

State of California
Regional Water Quality Control Board
San Diego Region

EXECUTIVE OFFICER SUMMARY REPORT
March 11, 2009

ITEM: 10

SUBJECT: Resolution to request funding from the State Water Pollution Cleanup and Abatement Account administration by the State Water Resources Control Board for Phase One of the Tijuana River Valley Trash/Sediment Transport and Deposition Study. (Tentative Resolution No. R9-2009-0035). (*Benjamin Tobler*)

PURPOSE: To request funding from the State Water Pollution Cleanup and Abatement Account administration by the State Water Resources Control Board for Phase One of the Tijuana River Valley Trash/Sediment Transport and Deposition Study.

PUBLIC NOTICE: None required.

DISCUSSION: Project Location and Background
The Tijuana River watershed drains a 1,730 square mile basin. The watershed is divided by the U.S./Mexico border with just 27% located within the San Diego Region. The headwaters originate in both the United States and Mexico with the main part of the river flowing via a concrete-lined flood control channel through Tijuana and subsequently crossing over into the U.S. at San Ysidro, California. The Lower Tijuana River then flows westerly in a broad floodplain into the Tijuana Estuary before discharging into the Pacific Ocean. Two major tributaries at Goat Canyon and Smuggler's Gulch also discharge to the Lower Tijuana River.

Both the Tijuana River and its estuary have numerous 303(d) listings for pollutant impairments. For the river, impairments include eutrophic conditions, indicator bacteria, low dissolved oxygen, pesticides, solids, synthetic organics, trash elements, and trash. For the estuary impairments include eutrophic conditions, indicator bacteria, lead, low dissolved oxygen, nickel, pesticides, thallium, trash, and turbidity.

Throughout the years, trash and sediment deposition have been an enduring problem for the Tijuana River. Multiple

efforts have been undertaken to remove trash and sediment, however these efforts did not address the area as a whole or the source of the problem. Furthermore, the continuing inflow of trash and sediment has not been fully characterized. The development and implementation of TMDL's for these pollutants will benefit greatly from this study.

Project Need

Phase I of the Tijuana River Valley Trash/Sediment Transport and Deposition Study will be the first step in addressing the ongoing trash and sediment problem which has been impacting the beneficial uses of the lower Tijuana River Valley for decades (see Attachment 1 in Supporting Document 3). This project represents a component of the overall strategy of the Tijuana River Valley Recovery Team (TJRVRT) (see Supporting Document 2) which is to remove trash and sediment and restore the hydraulic/hydrologic functions of the valley. The TJRVRT is currently preparing a detailed report of trash/sediment characterization in the Tijuana River Valley. Additionally, all phases of this project goes hand in hand with the work of the TJRVRT's Cleanup Action Team and their goal to cleanup and prevent the discharges of polluted water from Mexico. This project will be the first of several phases that, when completed, will provide a comprehensive analysis of the trash and sediment depositional issues and will include the development of capture devices and the long-term operation and maintenance costs associated with implementing such devices. This project will build upon the results obtained from the Tijuana River Trash, Tire, and Sediment Characterization Study (funded by the California Integrated Waste Management Board), thus providing a full assessment of the entire river floodplain from the International Border to the Pacific Ocean.

This project will accomplish three major objectives:

1. Create a comprehensive picture of the existing trash and sediment problem in the valley.
2. Understand how the hydrologic and hydraulic functions of storm flows affect the valley.
3. Determine how changes to physical characteristics of the valley impact the floodplain.

Workplan

The County of San Diego (County) will manage this project and seek partnerships with the City of San Diego and other

participants in the TJRVRT. The County will serve as the administrator for tasks undertaken by its partners. The length of the proposed project will be one year, but the schedule for all phases is three years.

Scope of Work

This report will utilize findings from the Tijuana River Trash, Tire, and Sediment Characterization Study. This project will address the following three components: 1) Inventory of Existing Information to compile and evaluate the existing information available regarding the Tijuana River Valley; 2) Digitize/Compile Existing Information to create GIS based documentation of the Tijuana River Valley; and 3) Analyze Existing Flow Regime and Determine Floodplain Impacts through the development of hydraulic modeling and sediment transport modeling which are major components of the Master Drainage Plan. The remainder of the Master Drainage Plan will be completed in a subsequent phase.

Budget

The overall cost for all phases of this project is estimated to be \$1,900,000. It is anticipated that Phase I will require \$700,000 to meet the outlined objectives. The San Diego Regional Water Quality Control Board is asking for \$700,000 from the Clean Up and Abatement (CAA) Funds towards the first phase of this work. The estimated cost to complete each component outlined in Phase I is as follows:

Component A: Inventory of Existing Information: \$20,000

Component B: Digitize/Compile Existing Information:
\$50,000

Component C: Analyze Existing Flow Regime and
Determine Floodplain Impacts: \$630,000

Resources provided by the County and other partners will be realized through in-kind services. The work of the TJRVRT will provide leverage for this project through cooperative efforts. Supporting Document 3 provides an example of the cooperative efforts undertaken by others involved with the TJRVRT which are beneficial to this project.

Project Submittals

The intended outcome of this project is a report addressing the three components and the findings. This report will contain a partially complete Master Drainage Plan for the valley. The second phase of the overall effort will build upon this report to complete the Master Drainage Plan and begin

the development of the trash and sediment removal strategies. It is anticipated that the San Diego Regional Water Quality Control Board will request CAA funds for fiscal year 2010 to complete the work for Phase II.

In addition, to the information pertaining to the Master Drainage Plan, the report will provide a topographic map of the valley and GIS mapping. The report will be in both hard copy and electronic format.

LEGAL CONCERNS: None.

SUPPORTING DOCUMENTS:

1. Tentative Resolution No. R9-2009-0035.
2. Tijuana River Valley Recovery Team Fact Sheet
3. Request for Cleanup and Abatement Funds Tijuana River Valley Phase One of the Tijuana River Valley Trash/Sediment Transport and Deposition Study.

RECOMMENDATION(S): Adoption of Resolution No. R9-2009-0035 is recommended.

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

TENTATIVE RESOLUTION NO. R9-2009-0035

**A RESOLUTION TO REQUEST FUNDING FROM THE STATE WATER
POLLUTION CLEANUP AND ABATEMENT ACCOUNT ADMINISTRATION BY
THE STATE WATER RESOURCES CONTROL BOARD FOR PHASE ONE OF
THE TIJUANA RIVER VALLEY TRASH/SEDIMENT TRANSPORT AND
DEPOSITION STUDY**

WHEREAS, the California Regional Water Quality Control Board, San Diego Region (hereinafter, San Diego Water Board), finds that:

1. At a San Diego Water Board meeting held on June 25, 2008, a workshop was held for persons and agencies interested in activities to restore the wetlands and to abate pollution in the Tijuana River valley watershed. The objective of the workshop was to offer a public forum to exchange information on the activities of various federal, state, and local government agencies and non-governmental organizations.
2. Subsequently, the Tijuana River Valley Recovery Team (TJRVRT) was formed. The mission of the TJRVRT includes the removal of trash and sediment and to restore the hydraulic/hydrologic functions of the valley. Included in the formation of the TJRVRT were four sub-teams, each responsible for specific tasks. These teams are the Cleanup Team, the Border Issues Team, the Binational Team, and the Restoration Team.
3. Of the four recovery sub-teams, the Cleanup Team was tasked with the cleanup of the trash and sediment in the Tijuana River valley. The County of San Diego is the lead for the Cleanup Team and has recognized, as a first step to a cleanup, the need to determine the full extent of the trash and excess sediment in the river valley.
4. The County of San Diego, as lead for the Cleanup Team, has proposed a project to determine the full extent of the trash and excess sediment in the river valley. The name of this project is the Tijuana River Valley Trash/Sediment Transport and Deposition Study.
5. The overall cost for all phases of this project is estimated to be \$1,900,000. It is anticipated that Phase One will require \$700,000 to meet the outlined objectives. Resources provided by the County of San Diego and other partners will be realized through in-kind services. The San Diego Water Board is asking for \$700,000 from the Clean Up and Abatement (CAA) Funds

towards the first phase of this work. The estimated cost to complete each component outlined in Phase One is as follows:

Component A: Inventory of Existing Information: \$20,000

Component B: Digitize/Compile Existing Information: \$50,000

Component C: Analyze Existing Flow Regime and Determine Waste

Discharge Floodplain Impacts: \$630,000

NOW, THEREFORE, BE IT RESOLVED THAT, the San Diego Water Board supports Phase One of the Tijuana River Valley Trash/Sediment Transport and Deposition Study by requesting funds in the amount of \$700,000 to fulfill the intended purpose of Resolution No. R9-2009-0035.

I, John H. Robertus, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a resolution adopted by the California Regional Water Quality Control Board, San Diego Region, on March 11, 2009.

John H. Robertus

Executive Officer

Tijuana River Valley Recovery Team

A Fact Sheet

- What is it?** A collaboration of 20 federal, state, and local agencies organized into four action teams and working together to implement a recovery plan for the Tijuana River Valley under the overall guidance of a policy committee.
- Vision:** A Tijuana River Valley free of historical trash and sediment, protected from future deposits of trash and sediment, restored to a sustained physical, chemical and biological integrity, and performing its hydrologic functions, while respecting the rights of current and future landowners and users.
- Mission:** To bring together the government administrative, regulatory, and funding agencies in tandem with advice from the scientific community, the environmental community, and affected stakeholders to protect the Tijuana River Valley from future accumulations of trash and sediment, identify, remove, recycle or dispose of existing trash and sediment, and restore the Tijuana River floodplain to a balanced wetland ecosystem.

POLICY COMMITTEE

- Mission:** To provide guidance, coordination and administrative support for the four action teams.
- Co-Chairs:** John Robertus, San Diego Regional Water Quality Control Board
Carl Nettleton, Nettleton Strategies.

BORDER ACTION TEAM

- Mission:** To develop and implement solutions in the immediate vicinity of the border that will capture and divert trash and sediment before it reaches the Tijuana River Valley.
- Co-Chairs:** Tony Heinrichs, City of San Diego
Steve Smullen, International Boundary and Water Commission

CLEANUP ACTION TEAM

- Mission:** To identify, map, characterize and cleanup trash and manage sediment in the Tijuana River Valley floodplain in an environmentally sensitive way.
- Co-Chairs:** Cid Tesoro, County of San Diego
Michael McCann, San Diego Regional Water Quality Control Board

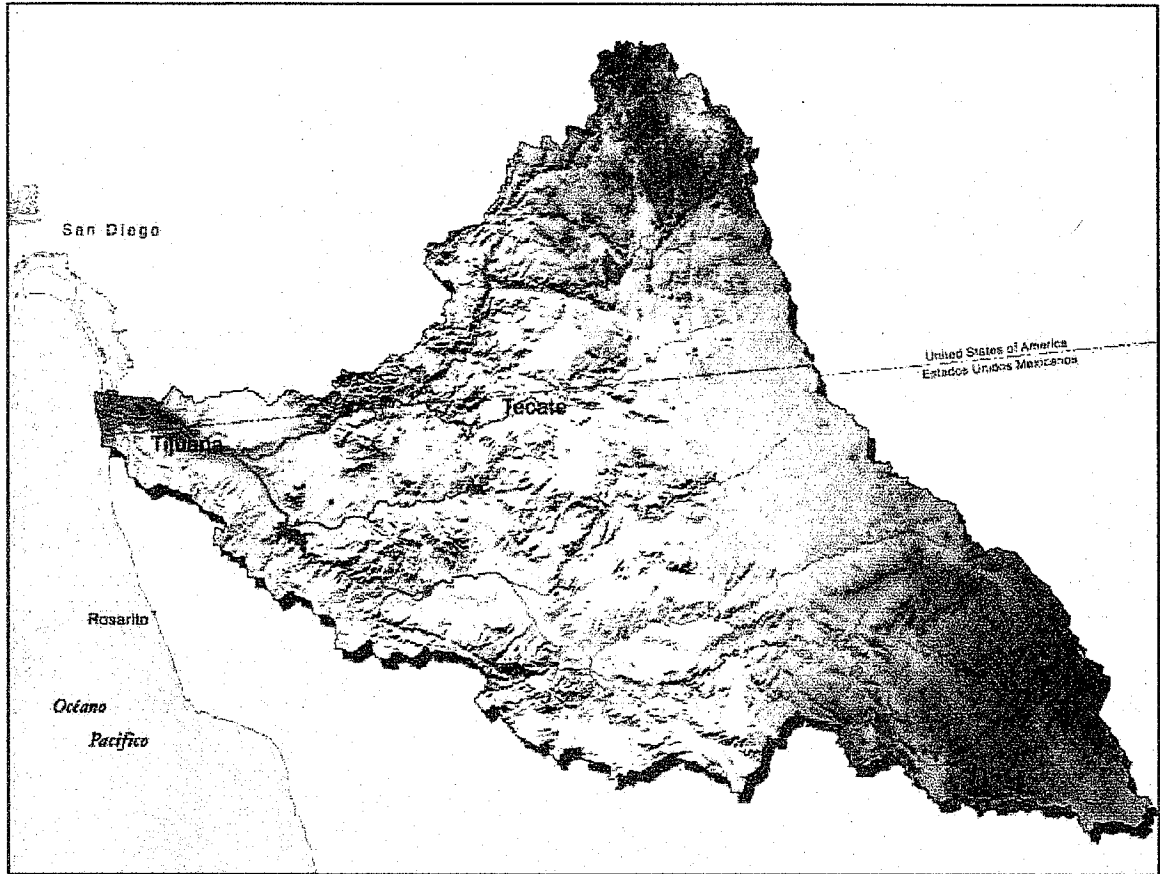
RESTORATION ACTION TEAM

- Mission:** To imagine, plan, coordinate and implement the restoration, mitigation, and flood control features of the Tijuana River Valley ecosystem from the border to the ocean.
- Co-Chairs:** Jeff Crooks, Tijuana River National Estuarine Research Reserve
Clay Phillips, California State Parks

BINATIONAL ACTION TEAM

- Mission:** To identify the sources of trash and sediment in the Tijuana River Valley watershed that impact the Tijuana River Valley floodplain and to recommend, establish, and implement a plan to abate and manage these sources in cooperation with Mexican agencies.
- Co-Chairs:** Oscar Romo, National Oceanographic and Atmospheric Administration
Nicholas Surjan, California Environmental Protection Agency

**REQUEST FOR CLEANUP AND ABATEMENT FUNDS
TIJUANA RIVER VALLEY**



**PHASE ONE OF THE TIJUANA RIVER VALLEY TRASH/SEDIMENT
TRANSPORT AND DEPOSITION STUDY**

February 12, 2009

TABLE OF CONTENTS:

1.	PROJECT LOCATION AND BACKGROUND.....	1
2.	PROJECT NEED.....	1
3.	WORK PLAN.....	2
4.	SCOPE OF WORK.....	2
5.	BUDGET.....	4
6.	PROJECT SUBMITTALS.....	4

Attachment 1: Photographic Documentation of Trash/Sediment in Tijuana River Valley

Attachment 2: Study Area Map

Attachment 3: Cooperative Efforts with TJRVRT Partners

**REQUEST FOR CLEANUP AND ABATEMENT FUNDS FROM THE STATE WATER
RESOURCE CONTROL BOARD
FISCAL YEAR 2009/2010**

**PHASE ONE OF THE TIJUANA RIVER VALLEY TRASH/SEDIMENT TRANSPORT AND DEPOSITION
STUDY**

1. PROJECT LOCATION AND BACKGROUND

The Tijuana River watershed drains a 1,730 square mile basin. The watershed is divided by the U.S./Mexico border with just 27% located within the San Diego Region. The headwaters originate in both the United States and Mexico with the main part of the river flowing via a concrete-lined flood control channel through Tijuana and subsequently crossing over into the U.S. at San Ysidro, California. The Lower Tijuana River then flows westerly in a broad floodplain into the Tijuana Estuary before discharging into the Pacific Ocean. Two major tributaries at Goat Canyon and Smuggler's Gulch also discharge to the Lower Tijuana River.

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Throughout the years, trash and sediment deposition have been an enduring problem for the Tijuana River. Multiple efforts have been undertaken to remove trash and sediment, however these efforts did not address the area as a whole or the source of the problem. Furthermore, the continuing inflow of trash and sediment has not been fully characterized.

2. PROJECT NEED

Phase I of the Tijuana River Valley Trash/Sediment Transport and Deposition Study will be the first step in addressing the ongoing trash and sediment problem which has been impacting the beneficial uses of the lower Tijuana River Valley for decades (see Attachment 1). This project represents a component of the overall strategy of the Tijuana River Valley Recovery Team (TJRVRT) which is to remove trash and sediment and restore the hydraulic/hydrologic functions of the valley. The TJRVRT is currently preparing a detailed report of trash/sediment characterization in the Tijuana River Valley. Additionally, all phases of this project goes hand in hand with the work of the TJRVRT's Cleanup Action Team and their goal to cleanup and prevent the discharges of polluted water from Mexico. This project will be the first of several phases that, when completed, will provide a comprehensive analysis of the trash and sediment depositional issues and will include the development of capture devices and the long-term operation and maintenance costs associated with implementing such devices. This project will build upon the results obtained from the Tijuana River Trash, Tire, and Sediment Characterization Study (funded by the California Integrated Waste Management Board), thus providing a full assessment of the entire river floodplain from the International Border to the Pacific Ocean.

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3. WORK PLAN

The County of San Diego (County) will manage this project and seek partnerships with the City of San Diego and other participants in the TJRVRT. The County will serve as the administrator for tasks undertaken by its partners. The length of the proposed project will be one year, but the schedule for all phases is three years.

4. SCOPE OF WORK

This report will utilize findings from the Tijuana River Trash, Tire, and Sediment Characterization Study. This project will address the following three components:

A: Inventory of Existing Information

The intent of this component is to compile and evaluate the existing information available regarding the Tijuana River Valley. Documents to be reviewed include the following:

- *Tijuana River Trash, Tire, and Sediment Characterization Study*
- *2007 revision of the Tijuana River National Estuarine Reserve Management Plan*
- *A Binational Vision for the Tijuana River Watershed;*
- *Biodiversity Along the Border Committee Strategies for Consideration;*
- *Southern California Wetlands Recovery Program Work Plan; and*
- *Border Fence Project plans and drainage reports.*

Lastly, a review of the existing basins and capture devices located within the project area will be conducted. The location of these devices will be geo-referenced.

Estimated Cost - \$20,000

B: Digitize/Compile Existing Information

The intent of this component is to create GIS based documentation of the Tijuana River Valley. Mapping developed by the Tijuana River Trash, Tire, and Sediment Characterization Study will be incorporated into this project. Additional GIS database information such as land use classifications and soil groups needed for subsequent phases will be obtained from the County.

To help understand the geomorphic changes in the valley, a topographic map will be created using LIDAR data gathered as part of this component. Existing sediment basins and other capture devices will be incorporated into the map.

Estimated Cost - \$50,000

C: Analyze Existing Flow Regime and Determine Floodplain Impacts

This analysis consists of hydraulic modeling and sediment transport modeling which are major components of the Master Drainage Plan. The remainder of the Master Drainage Plan will be completed in a subsequent phase.

1. HYDRAULIC MODELING

Hydraulic models will be assembled to quantify the negative effects, and volume of the deposition of sediment and trash within the study area (See Attachment 2) during recent past. This effort will include the comparison of several existing models as well as a new model produced to reflect the current conditions, based upon the current LIDAR data.

The results of the models will be compared and the effects of sediment and trash deposition (or erosion, if present) on floodplain boundaries, water surface elevations and velocities will be defined and explained. The results will quantify the volume of accumulated sediment and trash over time within the study area.

2. SEDIMENT TRANSPORT MODELING

A watershed based sediment transport model will be established for the Tijuana River Watershed. The model will include sediment generated from surface runoff, as well as channel erosion. The model results will be compared to the results of past sediment transport modeling in and around the study area. The comparison will be used, in conjunction with the hydraulic modeling, to determine changes in sediment transport rates over time.

The results of the hydraulic modeling and the sediment transport analysis will be combined to make comparisons that will be utilized to:

- Calculate past transport of trash and sediment to the Tijuana River Valley.
- Quantify the volume and effects of past deposition of trash and sediment within the study area.
- Quantify and predict anticipated future deposition levels of trash and sediment within the study area.
- Assist in planning and regulation of development in the Tijuana river watershed.
- Aid in the design of measures to mitigate negative effects caused by deposition in the study area.
- Establish historic data that can later be compared with post project results to monitor the effectiveness of mitigation measures.

Estimated Cost - \$630,000

5. BUDGET

The overall cost for all phases of this project is estimated to be \$1,900,000. It is anticipated that Phase I will require \$700,000 to meet the outlined objectives. The San Diego Regional Water Quality Control Board is asking for \$700,000 from the Clean Up and Abatement (CAA) Funds towards the first phase of this work. The estimated cost to complete each component outlined in Phase I is as follows:

- Component A: Inventory of Existing Information.....\$20,000
- Component B: Digitize/Compile Existing Information.....\$50,000
- Component C: Analyze Existing Flow Regime and Determine Floodplain Impacts....\$630,000

Resources provided by the County and other partners will be realized through in-kind services. The work of the TJRVRT will provide leverage for this project through cooperative efforts. Attachment 2 provides an example of the cooperative efforts undertaken by others involved with the TJRVRT which is beneficial to this project.

6. PROJECT SUBMITTALS

The intended outcome of this project is a report addressing the three components and the findings. This report will contain a partially complete Master Drainage Plan for the valley. The second phase of the overall effort will build upon this report to complete the Master Drainage Plan and begin the development of the trash and sediment removal strategies. It is anticipated that the San Diego Regional Water Quality Control Board will request CAA funds for fiscal year 2010 to complete the work for Phase II.

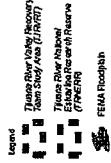
In addition, to the information pertaining to the Master Drainage Plan, the report will provide a topographic map of the valley and GIS mapping. The report will be in both hard copy and electronic format.

Attachment 1

Photo Documentation of Trash/Sediment in Tijuana River Valley



Tijuana River Valley



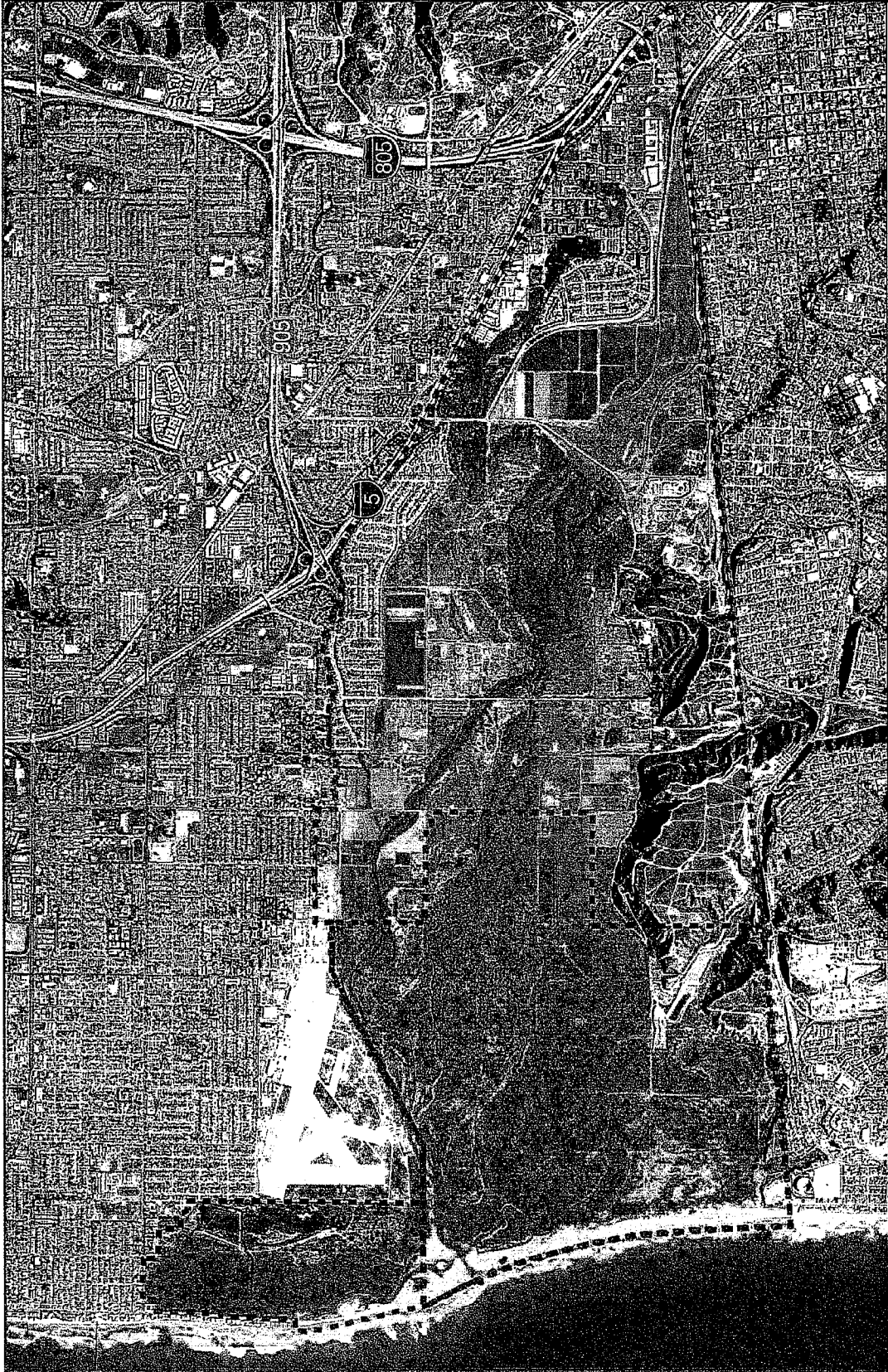
The County of San Diego - DPW/GIS provides this geographic data as is. The information portrayed/obtained herein may be preliminary and subject to revision. The parcel boundaries shown herein are for assessment purposes ONLY and should not be construed as a legal property survey. The County of San Diego - DPW/GIS has technically reviewed this coverage but disclaims any responsibility or liability for any omissions or errors based on current information available to the County of San Diego - DPW/GIS. DPW/GIS has any liability whatsoever for payment of any kind, including, but not limited to, any loss or damages of any kind, including, but not limited to, any loss of, or profits arising out of use or reliance on the geographic data.

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Department of Public Works
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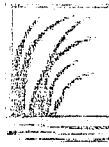
1" = 2300'

Aerial Photo Date: 2008



Tijuana River National Estuarine Research Reserve

"A Wetland of International Importance" *International Ramsar Convention, 2005*



Trash and Sediment Management Activities in the Tijuana River National Estuarine Research Reserve

Goat Canyon Sediment Basins in Border Field State Park

Two Goat Canyon Sediment Basins were constructed in the spring of 2005 to help capture sediment before it reaches salt marsh habitat within the Tijuana River National Estuarine Research Reserve (TRNERR). Prior to construction of the basins, sediment freely flowed through the park, inundating roads, destroying structures, and covering salt marsh. Annually several acres of environmentally sensitive salt marsh was elevated by sediment deposits and transformed into degraded uplands dominated by non-native plants. TRNERR typically remove the sediment from the basins each fall, prior to the next rainy season. The cost of removal varies greatly and depends on the amount of sediment in the basins, space available on the processing pad, and the quality of the sediment material. Since 2005, TRNERR's cost to clear the sediment from the basins have averaged about \$50,000 annually.

Trash Booms in Goat Canyon Sediment Basins

The California Integrated Waste Management Board awarded \$250,000 in grants to expedite the installation and establishment of a trash capture and removal system along the California-Mexico border before the arrival of winter/spring rains. The affected area is in the Tijuana River Valley and Goat Canyon in Border Field State Park, 15 miles south of San Diego. It is located entirely within the Tijuana River National Estuarine Research Reserve, an important wildlife habitat managed by the California Department of Parks and Recreation. The grant will allow Waste Board and State Parks contractors to immediately install a trash boom collection system in the Upper and Lower Goat Canyon tidal basins for use in this wet season. State Parks had previously designed and purchased the boom system for the basins but did not have the resources or funds to expedite its installation for use this winter. The contractors will also assist in the initial removal of trash, tires, and sediment. State Parks will provide site access and will be responsible for long-term operation and maintenance of the system.

Prevent Sediment from Entering the Reserve

Sediment is choking out valuable salt marsh habitat within the Reserve. The goal of this activity is to capture sediment before it enters the Reserve by facilitating the installation of a series of sediment basins in key locations throughout the lower watershed. With funds received from the U.S. EPA, SWIA will hire a Watershed Projects Facilitator to facilitate the preparation of detailed site plans for potential basin locations on both sides of the border; work with landowners and municipal, state, and federal agencies to obtain title, construction, and long-term maintenance commitments; and assure that monitoring measures are in place. The long-term goal of this effort is to see the installation of three sediment basins, reducing the amount of sediment that enters the lower watershed. The Reserve and its Mexico partners will monitor the effectiveness of the installed basins by annually calculating the

amount of sediment that would otherwise been deposited in the estuary. In addition the basins will be inspected annually to ensure regular maintenance is accomplished. This activity is an element of the Southwest Wetlands Interpretive Association's grant from the U.S. Environmental Protection Agency's West Coast Estuaries Initiative.

Tijuana River Valley Trash Characterization Study & Trash Removal

Little is known about the nature, extent, and characteristics of trash and sediment present in the lower Tijuana River Valley, making it very difficult to plan for trash and sediment removal efforts. The goal of this activity is to assess the volume, composition, and precise location of trash in the Tijuana River Valley in order to analyze alternatives for trash removal, as well as prevention measures along the U.S.-Mexico border. Accessible deposits of trash from previous years will be cleaned up. The County of San Diego will coordinate with the California Integrate Waste Management Board and the Reserve to conduct the study of the nature, extent, and characteristics of trash and sediment in the Tijuana River Valley then produce a report. Meanwhile, under the direction of the Reserve's Stewardship Coordinator, Environmental Services Interns will immediately implement a program of regular trash collection with Reserve volunteers. This activity is an element of the Southwest Wetlands Interpretive Association's grant from the U.S. Environmental Protection Agency's West Coast Estuaries Initiative. The \$100,000 grant from the Integrated Waste Management Board to fund the trash and sediment characterization study is non-federal match for SWIA's grant.