Pollution Control Project and SB 690 (Hueso, 2019) directed the

California Coastal Conservancy to, when expending this funding, prioritize projects studied under SB 507; and

WHEREAS, based on more than 30 years of environmental and engineering studies and IBWC's documentation of transboundary flows to the San Diego Water Board, it is clear that the overwhelming majority of polluted transboundary flows enter the Tijuana River Valley in the United States through the IBWC flood control channel, rendering the need to address polluted flows through that channel the foremost priority and greatest opportunity to resolve the public health and safety and environmental issues in the Tijuana River Valley; now therefore, be it

**RESOLVED** that the State Lands Commission, along with the other signatories of this joint resolution, generally endorses the projects identified, developed, and analyzed under SB507 and set forth in the NOA Matrix, but specifically endorses certain projects as more specifically detailed herein; and be it further

**RESOLVED** that the State Lands Commission, along with the other signatories of this joint resolution, specifically endorses, and finds critically necessary and to be of the utmost importance, to intercept, divert, and treat in compliance with the Clean Water Act as much of the polluted flows from the Main Channel of the Tijuana River at the South Bay International Waste Water Treatment Plant as possible (currently estimated at 163 million gallons per day based on the unpermitted carrying capacity of the South Bay Ocean Outfall) and to discharge that treated effluent through the South Bay Ocean Outfall; and to study, analyze, and assess the feasibility of constructing additional storage at a new 82 million gallon basin immediately downstream of the IBWC flood control channel as referenced in the NOA Matrix as Alternative D; and be it further

**RESOLVED** that the State Lands Commission specifically endorses the NOA Alternative Evaluation Matrix projects for Smuggler's Gulch (NOA Matrix Alternatives L, M, O, and P or combination thereof) and Goat Canyon (NOA Matrix Alternatives N, Q and R or a combination thereof) to address flows of polluted water, sediment, and trash; and be it further

**RESOLVED** that the State Lands Commission specifically endorses NOA Matrix Alternative K to support active sediment and trash management in the Main Channel of the Tijuana River on an annual basis as envisioned in the 2012/2015 Tijuana River Valley Recovery Strategy; and be it further

**RESOLVED** that the State Lands Commission, along with the other signatories, calls upon the federal government to

1. Direct its agencies, instrumentalities, employees, and contractors to prioritize the expeditious restoration and maintenance of the chemical, physical, and biological

- integrity of the Tijuana River, tributary Canyons, Estuary, and coastal waters of the Pacific Ocean, and to take all necessary steps to end the clear public health, environmental, and safety issues caused by transboundary pollution in the Tijuana River Valley (the "Tijuana River Valley Project Goals");
- 2. Provide authority and direction to EPA, including by designating EPA the agency vested with primary federal authority to facilitate the achievement of the Tijuana River Valley Project Goals, and requiring cooperation from IBWC, United States Army Corps of Engineers, and any other federal agency with relevant technical expertise, for the purposes of expeditiously assessing the feasibility of NOA Matrix Alternatives D, K, L, M, N, O, P, Q, and R, and other projects as appropriate, in order to identify the measures necessary and feasible to achieve the Tijuana River Valley Project Goals;
- 3. Authorize funding and provide authority and direction to EPA to design the capital projects deemed necessary and feasible to achieve the Tijuana River Valley Project Goals;
- 4. Authorize funding for the construction of the capital projects necessary and feasible to achieve the Tijuana River Valley Project Goals;
- Authorize funding for the ongoing operation and maintenance of capital projects deemed necessary and feasible to achieve the Tijuana River Valley Project Goals; and
- 6. Fund BWIP at its historic \$100,000,000 level.

		Т	IJUANA RIVER NEEDS AND OP	PORTUNITIES ASSESS	MENT - ALTERNA	ATIVE EVALUATIO	N MATRIX (DRAF	T) - 10/24/19					
			Metrics  Implementation and O&M Environmental Community/Societal										
Alternative	Projects	Description	Estimated Cost <sup>1</sup>	Avg. Trans- boundary Flows <sup>2</sup> (baseline of 138	Imp Technical Feasibility	lementation and ( Operating Complexity	O&M Sustainability (i.e., energy usage)	Impact to Habitat (River Valley)	nmental Impact to Habitat (Ocean)	Environmental Justice	Communit Ancillary Community Benefits	cy/Societal  Community  Disruption	Public Support
				days/yr³)					Ratings				
А	3a/4a	Diversion of up to 35 mgd to New SBIWTP for Primary Treatment and Discharge to Deep Ocean through SBOO	Implementation: \$78M Annual O&M: \$1.9M/yr Env. Monitoring: \$10M	56 days (61%)									
В	3b/4b	Diversion of up to 100 mgd to New SBIWTP for Primary Treatment and Discharge to Deep Ocean through SBOO	Implementation: \$167M Annual O&M: \$2.9M/yr Env. Monitoring: \$10M	20 days (84%)									
С	3c/4c	Diversion of up to 163 mgd to New SBIWTP for Primary Treatment and Discharge to Deep Ocean through SBOO	Implementation: \$246M Annual O&M: \$4.5M/yr Env. Monitoring: \$10M	12 days (91%)									
D	3c/4d	Diversion of up to 163 mgd to New SBIWTP for Primary Treatment and Discharge to Deep Ocean through SBOO, plus Additional Storage at New San Ysidro Basin	Implementation: \$408M Annual O&M: \$4.8M/yr Env. Monitoring: \$10M	12 days (91%)									
E	3a/4e	Diversion of up to 35 mgd to Existing SBIWTP for Primary Treatment and Discharge to Deep Ocean through SBOO (per NADB Tijuana River Diversion Study Alternative 4B)	Implementation: \$52M Annual O&M: \$7M/yr Env. Monitoring: \$10M	56 days (61%)									
F	5a/6a	Diversion of up to 20 mgd to Existing SBWRP and Discharge to Deep Ocean through SBOO	Implementation: \$47M Annual O&M: \$1M/yr Env. Monitoring: \$10M	75 days (46%)									
G	5b/6b	Diversion of up to 50 mgd to Existing SBWRP and Discharge to Deep Ocean through SBOO	Implementation: \$83M Annual O&M: \$1.5M/yr Env. Monitoring: \$10M	41 days (70%)									
н	7	Pumped Direct Discharge of up to 193 mgd to SBOO without Treatment	Implementation: \$22M Annual O&M: \$1.6M/yr Env. Monitoring: \$10M	9 days (93%)									
I	8	Gravity Flow Direct Discharge of up to 193 mgd to SBOO without Treatment	Implementation: \$87M Annual O&M: \$125K/yr Env. Monitoring: \$10M	9 days (93%)									
J	9	Tijuana River In-Stream Water Quality Detention Basin - 20 mgd	Implementation: \$75M Annual O&M: \$200K/yr Env. Monitoring: \$10M	75 days (46%)									

<sup>&</sup>lt;sup>1</sup>Includes \$4M for environmental permitting and \$1M/yr for 10 years for environmental monitoring; environmental mitigation is excluded.

Positive Impact

Moderate Impact

Negative Impact

<sup>&</sup>lt;sup>2</sup> This column includes the number of transboundary flow days per year estimated to remain unaddressed after implementation of the projects in each alternative. The percentage reflects estimated reduction in transboundary flow days/year from baseline.

<sup>&</sup>lt;sup>3</sup> Per EPA's Tijuana River Diversion Study

			TIJUANA RIVER NEEDS AND	OPPORTUNITIES ASSI	SSMENT - ALTER	NATIVE EVALUAT	TION MATRIX (DRA	AFT) - 10/24/19					-		
			Metrics												
Alternative				Implementation and O&M			Environmental			Communi	ty/Societal				
	Projects	Description	Estimated Cost <sup>1</sup>	Potential Benefit	Technical Feasibility	Operating Complexity	Sustainability (i.e., energy usage)	Impact to Habitat (River Valley)	Impact to Habitat (Ocean)	Environmental Justice	Ancillary Community Benefits	Community Disruption	Public Support		
									Ratings						
К	1/2	Tijuana River Trash Booms and Sedimentation Basins (per IBWC's Tijuana River Basin Feasibility Study)	Implementation: TBD Annual O&M: TBD Env. Monitoring: \$10M	Removal of 20,500 tons of trash and sediment (5-year)											
L	10/11a	Smuggler's Gulch Trash Boom and In-Line Sedimentation Basin	Implementation: \$6.2M Annual O&M: \$1.1M/yr Env. Monitoring: \$10M	Removal of 15,600 tons of trash and sediment (5-year)											
М	10/11b	Smuggler's Gulch Trash Boom and In-Line/Off-Line Sedimentation Basin	Implementation: \$7M Annual O&M: \$1.1M/yr Env. Monitoring: \$10M	Removal of 16,100 tons of trash and sediment (5-year)											
N	16	Sedimentation and Trash Management in Goat Canyon	Annual O&M: \$5M	Reduced ongoing cost for use and/or removal of captured sediment and trash											

Includes \$4M for environmental permitting and \$1M/yr for 10 years for environmental monitoring; environmental mitigation is excluded.

Positive Impact



Moderate Impact



Negative Impact

			TIJUANA RIVER NEEDS AN	D OPPORTUNITIES ASS	ESSMENT - ALTEI	RNATIVE EVALUAT							
					Imn	Implementation and O&M			nmental	Community/Societal			
Alternative	Projects	Description	Estimated Cost <sup>1</sup>	Potential Benefit	Technical Feasibility	Operating Complexity	Sustainability (i.e., energy usage)	Impact to Habitat (River Valley)	Impact to Habitat (Ocean)  Ratings	Environmental Justice	Ancillary Community Benefits	Community Disruption	Public Support
0	12	Smuggler's Gulch Retrofit Low Flow Diversion	Implementation: \$13M Annual O&M: \$500K/yr Env. Monitoring: \$10M	Diversion of up to additional 30 MGD									
Р	13	Smuggler's Gulch In-Stream Water Quality Detention Basin	Implementation: \$44M Annual O&M: \$1.5M/yr Env. Monitoring: \$10M	Diversion of up to additional 163 MGD									
Q	14	Goat Canyon Retrofit Low Flow Diversion	Implementation: \$15M Annual O&M: \$500K/yr Env. Monitoring: \$10M	Diversion of up to additional 30 MGD									
R	15	Goat Canyon Retrofit In-Stream Water Quality Detention Basin	Implementation: \$44M Annual O&M: \$1.5M/yr Env. Monitoring: \$10M	Diversion of up to additional 163 MGD									
S	17	Yogurt Canyon Low-Flow Diversion	Implementation: \$14M Annual O&M: \$500K/yr Env. Monitoring: \$10M	Diversion of up to additional 30 MGD									
Т	18	Yogurt Canyon Pilot Channel	Implementation: \$9M Annual O&M: \$5K/yr Env. Monitoring: \$10M	Reduce sediment and freshwater impacts to TJR Estuary; reduce flooding on Monument Road									
U	27	Tijuana Estuary Tidal Restoration Program (TETRP)	Implementation: \$200M Annual O&M: TBD Env. Monitoring: \$10M	Provides increased function of ecological wetland processes									
	<sup>1</sup> Includes \$4M	for environmental permitting and \$1M/yr for 10 years for Positive Impact	environmental monitoring; e	environmental mitigatio	n is excluded.								



Moderate Impact



Negative Impact