

# Master Storm Water System Maintenance Program Annual Report

*Prepared by:*

The City of  
**SAN DIEGO**

**SD** Transportation &  
Storm Water

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## EXECUTIVE SUMMARY

Under Council Policy 800-04 (City Council, 2012), the City of San Diego (City) accepts responsibility for maintaining public drainage facilities which are designed and constructed to City standards and located within a public street or drainage easement dedicated to the City. Due to the environmental sensitivity of the drainage channels that the City maintains, the Transportation & Storm Water Department's Storm Water Division (SWD) adopted the Master Storm Water System Maintenance Program (MMP) to perform channel maintenance activities for flood protection in a manner that minimizes environmental impacts associated with channel maintenance. The MMP includes storm water facilities, specifically open channels, which the Storm Water Division has the responsibility to maintain.

Pursuant to Section 5.5 of the MMP and in accordance with Programmatic Environmental Impact Report (PEIR) Mitigation Measure 4.3.8, the Storm Water Division completes an annual report to document flood control channel maintenance activities and associated mitigation implemented over the past fiscal year, July 1, 2017 - June 30, 2018 (FY 2018). More detail on the background of the program is provided in Section 1.

During FY 2018, the Storm Water Division performed planned maintenance activities in the following channel areas, and this work is described in more detail in Section 2:

- Tijuana River Valley Pilot Channel and Smuggler's Gulch (MMP Maps 138 a, b, c, 139)

Compensatory mitigation for impacts to wetland resources is required as part of the MMP. Over 55 acres of wetlands mitigation is in various stages of progress as part of this program. Section 3 provides detail on wetlands mitigation for multiple projects including for the Tijuana River Pilot Channel and Smuggler's Gulch channels (MMP Maps 138 a, b, c, and 139). Mitigation for this site is within and adjacent to the channel maintenance footprint. Permitting is underway for mitigation related to wetland resources from emergency maintenance activities that occurred in past years. Upland mitigation is in the form of payment into the City's Habitat Acquisition Fund or Cornerstone Lands in accordance with Mitigation Measure 4.3.11 of the PEIR.

Approximately 17,000 tons of trash, sediment, and debris was removed from flood control channels as part of the MMP in FY2018. In addition, approximately 3,000 tons of excavated material that had been stockpiled at a staging area during the FY17 was removed as well. The Storm Water Division maintained compliance with all regulatory permits and agreements during the maintenance activities for all channels. The Storm Water Division is working on a new

program to replace the current one. Section 4 provides details on conclusions and future projects.

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# 1 INTRODUCTION

The City of San Diego (City) operates and maintains approximately 50 miles of drainage channels to convey storm water and urban runoff for the purpose of reducing flood risk and to provide essential public services. Maintenance of channels primarily involves the removal of vegetation and/or sediment to maximize storm water conveyance capacity of the City's Municipal Separate Storm Sewer System (MS4). Additionally, maintenance activities can also include repair of damaged infrastructure and removal of invasive plant species and debris.

Under Council Policy 800-04, the City is responsible for maintaining adequate drainage facilities to convey storm water runoff in an efficient, economic, environmentally and aesthetically acceptable manner for the protection of property and life. The City's storm water system serves to convey storm water flow from the built environment to receiving waters to protect the life and property of its citizens from potential flooding. The system also serves to convey urban runoff from development such as irrigated landscaped areas, driveways, and streets that flow into drainage facilities and, ultimately, into receiving waters and the ocean. Open drainage facilities, such as channels, can support natural resources including wetland habitat. The long-term performance of the entire system is dependent upon ongoing and proper maintenance of channel sections essential for flood control.

Due to the environmental sensitivity of the natural resources associated with some of the flood control channels, the Master Storm Water System Maintenance Program (MMP) was developed to ensure that the City complied with various federal, state, and local laws intended to protect and/or minimize impacts to environmental resources (City of San Diego 2011 and 2018). These regulations include but are not limited to the Clean Water Act (CWA), Endangered Species Act (ESA), California Coastal Act, California Fish and Game Code, California Porter-Cologne Act, California Environmental Quality Act (CEQA), and the San Diego Municipal Code. Additionally, as part of the environmental permitting process, the City works with the public, various stakeholders, non-governmental organizations, and environmental groups in an effort to avoid, minimize, and/or mitigate impacts.

A Programmatic Environmental Impact Report (PEIR) was prepared to support the MMP, and in August 2013 the City approved Site Development Permit (SDP) Number 1134892 for the program. In 2018, City Council approved an amendment to the overall program, an addendum to the PEIR and as well as modified SDP Number 2034245 to incorporate additional sites into the program in which emergency work had been conducted. Pursuant to Section 5.5 of the Master Storm Water System Maintenance Program (MMP) and in accordance with Programmatic Environmental Impact Report (PEIR) Mitigation Measure 4.3.8, the Storm Water Division completes an annual report to document flood control channel maintenance activities and associated mitigation implemented over the past fiscal year, July 1, 2017 - June 30, 2018 (FY 2018).

The goal of the MMP is to provide a comprehensive approach to storm water system maintenance. It is intended to achieve the following major objectives:

1. Fulfill the mandate of Section 26.1 of the San Diego City Charter to provide essential public works and public health services by maintaining the storm water conveyance system for the purpose of reducing flood risk;
2. Develop a comprehensive program that will govern the future maintenance of the City's storm water system in an efficient, economic, environmentally and aesthetically acceptable manner for the protection of property and life, in accordance with Council Policy 800-04;
3. Ensure implementation of Best Management Practices (BMPs) and maintenance protocols during maintenance activities to avoid and/or minimize effects to environmental resources, and incorporate the analysis of the operational and pollution prevention benefits of each proposed project; and
4. Create an integrated comprehensive review process for annual maintenance activities that will facilitate operational needs, authorizations from local, state and federal regulatory agencies and include consideration of citizen and other stakeholder interests.

In accordance with these goals and objectives, the Storm Water Division (SWD) prioritizes channel maintenance facilities based upon hydrology, potential risk of flooding, and public input. The SWD conducts appropriate technical analyses required by the MMP's Final Recirculated Programmatic Environmental Impact Report (PEIR) to determine the scope, scale, and environmental impacts of each channel prioritized for maintenance to justify the need for maintenance activities and obtain appropriate environmental permits for up to six regulatory agencies. Finally, the SWD implements the planned and emergency channel maintenance activities, ensures permit conditions and mitigation measures are met for each project, and reports annually on channel maintenance and associated compensatory mitigation conducted as part of the MMP.

Maintenance activities performed as part of the MMP are generally conducted between September 15 and March 15 to avoid potential impacts to nesting birds. Formal regulatory approval and implementation of detailed protocol survey mitigation measures have allowed the City to conduct maintenance activities as-needed and weather permitting throughout the calendar year for some channel areas. During the 2015-2016 winter, a strong El Niño climactic event threatened to bring significant rainfall to southern California. As such, channel maintenance included emergency maintenance in 17 channel areas during that season, 13 of which were part of the MMP. Several of the channel areas were originally slated for maintenance in FY2018. The emergency work during 2015-2016 eliminated the need for routine maintenance of those same sites in FY2018.



The remainder of this report discusses the activities implemented by the Storm Water Division over the past year to meet the goals of the MMP. As required by the MMP and PEIR, this summary includes:

- Tabular summary of the biological resources/sensitive vegetation impacted during maintenance and the mitigation (Table 1 in Section 2);
- Master table containing the following information for each individual storm water facility or segment which is regularly maintained (Appendix B):
  - Date and type of most recent maintenance;
  - Description of mitigation which has occurred; and
  - Description of the status of mitigation which has been implemented for past maintenance activities.
- Results of water quality tests completed before and/or after maintenance (Section 2);
- Discussion of vegetation growth and sediment accumulation since last maintenance event (Section 2);
- Estimate of the conveyance capacity resulting from the past year's maintenance (Section 2).
- Scaled map of each affected storm water facility illustrating pre- and post-maintenance vegetation (Appendix A);
- Summary of the status of mitigation which has been carried out during the current and previous years to mitigate for impacts to upland and wetland vegetation, as well as sensitive species (Section 3 and Appendix B);
- Two digital date-stamped photographs of each of the areas that were maintained in the current year (Appendix C);
- Description of any remedial actions and the outcome of their implementation for each affected storm water facility (Section 2);
- A list of all storm water facilities anticipated to be maintained in the coming year (Appendix D); and
- A preliminary estimate of sensitive biological and/or cultural resources to be impacted in the coming year with each maintenance activity and mitigation required for anticipated impacts (Appendix D).

This report will be presented to the San Diego City Council Environment Committee and the Community Planners Committee, and distributed to the City of San Diego Development Services Department, California Department of Fish and Wildlife, Regional Water Quality Control Board, U.S.

Fish and Wildlife Service, and U.S. Army Corps of Engineers. A courtesy copy will also be sent to the County of San Diego.

It should be noted that the MMP identifies a specific planning, impact assessment and mitigation process for channel maintenance activities within portions of the jurisdiction of the City. The channel facilities included in the MMP's certified PEIR includes 113 facility segments, covering a linear distance of 32 miles. A lawsuit was filed regarding the MMP (San Diegans for Open Government et al. v. City of San Diego, San Diego Superior Court Case No. 37-2011-00101571), and the City entered into a settlement agreement (Settlement Agreement), which renders the PEIR document null and void in September 2018. Accordingly, the City is currently engaged in a process to identify the components of an integrated Municipal Waterways Maintenance Plan (MWMP) that will replace the MMP after 2018.

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## 2 PLANNED CHANNEL MAINTENANCE ACTIVITIES

Under the MMP, the SWD identifies and prioritizes channel maintenance work for the coming year that considers, as a primary objective, each channel segment's ability to meet SWD's flood risk management objectives. A list of priority channels is prepared that also considers environmental resources and mitigation opportunities, relevant water quality regulations and pollutant priorities in each watershed, public input, and budget constraints. Once the priority list has been determined, the City conducts a number of individual technical assessments that analyze potential impacts to biological, cultural, and water quality resources associated with each facility.

First, an Individual Hydraulic and Hydrology Assessment (IHHA) is completed to assess the current channel conveyance capacity, need for maintenance, determine the minimum amount of sediment and/or vegetation that must be removed to improve flood conveyance, and determine if any structures or actions are required to minimize impacts to water quality and/or provide improved erosion control during or after maintenance. When an IHHA is completed for a channel identifying the need for maintenance, an Individual Maintenance Plan (IMP) is developed to document the maintenance area and methods that will be used. Based upon the IMP, technical assessments for biological resources, historical resources, noise, and water quality are completed to determine potential environmental impacts and determine specific mitigation measures to minimize impacts in accordance with the PEIR.

Once these studies are completed, the individual channel projects are permitted through the City of San Diego Substantial Conformance Review (SCR) process as well as through regulatory agencies such as the US Army Corps of Engineers, Regional Water Quality Control Board, California Department of Fish and Wildlife, and California Coastal Commission, as appropriate depending on the type of maintenance conducted and the location of the facility.

Channel maintenance activities may commence after all required permits and authorizations are obtained and pre-project permit conditions are met. Channel maintenance is generally restricted by the MMP and various regulatory permits to occur from September through February/March to avoid sensitive bird breeding seasons unless additional biological surveys are conducted and demonstrate no adverse impacts to nesting birds. In addition, wet weather and other factors may limit maintenance activities during the rainy season, typically October through April.

Summary maintenance information, including vegetation impacts and mitigation for channels maintained during the FY 2018 season are presented in Table 1 – MMP Facilities Maintenance and Associated Mitigation Fiscal Year 2018. Figure 1 in Appendix A depicts an overview of the location of these facilities and Figure 2 shows associated mitigation.

It should be noted that there were several additional channels that were originally planned for FY2018 that were maintained under emergency circumstances in FY2016.

Additional details regarding channels that were maintained during the FY 2018 season are provided in subsequent sections of this report. Appendix A includes location maps for facilities maintained during FY 2018.

A Master Storm Water Facility and Mitigation List reflecting facilities that have been maintained and impacts mitigated under the MMP for which no additional mitigation is required are included in Appendix B.

**Table 1  
MMP Facilities Maintenance and Associated Mitigation Fiscal Year 2018**

Map No.	Facility	Maintenance Date(s)	Maintenance Type	Vegetation Impacts (acres)	Vegetation Type	Mitigation
138 a, b, c, 138, 139	Tijuana River Pilot Channel and Smuggler's Gulch	Sept 2015- May 2018	Sediment and Vegetation Removal	No new impacts. All work occurred within areas previously maintained.		Mitigated with first maintenance event. 1) 9.43 acres at Tijuana River Emergency Channel Maintenance Wetland Mitigation Project (i.e., mitigation for 1993 Pilot Channel Construction) and 2) 8.62 acres of Enhancement within and adjacent to maintenance footprint. No new mitigation proposed.

\* Impacts contained wholly within existing channel maintenance footprint. No new impacts.

## **2.1 TIJUANA RIVER PILOT CHANNEL AND SMUGGLER'S GULCH (MMP MAPS 138 A, B, C, AND 139)**

The purpose of periodic maintenance of the Tijuana River Pilot Channel (Pilot Channel) and Smuggler's Gulch (Figures 3 through 6) is to provide flood protection to surrounding properties and to assist in protection of the Tijuana River National Estuarine Research Reserve from impacts due to downstream transport of accumulated sediment, trash, and debris from areas upstream of the project area.

The most recent maintenance cycle for the Pilot Channel and Smuggler's Gulch ran from September 2015 through May 2018 and included three seasons of maintenance – 2015- 2016 (FY16), 2016-2017 (FY17) and 2017 – 2018 (FY18).

The full length of Smuggler's Gulch (a historic agricultural ditch), was cleared of vegetation and excavated during the FY16 maintenance period. However, only 1,900 linear feet of the permitted 5,400 linear feet of the Pilot Channel length was able to be maintained due to inundation from rain events. Please refer to the September 2016 Master Storm Water System Maintenance Program Annual Report for further information on the FY16 annual maintenance program.

During the FY17 season the full length of Smuggler's Gulch was cleared of vegetation and excavated to its as-built grade. The Pilot Channel was cleared of vegetation and excavated to its as-built grade from the west end of the channel to approximately 1,500 feet west of the confluence with Smuggler's Gulch (Confluence). The remainder of the Pilot Channel west of Hollister Road was cleared of vegetation and two to three feet of sediment was removed. The entire channel was not maintained during the FY17 annual maintenance program due to inundation of the channel during storms and presence of sensitive nests in the project area. Refer to the September 2017 Master Storm Water System Maintenance Program Annual Report for further information on the FY17 annual maintenance program.

The Pilot Channel was relatively unvegetated with no mature vegetation immediately prior to the continuation of work in FY18, and Smuggler's Gulch was very sparsely vegetated with herbaceous weeds. Approximately 2-11 feet of sediment and trash was removed during the 2016-2017 maintenance event and approximately the same amount of sediment and trash had accumulated in the channel prior to the FY18 annual maintenance program.

The FY18 annual maintenance program ran from October 2017 through May 2018. During the FY18 annual maintenance program, the full length of Smuggler's Gulch was cleared of vegetation and excavated to a depth of 2 to 7 feet. The Pilot Channel was cleared of vegetation and excavated to a depth of 3 to 11 feet from the confluence to approximately 3,500 feet west of the confluence. Within the last 300 feet at the western end of the Pilot Channel, only vegetation was

removed. Selective vegetation trimming was conducted from the confluence east approximately 200 feet. No work was conducted between Hollister Street bridge and 300 feet east of the Confluence or east of Hollister Street bridge due to inundation of the channel. The as-built cross section of Smuggler's Gulch has a top and bottom width of 20 feet. The as-built cross section of the Pilot Channel has a 15-foot bottom width and a 23-foot top width.

Approximately 7,040 linear feet or approximately 3.5 acres of jurisdictional wetlands/waters, consisting of mainly open channel, were impacted during maintenance activities within the Pilot Channel and Smugglers Gulch in FY18. Impacts for the complete 2015 through 2018 maintenance cycle totaled 4.26 acres of jurisdictional wetlands/waters (Dudek, 2018). Photographs showing conditions of the channel during maintenance in FY18 are included in Appendix C. Figures 3 and 4 in Appendix A display pre-maintenance vegetation, Figures 5 and 6 in Appendix A show post-maintenance vegetation.

Approximately 17,000 tons of material (i.e., sediment, trash, vegetation, and debris) was excavated from the Smuggler's Gulch and Pilot Channels during the FY18 maintenance cycle. In addition, approximately 3,000 tons of excavated material that had been stockpiled onsite during the FY17 maintenance period was hauled from Staging Area B between August 2017 and October 2017. Therefore, the total amount of sediment and debris removed from the site in FY18 was approximately 20,000 tons. Sediment and debris hauled from the channels was disposed of at the Miramar landfill. However, vegetation that was removed from the channel and adjacent mitigation sites was handled separately from sediment and debris due to the presence of a recently noted pest in the Tijuana River Valley– the Polyphagous Shot Hole Borer (PSHB) (*Euwallacea* sp.). PSHB and its associated fungi species physically disrupt water and nutrient flows within riparian woody vegetation, essentially "starving" the plant. In order to avoid further spread of PSHB, the City implemented protocols from Dr. Akif Eskalen of the University of California Riverside (UCR), Department of Plant Pathology and Microbiology and the U.S. Fish and Wildlife Service to treat vegetation before transport and disposal. These protocols included:

- Disinfecting all tools that came into contact with infected woody material using a 5% bleach solution, Lysol® spray, 70% ethanol (or isopropyl);
- Chipping all woody vegetative material removed as part of maintenance to less than 1-inch in order to dry the in-wood climate out and make it unsuitable for beetles or fungus;
- Following chipping, solarized vegetation in Staging Area B on site using a clear plastic or visqueen covering. The solarizing period was a minimum of 2 weeks during summer months and 2 months (or longer depending on weather) during winter months. Goal was to maintain temperatures under the cover between 95°F and 105°F.



- Following chipping and solarizing treatment, the material was disposed of at the Miramar landfill.

The project was compliant with all environmental permits and no remedial actions were required.

Details on the mitigation efforts for this channel area, which include removal of invasive plant material within the channel footprint and adjacent to the channel, are presented in the Mitigation Projects section of this report.

### **2.1.1 CONVEYANCE CAPACITY RESULTING FROM MAINTENANCE**

The pre-project IHHA results indicated that, in the pre-project condition, the Pilot channel was at approximately 5% of its calculated design capacity and could contain less than a 2-year storm event flow within its banks. With the sediment and vegetation removed, the conveyance capacity of the Pilot channel would increase from approximately 10 cubic feet per second (cfs) to approximately 200 cfs, although the channel would still contain less than a 2-year storm.

The IHHA results indicated that, in the pre-project condition, Smuggler's Gulch channel was at approximately 73% of its calculated design capacity and could contain the 2-year storm event flow within its banks. With the sediment and vegetation removed, the conveyance capacity of Smuggler's Gulch channel would increase from 800 cfs to 900 cfs and convey the 2-year storm.

### **2.1.2 WATER QUALITY MONITORING SUMMARY**

The IWQA for the project noted that a dry weather diversion structure was installed in March 2009 at the Smuggler's Gulch Channel crossing at the international border. This infrastructure prevents dry weather flows from entering Smuggler's Gulch and essentially eliminates direct dry weather input to the Pilot Channel.

Due to the elimination of dry weather flow, combined with the fact that much of the Smuggler's Gulch is void of vegetation and the Pilot Channel harbors primarily non-native and invasive plant species, there is little potential for water quality impacts from channel maintenance resulting from the loss of pollutant assimilative capacity through vegetation removal. Given the unique conditions, including the intermittent/ephemeral stream flow of the project area, the IWQA employed a modified sampling strategy—sediment characterization. The results of the IWQA showed that there is a pollutant reduction benefit due to sediment removal as part of the project. Even so, the City, in accordance with the SDP and CDP, has implemented a suite of water quality improvement activities including the distribution of pollution prevention outreach materials prior to the start of channel maintenance activities; targeted street sweeping; increased inspections of storm drains within the project's drainage area; and several special studies. Coordination with the Tijuana River Valley

Recovery Team is ongoing. It is anticipated that application of these activities within the priority channel drainage areas will lead to long-term water quality benefits.

Additionally, Water Quality Certification No. 09C-077 issued by the Regional Water Quality Control Board required the City to develop and implement a five-year Receiving Waters Monitoring Plan. To comply with this permit condition, the *Tijuana River Receiving Waters Monitoring and Quality Assurance Project Plan* (AMEC, May 2013) was developed and implemented. Monitoring under this plan was conducted from 2013 through 2017. Per the plan, water quality samples were collected at three locations upstream and downstream of the maintenance area pre-maintenance, during maintenance and post-maintenance (as environmental conditions allowed). Water quality samples were collected at the upstream and downstream Pilot Channel locations throughout the sampling effort. Water samples at Smugglers Gulch were collected only during the pre-project event in 2013, as this site was dry throughout the rest of the sampling period.

The 2016-2017 monitoring season constituted the fifth and final year of water quality monitoring under Water Quality Certification No. 09C-077. In FY18, a final report was prepared to provide a comprehensive comparison of all results obtained as part of the five-year monitoring effort. Results of this sampling effort are summarized as follows:

- Nutrient concentrations at both upstream monitoring stations (Pilot Channel upstream and Smuggler's Gulch) were always greater than or equal to those observed at the Pilot Channel downstream monitoring station, and did not appear to be related to dredge maintenance activities.
- Overall chlorophyll-a concentrations across the five years of monitoring did not appear to be related to dredge operations.
- TSS concentrations at the two upstream monitoring stations were equal to or greater than those at the downstream Pilot Channel monitoring station during eight of the nine monitoring events, and appear unrelated to dredge activity.
- The chloride concentrations at the upstream Pilot Channel monitoring station remained stable throughout the monitoring period. Chloride concentrations at the downstream Pilot Channel monitoring station tracked with the tidal cycle.
- Alkalinity appeared unrelated to dredge maintenance activities, with detected upstream concentrations both above and below those detected at the downstream Pilot Channel monitoring station.

- Some variability in pH values was observed at the upstream Pilot Channel monitoring station across the five-year permit cycle, but the pattern was not consistent in its association with dredge operations. The downstream Pilot Channel monitoring station exhibited little variability in pH values.
- Except for one monitoring event, no consistent pattern in DO concentrations was apparent at the upstream Pilot Channel monitoring station, with generally low DO values throughout the monitoring period.
- Specific conductivity at the upstream Pilot Channel monitoring station remained relatively stable throughout the monitoring period. Specific conductivity at the downstream Pilot Channel monitoring station was largely a function of tidal cycle. □
- Temperature at both upstream and downstream Pilot Channel monitoring stations appeared to be unrelated to dredge operations, with variability better explained by seasonality.
- Turbidity at the two upstream monitoring stations was always greater than at the downstream Pilot Channel monitoring station.
- Overall California Rapid Assessment Method (CRAM) scores at the three monitoring stations indicated sites with low to moderate wetland functionality. While there was some variability among the individual major attributes among monitoring station (see below), the overall CRAM scores for these sites remained stable over the course of the five years of monitoring, and did not appear to be related to dredge maintenance activities.
- Little change was observed in the benthic biological community at the downstream Pilot Channel monitoring station over the course of the five years of monitoring. Results indicate a benthic community that is highly tolerant to disturbance, with low diversity, high mean HBI scores, and dominance by few taxa. These results were consistent across monitoring events, including pre-project, pre-dredge, and ambient monitoring events.

401 Certification No. 09C-077 expired in October 2017, and the project is currently operating under a new 401 Certification (No. R9-2016-0228) which does not include water quality monitoring requirements. Therefore, water quality sampling connected to the channel maintenance project is not currently being conducted.

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## 3 MITIGATION PROJECTS

In accordance with applicable local, state, and federal regulations as well as the PEIR, one-time mitigation is required for significant biological impacts resulting from implementation of the MMP. To mitigate these impacts, the City is planning and implementing mitigation in various watersheds where past, current, or future impacts have or may occur. This section describes projects in various stages of design and implementation, which are depicted in Figure 2 of Appendix A.

### **3.1 TIJUANA RIVER EMERGENCY CHANNEL MAINTENANCE MITIGATION**

The Tijuana River Emergency Channel Maintenance project occurred in the early 1990's and resulted in construction of the Pilot Channel. Mitigation for the Tijuana River Emergency Channel Maintenance occurred in the mid-1990's and consisted of the creation of a 13.21-acre site, 9.43 acres of which was wetlands creation to compensate for the construction of the Pilot Channel. The mitigation was completed in 2001 with sign-off from all applicable environmental regulatory agencies.

On May 24, 2017, Dudek assessed the site to verify the mitigation area was still meeting USFWS performance standards. During the site walkthrough, least Bell's vireo (*Vireo belli pusillus*), a federally endangered bird species, were detected vocalizing on site. In addition, a mosaic of native riparian and wetland vegetation communities has been established. While the site exhibits natural changes as dictated by field conditions, the location and composition of vegetation communities is substantially consistent with the project design, and the site remains suitable for supporting the continued utilization by least Bell's vireo (Dudek, June 2017). The next site assessment to verify the condition of the mitigation area will be scheduled for July 2018, after the time of writing this report. Results of the 2018 verification will be included in next year's Annual Report.

### **3.2 TIJUANA RIVER VALLEY CHANNEL MAINTENANCE MITIGATION PROJECT**

In addition to the creation of wetlands described above, wetland enhancement is being conducted as additional mitigation for the continued maintenance in the Pilot Channel and Smuggler's Gulch (MMP Maps 138, 139, 138a, b, and c). The wetland enhancement occurs in two locations per the regulatory permits, Out-of-Channel and In-Channel. The Out-of-Channel mitigation area is adjacent to the channel maintenance areas. The mitigation site is within the Tijuana River Valley Regional Park on City and County of San Diego property.

The 4.31 acre In-Channel mitigation was initiated in September 2013 with the maintenance event which removed non-native vegetation within the channel. Crews from Urban Corps cut non-native vegetation and applied herbicide to giant reed (*Arundo donax*), castor bean (*Ricinus communis*) and

salt cedar (*Tamarix ramosissima*) within the channel in October 2017. In FY 2018, channel maintenance also helped control the non-natives that had been growing within the channel.

The 4.31 acre Out-of-Channel mitigation was also initiated in September 2013 and involved herbicide treatment and biomass removal of the same three target species. During FY 2018, crews cut and treated resprouts as-needed in September, October, January, and April. As of December 2017, the site contained approximately 9% invasives, and was in compliance with year 4 standards that fewer than 10% of initially treated target invasives have resprouts.

The treatment area includes the minimum required 4.31 acres of out-of-channel mitigation, plus an extra 0.43 acres has been treated as a contingency to ensure the mitigation requirements for minimum acreage is met, totaling 4.74 acres. Biomass removal and herbicide treatments will continue in fall 2018.

### **3.3 LOS PEÑASQUITOS CANYON PRESERVE WETLANDS ENHANCEMENT**

The Los Peñasquitos Canyon Preserve Wetland Enhancement Project was designed to remove 8.5 acres of non-native species found within and adjacent to jurisdictional waters in Lopez canyon, as well as support the well-being of native species of plants and animals in order to provide 6.64 acres of mitigation credit. This area was targeted due to its large, contiguous growth of garland daisy which posed a threat to state- and federally-listed willow monardella (*Monardella linioides*), which is also present in this portion of Lopez Canyon.

Over the past year, significant progress has been achieved, and the project has exceeded all Year 3 standards indicated in the Final Los Peñasquitos Canyon Preserve Wetland Enhancement Plan. Target and non-native species cover is only 4 percent cover, less than the 5 percent standard, and native plants are growing within previously cleared areas and increasing in size. Native species cover is 20%, and the Year 3 standard is greater than 15%. During the process of removing the invasives, there were no impacts to the willow monardella or other biologically sensitive species. Reseeding efforts have been successfully conducted in order to revegetate the site with native plant species. The five-year maintenance and monitoring period started on June 23, 2015, which marked the completion of the installation phase of the project. Invasive species removal and monitoring will continue at regular intervals.

The project provides wetlands enhancement mitigation for the following channel maintenance locations:

- Sorrento Reaches 3 and 7, MMP Maps 9, 11, 12
- Mission Bay High School and Pacific Beach/Olney Streets, MMP Maps 36, 37
- Tripp and Industrial Court, MMP Maps 6, 6a

### **3.4 EL CUERVO DEL SUR WETLANDS MITIGATION**

This wetland creation project is designed to establish 2.30 acres of wetlands on a currently non-wetland area within the Los Peñasquitos Canyon Preserve as described in the *Final El Cuervo del Sur Conceptual Wetland Habitat Mitigation and Monitoring Plan* dated February 28, 2014 prepared by URS Corporation. The site has been designed in two phases. However, only Phase I has been implemented.

This mitigation project is adjacent to previous City mitigation projects (El Cuervo, El Cuervo Norte) along Los Peñasquitos Creek in the Los Peñasquitos Canyon Preserve. The project involved installation of temporary irrigation, the creation of a wetland area within the floodplain through grading and excavation; planting with a mix of herbaceous wetland (1.0 acre), riparian scrub (.94 acre) and riparian transitional species (.36 acre).

The project provides wetlands creation mitigation for the following channel maintenance locations:

- Sorrento and Soledad Creek Reaches 3 and 7, MMP Maps 9, 11, 12
- Mission Bay High School and Pacific Beach/Olney Streets, MMP Maps 36, 37
- Tripp and Industrial Court, MMP Maps 6, 6a

The construction contract was awarded in August 2015. Construction started in late September 2015 at the conclusion of the sensitive bird breeding season on October 5, 2015. Planting and irrigation installation were completed in the summer of 2017. The 120-day Plant Establishment Period started on June 23, 2017 and was completed on December 27, 2017. As of December 28, 2017, the site is in its first year of the five-year maintenance and monitoring period.

### **3.5 EL CUERVO WETLANDS AND FAMOSA SLOUGH MITIGATION**

The El Cuervo Wetland Mitigation Project (El Cuervo) was implemented in 2001 to compensate for jurisdictional impacts associated with the initial and future channel maintenance within the Sorrento Creek earthen maintenance area. The El Cuervo site is located within the Los Peñasquitos Canyon Preserve, approximately 1 mile east of the Interstate 5/805 split and north of Sorrento Valley Boulevard. The site is located near the confluence of Lopez Creek and Los Peñasquitos Creek, just east of the historic El Cuervo Adobe. The mitigation consisted of creation and enhancement of 12.06 acres of riparian habitat. Of this, 9.8 acres was specifically for the Sorrento Creek Maintenance Project implemented in 1997 as noted in the *El Cuervo Wetland Area Final Conceptual Wetland Mitigation and Monitoring Plan Los Peñasquitos Canyon Preserve*. Installation of the El Cuervo Wetland mitigation project was completed on October 4, 2001, at which time the five-year long-term maintenance and monitoring period was initiated. By the end of the fifth year, in October 2006, the

project had met its final performance standards, and was subsequently signed-off by permitting regulatory agencies.

The mitigation for the Sorrento Creek channel also includes creation/enhancement of 0.64 acres of salt marsh habitat mitigation at Famosa Slough for impacts during construction activity in 1997 as described in the *Summary of the Tenth Year Field Evaluation for the Sorrento Creek Maintenance Dredging Project – Famosa Slough Off-Site Salt Marsh Mitigation Area, San Diego, California*, prepared by Dudek & Associates and dated June 1, 2015. The site has not yet achieved sign off. The site continues to mature, with non-native vegetative cover remaining extremely low. Maintenance activities, including soil amendments and supplemental seeding, will occur during 2018-2019 to help increase native vegetative cover in bare areas, and reach our success criteria.

### **3.6 STADIUM (SAN DIEGO RIVER) MITIGATION BANK PURCHASE**

The Public Utilities Department's Stadium (San Diego River) Mitigation site is located within the floodplain of the San Diego River between I-15 and I-805. The Project was implemented by the City of San Diego (City) Public Utilities Department (PUD) to generate compensatory mitigation credit by providing rehabilitation and enhancement of approximately 57 acres within the San Diego River, San Diego, California. Installation of the project ended on October 20, 2017, and the plant establishment period (PEP) was considered complete on February 23, 2018, thereby initiating the 5-year maintenance and monitoring period. The credit availability is dependent on milestones, the first credit release occurred upon project approval and the second credit release upon completion of invasive species removal and 120-day PEP. In order to substantiate the second credit release, the PUD has submitted the Year Zero Report to the Regulatory Agencies that provides an analysis of mitigation credits achieved by the Project to date relative to the projection in the Mitigation Plan. The Storm Water Division has reserved 8.528 acres of mitigation credits at this site through a Memorandum of Understanding with the Public Utilities Department. They have been used for the following channel maintenance locations:

- Murphy Canyon Channel Maintenance (Map 58)
- Alvarado Creek Channel Maintenance (Maps 59, 60, 64)

An additional 4.76 acres of mitigation credits have been reserved for past emergency projects and in anticipation of upcoming channel maintenance activities.

### **3.7 RANCHO JAMUL WETLAND MITIGATION BANK PURCHASE**

Wildlands, a private company, created the Rancho Jamul Wetland Mitigation Bank on CDFW lands in unincorporated county lands near Jamul. The first phase of the Bank, Phase IB, has been implemented and the second phase, Phase IIB, is proposed to be expanded by approximately 26 acres. Phase IIB involves additional stream and wetland re-establishment and enhancement along



Jamul Creek and its tributaries. The final permitting and agreements with all regulatory agencies is in progress. The Storm Water Division has purchased 3.3 acres of pre-released wetlands mitigation credits associated with this expansion from the bank sponsor for future projects that occur within the approved service area, consisting of multiple watersheds.

### **3.8 OTAY REED WETLAND MITIGATION SITE**

The Otay Reed Wetland Mitigation Site project consists of implementing wetlands creation, restoration, and enhancement of habitat, involving replacement of eucalyptus woodland, arundo-dominated disturbed wetland, tamarisk scrub, disturbed land, and non-native grassland with cismontane alkali marsh, southern willow scrub, and mule fat scrub, located within the Otay watershed along the Otay River. The site will include a total of 5.41 acres of mitigation. This total, will be used to mitigate for 0.98 acre of impacts related to the proposed routine maintenance within Nestor Creek (MMP Map 131) projected for late 2018, 0.16 acre of emergency maintenance impacts that occurred during the winter of 2015-2016 within Auburn Creek (MMP Map 70), and will provide advanced permittee-responsible mitigation for future City TSW channel maintenance projects.

The Final Habitat Mitigation and Monitoring Plan (*Otay Reed Site Wetland Habitat Mitigation and Monitoring Plan, December 21, 2017, Revised June 2018*) was recently completed. Applications for required USACE (Nationwide Permit 27), RWQCB (401 Water Quality Certification), and CDFW (1602 Streambed Alteration Agreement) permits are currently in progress. Final design is currently estimated for completion by June 2019.

### **3.9 HOLLISTER QUARRY WETLAND MITIGATION SITE**

The proposed Hollister Quarry Wetland Mitigation Site project consists of implementing wetlands re-establishment and rehabilitation, involving replacement of Arundo Donax, Peruvian pepper, and Tamarisk with riparian, riparian scrub transitional, and native upland scrub, located within the Otay watershed along the Otay River. The site will include up to 2.20 acres of mitigation. This total will be used to mitigate for impacts related to the proposed routine maintenance within Nestor Creek (MMP Map 134) planned for late 2018 and past emergencies in 2010 and 2016. The Draft Habitat Mitigation and Monitoring Plan is currently under regulatory agency review.

### **3.10 CONCEPTUAL WETLAND MITIGATION PLAN FOR 2015/16 EMERGENCY CHANNEL MAINTENANCE**

During the 2015-2016 wet season, a strong El Niño climactic event threatened to bring significant rainfall to southern California. As such, channel maintenance performed as part of the MMP included emergency maintenance in 13 MMP channel areas. Additional emergency maintenance activities were performed in four storm water facilities not included in the MMP for a total of 17 emergency channel maintenance projects. Summaries of emergency maintenance activities for MMP channel areas were included in the 2016 annual report. Emergency channel maintenance

activities were generally limited to sediment, debris, and/or vegetation removal required to alleviate flow conveyance impediments determined to pose an imminent flood risk to human safety or properties located adjacent to the channel. Emergency channel maintenance activities included removal of a clog or blockage within a channel, removing or widening a constriction point, removing accumulated vegetation and sediment that posed a significant decrease of channel capacity and/or involved a variety of other activities including emergency infrastructure repair, depending on the nature of the emergency. The emergency maintenance was limited to the minimum work necessary to alleviate the emergency and is conducted in concert with appropriate biological and cultural resource monitoring procedures identified in the MMP.

Currently, Transportation & Storm Water Department (T&SWD) is working with consultants and regulatory agencies to develop and implement a conceptual wetland mitigation plan (Plan) for eight of the 17 sites where emergency work was performed during the 2015-2016 El Niño event. Remaining mitigation needs are being addressed through other mitigation plans. There were 2.74 acres of significant impacts within eight emergency maintenance channels that required compensatory mitigation (per regulatory agencies). The Plan proposes to mitigate for these eight sites at four offsite locations: Chollas Creek (MMP Map 91 and 93), South Chollas Creek (MMP Map 95, 97, 97a, 98, 98a and 104), Washington (MMP Map 84), and Paradise Canyon Open Space (not in the MMP). This Plan proposes a total of 2.92 acres of mitigation, consisting of 1.01 acres of enhancement, 0.02 acre of re-establishment, and 1.89 acres of rehabilitation. It is anticipated that the Plan will be approved in Fiscal Year 2019 and enter the implementation process following approval.

### **3.11 SMYTHE-VIA DE LA BANDOLA CHANNELS AND CITY OF SAN DIEGO TIJUANA RIVER ADVANCED-PERMITTEE RESPONSIBLE MITIGATION SITE**

The Smythe-Via de la Bandola Channels and City of San Diego Tijuana River Advanced-Permittee Responsible Mitigation Site project consists of implementing wetlands restoration/rehabilitation and enhancement of predominantly disturbed riparian scrub located within the Tijuana watershed bordered by the Pilot Channel and Tijuana River Emergency Channel Maintenance Mitigation Site. The 8.30 acre mitigation site will include approximately 1.40 acres of potential wetland rehabilitation credit and 4.04 acres of wetland enhancement credits. A portion of these mitigation credits will be used to mitigate for impacts related to 2015-2016 emergency channel maintenance of Smythe Channel (MMP Map 130) and Via de la Bandola Channel (MMP Map 130A). The remaining mitigation credits of this site may provide mitigation for future City Projects.

The Draft Habitat Mitigation and Monitoring Plan is currently under staff review. Final design and CEQA review is scheduled for completion by the end of 2018, followed by preparation and submittal of required regulatory permit applications before the end of 2018.

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## 4 CONCLUSIONS AND FUTURE PROJECTS

Over the FY 2018 maintenance period, one channel was maintained and approximately 17,000 tons of trash, sediment, and debris was removed from flood control channels. In addition, approximately 3,000 tons of excavated material that had been stockpiled at a staging area during the FY17 was removed as well. Over 55 acres of wetlands mitigation have been required and are in various stages of progress to compensate for wetlands impacts associated with channel maintenance related to the MMP. Water quality mitigation is being implemented as required by the SDP and CDP. The maintenance activities conducted under the MMP maintained compliance with all regulatory permits.

For the FY 2019 season, the Storm Water Division is pursuing permits to maintain the following facilities:

- Auburn Creek Channel Maintenance MMP Maps 70 and 76
- Montezuma Channel MMP Map 66
- Nestor Creek Channel Maintenance MMP Maps 131
- Nestor Creek Channel Maintenance MMP Map 134
- Siempre Viva Storm Water BMP Maintenance Maps 126-127
- South Chollas Creek Maintenance MMP Map 101

A preliminary assessment of sensitive biological and cultural resources to be impacted as a result of the anticipated FY 2019 channel maintenance projects is included in Appendix D. The City will continue to implement the MMP by planning channel maintenance and mitigation activities, pursuing environmental permits, conducting appropriate technical assessments, and conducting channel maintenance.

As described in Section 1, the current MMP and associated City of San Diego authorizations, including the Program Environmental Impact Report (PEIR), will expire in September 2018. To prepare for channel and other drainage facility maintenance authorizations beyond 2018, the City has begun developing a replacement plan, known as the Municipal Waterways Maintenance Plan (MWMP). The MWMP will be part of the storm water division's holistic storm water management strategy with the goal to maintain and restore healthy waterways.

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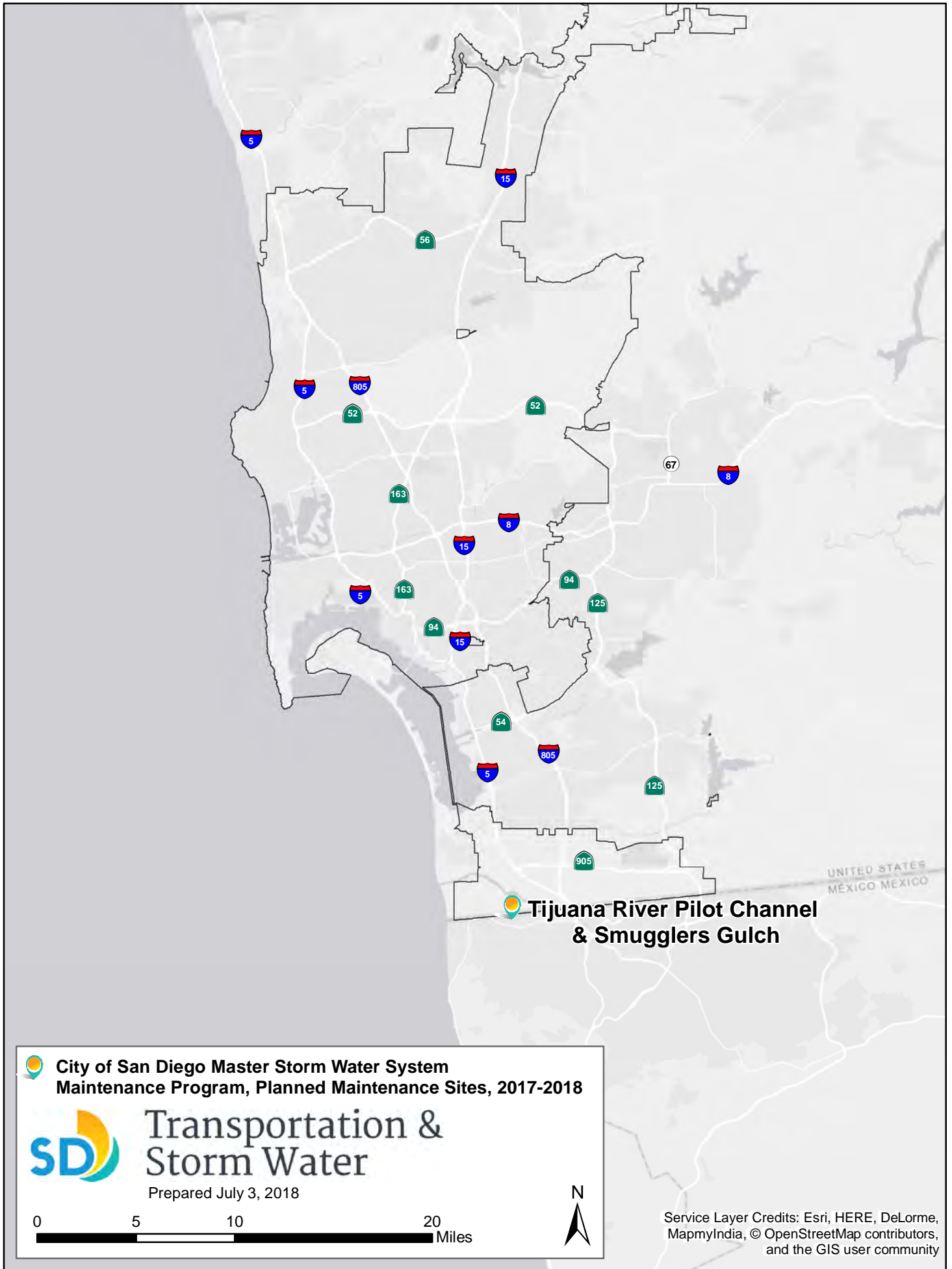
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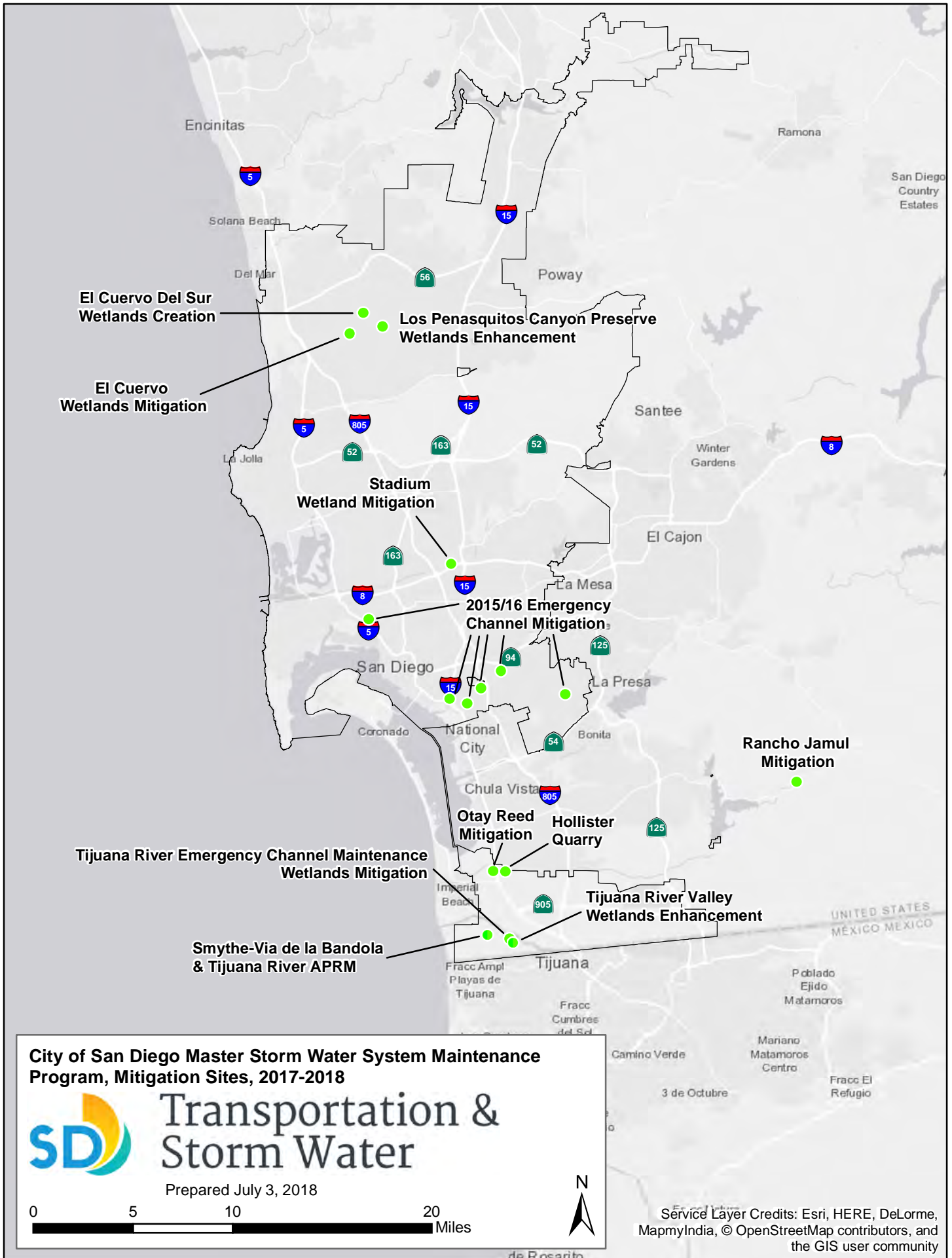
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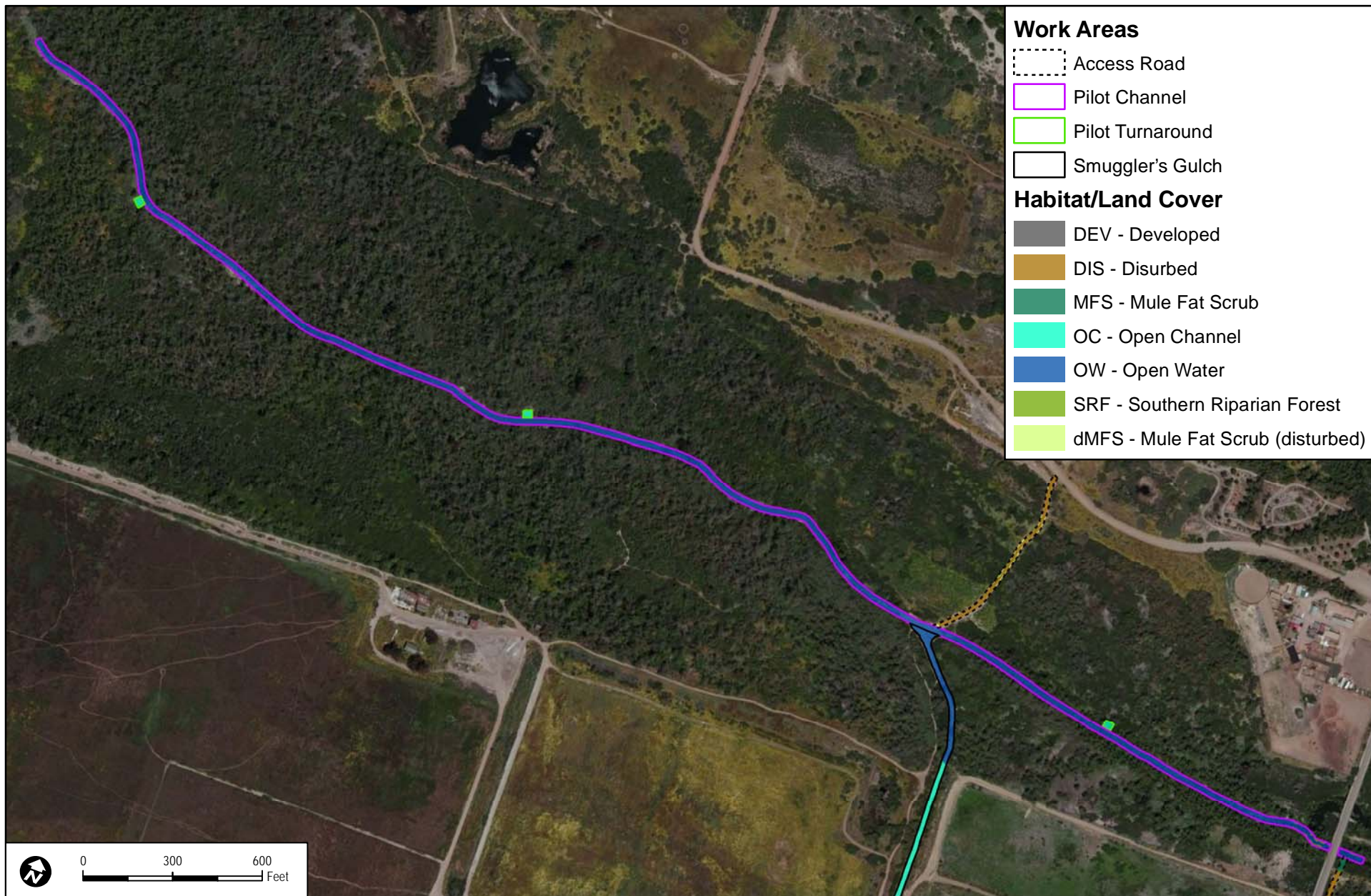
# **APPENDIX A**

## **Pre and Post-Maintenance Maps**









**Work Areas**

- Access Road
- Pilot Channel
- Pilot Turnaround
- Smuggler's Gulch

**Habitat/Land Cover**

- DEV - Developed
- DIS - Disturbed
- MFS - Mule Fat Scrub
- OC - Open Channel
- OW - Open Water
- SRF - Southern Riparian Forest
- dMFS - Mule Fat Scrub (disturbed)

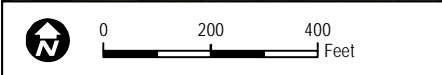
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<b>DUDEK</b>	SOURCE: BING Maps 2015	<b>Pre-Maintenance Biological Resources</b>
8685	Tijuana River Pilot Channel and Smuggler s Gulch Channel Maintenance Project	





- Singlewhorl burrobush (*Ambrosia monogyra*)
- Work Areas**
- Access Road
- Pilot Channel
- Pilot Turnaround
- Smuggler's Gulch
- Staging Area B
- Habitat/Land Cover**
- DEV - Developed
- DIS - Disturbed
- MFS - Mule Fat Scrub
- OC - Open Channel
- OW - Open Water
- SRF - Southern Riparian Forest
- dMFS - Mule Fat Scrub (disturbed)



**DUDEK**

8685

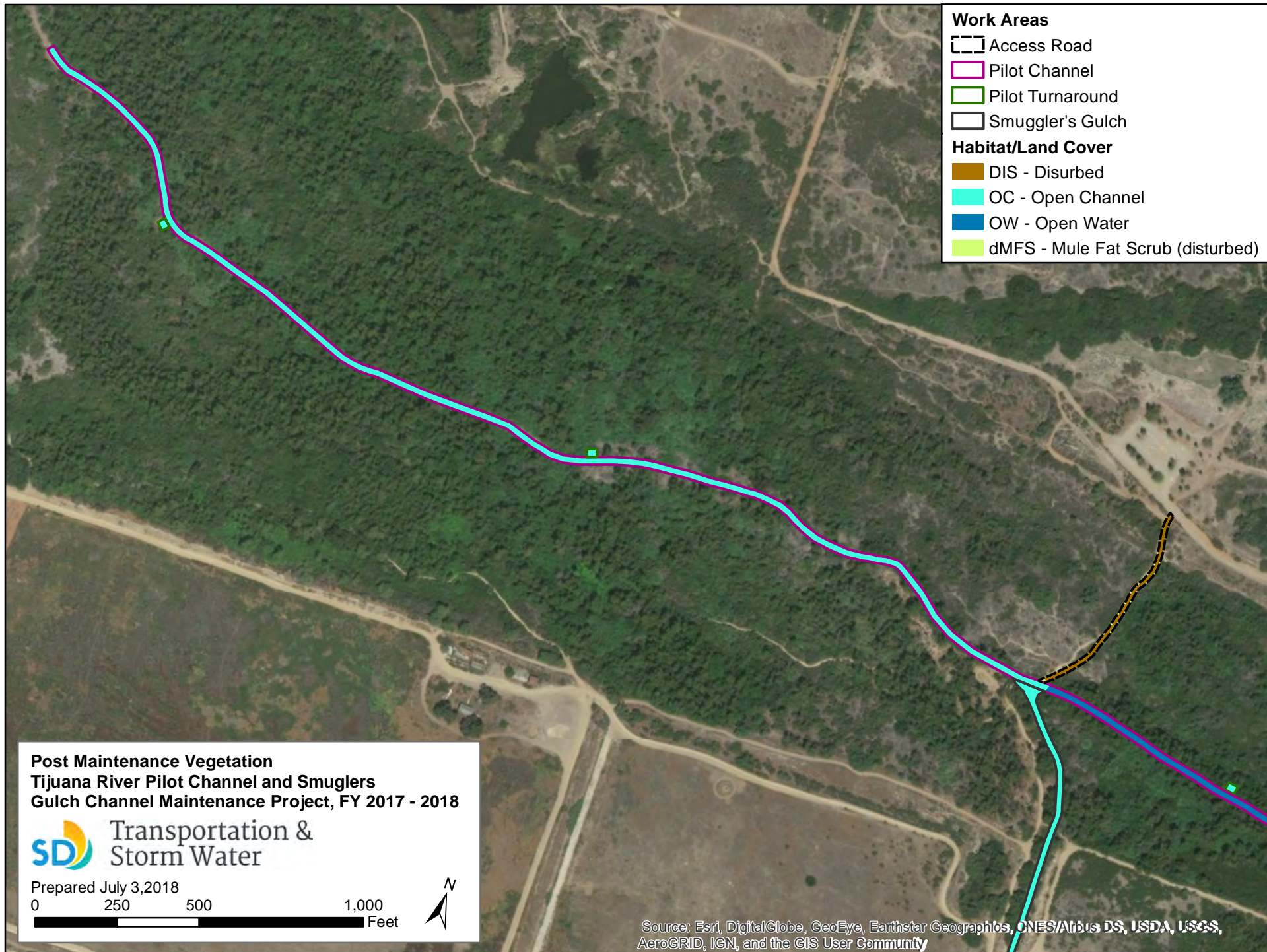
SOURCE: BING 2015

**Pre-Maintenance Biological Resources**

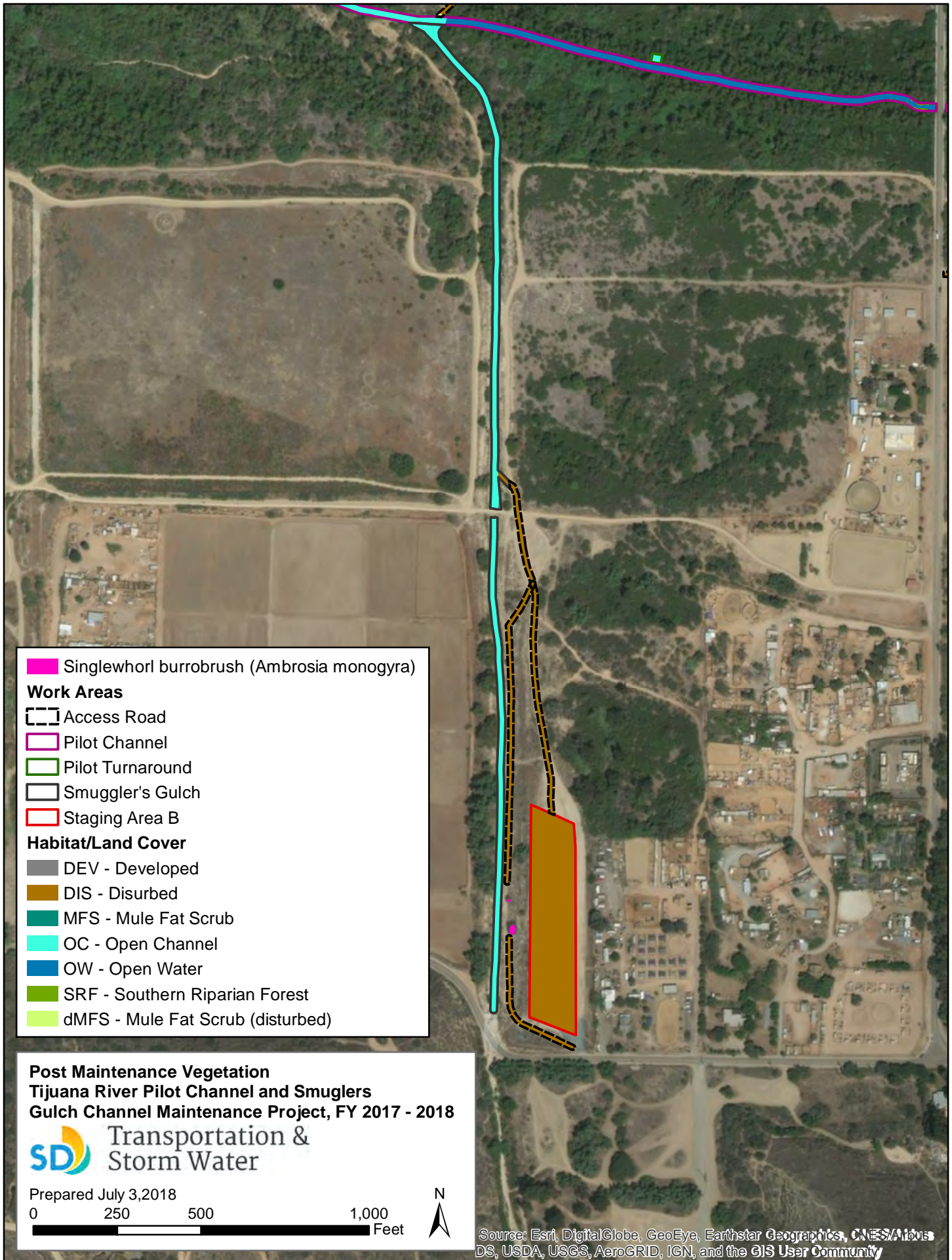
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Tijuana River Pilot Channel and Smuggler s Gulch Channel Maintenance Project











## **APPENDIX B**

# **Storm Water Facility and Mitigation List**

### Master Storm Water Facility and Mitigation List

Map No.	Facility	Date of Most Recent Maintenance	Type of Most Recent Maintenance	Mitigation Site	Mitigation Location	Mitigation Type	Mitigation Acreage	Mitigation Status
138a,b,c, 138, 139	Tijuana River Pilot Channel and Smuggler's Gulch	2017-2018	Planned Maintenance; Vegetation and Sediment Removal	Tijuana River Valley	Adjacent to Site	Wetlands Creation	9.43	Complete in 2001
				Tijuana River Valley	Adjacent to Site	Wetlands Enhancement	8.62	Maintenance and Monitoring Year 4
9, 11, and 12	Sorrento Valley	11/11/2016-3/14/2017	Planned Maintenance; Vegetation and Sediment Removal	El Cuervo Del Sur	Off Site in Watershed	Wetlands Creation	1.91	Maintenance and Monitoring Year 1
				LPC Preserve Wetlands Enhancement	Off Site in Watershed	Wetlands Enhancement	5.53	Maintenance and Monitoring Year 3
				El Cuervo	Off Site in Watershed	Wetlands Creation	9.8	Complete in 2006
58	Murphy Canyon Creek	2014-2015	Planned Maintenance; Vegetation and Sediment Removal	Stadium Wetland Mitigation Project	Adjacent to Site	Wetlands Restoration & Enhancement	4.28	Credits Reserved
36-37	Mission Bay High School & Pacific Beach Dr/Olney Dr Channels	Spring 2015-Spring 2016	Planned Maintenance; Vegetation and Sediment Removal	El Cuervo Del Sur	Off Site in Watershed	Wetlands Creation	0.34	Maintenance and Monitoring Year 1
				LPC Preserve Wetlands Enhancement	Off Site in Watershed	Wetlands Enhancement	0.96	Maintenance and Monitoring Year 3
				Marron Valley Cornerstone Mitigation Bank	Offsite	Payment into Marron Valley Cornerstone	0.15	Credits Purchased
54	San Carlos Creek Channel Emergency	Fall 2014	Emergency Maintenance; Debris Removal	Stadium Wetland Mitigation Project	Off Site in Watershed	Wetlands Restoration & Enhancement	0.036	Credits Reserved
64a	Reservoir Drive Channel Emergency	Fall 2014	Emergency Maintenance; Vegetation and Sediment Removal	Stadium Wetland Mitigation Project	Off Site in Watershed	Wetlands Restoration & Enhancement	0.284	Credits Reserved
129	Smythe Channel Emergency	Fall 2014	Emergency Maintenance; Vegetation and Sediment Removal	N/A	N/A	N/A	N/A	No mitigation required

Map No.	Facility	Date of Most Recent Maintenance	Type of Most Recent Maintenance	Mitigation Site	Mitigation Location	Mitigation Type	Mitigation Acreage	Mitigation Status
59, 60, 64	Alvarado Channel	Fall 2015-ongoing	Planned Maintenance; Sediment and Vegetation Removal	Stadium Wetland Mitigation Project	Off Site in Watershed	Wetlands Restoration	3.55	Credits Reserved
130a	Via De La Bandola Channel	11/25/2015-12/6/2015	Emergency Maintenance; Debris Removal	Smythe-Via de la Bandola Channels and City of San Diego Tijuana River Advanced-Permittee Responsible Mitigation Site	Off Site in Watershed	Wetlands Rehabilitation & Enhancement	0.67	Mitigation Plan in progress
67-68	Auburn Creek Channel	12/15/2015-1/12/2016	Emergency Maintenance; Vegetation and Sediment Removal	Onsite	Onsite	Onsite restoration	0.09	Complete
70	Auburn Creek Channel	1/28/2016-2/12/2016	Emergency Maintenance; Vegetation and Sediment Removal	Conceptual Wetland Mitigation Plan for 2015/16 Emergency channel maintenance	Offsite in Watershed	Wetlands Rehabilitation & Enhancement	0.10	Permit Approvals in progress
				Otay Reed Mitigation Site	Offsite/out of watershed	Wetlands Creation, Restoration, & Enhancement	0.16	Permit Approvals in progress
77	Auburn Creek Channel	3/4/2016-3/5/2016	Emergency Maintenance; Vegetation and Sediment Removal and Repair to Bank	Onsite	onsite	Restoration	0.12	Completed
				Conceptual Wetland Mitigation Plan for 2015/16 Emergency channel maintenance	Offsite in Watershed	Wetlands Rehabilitation & Enhancement	0.09	Permit Approvals in progress
71	Chollas Creek	1/12/2016-4/22/2016	Emergency Maintenance; Vegetation and Sediment Removal	Conceptual Wetland Mitigation Plan for 2015/16 Emergency channel maintenance	Offsite in Watershed	Wetlands Re-Establishment & Rehabilitation	0.06	Permit Approvals in progress
				Stadium Wetland Mitigation Site	Offsite out of watershed	Wetland Restoration & Enhancement	0.18	Credits Reserved
				Onsite	onsite	Restoration	0.06	Completed
91	Chollas Creek	12/30/15-1/19/16	Emergency Maintenance; Vegetation and Sediment Removal	Stadium Wetland Mitigation Site	Offsite out of watershed	Wetland Restoration & Enhancement	1.6	Credits Reserved
				Conceptual Wetland Mitigation Plan for 2015/16 Emergency channel maintenance	Offsite in watershed	Wetlands Rehabilitation & Enhancement	1.6	Permit Approvals in progress
93	Chollas Creek	12/30/15-1/9/2016	Emergency Maintenance; Vegetation and Sediment Removal	Stadium Wetland Mitigation Site	Offsite out of watershed	Wetland Restoration & Enhancement	0.88	Credits Reserved
				Conceptual Wetland Mitigation Plan for 2015/16 Emergency channel maintenance	Offsite in watershed	Wetlands Rehabilitation & Enhancement	0.46	Permit Approvals in progress
				Onsite	Onsite	Restoration	0.34	Completed

Map No.	Facility	Date of Most Recent Maintenance	Type of Most Recent Maintenance	Mitigation Site	Mitigation Location	Mitigation Type	Mitigation Acreage	Mitigation Status
130	Smythe Channel Emergency	2/3/2016-4/21/2016	Emergency Maintenance; Vegetation and Sediment Removal	Smythe-Via de la Bandola Channels and City of San Diego Tijuana River Advanced-Permittee Responsible Mitigation Site	Offsite in Watershed	Wetlands Restoration & Enhancement	3.11	Mitigation Plan in progress
				Marron Valley Cornerstone Mitigation Bank	Offsite	Payment into Marron Valley Cornerstone	0.015	Credits Purchased
120-121	Cottonwood Channel	12/26/2016-1/1/2016	Emergency Maintenance; Vegetation and Sediment Removal	Stadium Wetlands Mitigation Site	Offsite out of watershed	Wetlands Restoration & Enhancement	0.18	Credits reserved
				Conceptual Wetland Mitigation Plan for 2015/16 Emergency channel maintenance	Offsite in watershed	Wetlands Rehabilitation & Enhancement	0.24	Permit Approvals in Progress
115	Jamacha Channel	1/3/2016-1/3/2016	Emergency Maintenance; Vegetation and Sediment Removal	Onsite Restoration	Onsite	Onsite Restoration	0.04	Completed
				Conceptual Wetland Mitigation Plan for 2015/16 Emergency channel maintenance	Offsite in watershed	Wetlands Rehabilitation & Enhancement	0.08	Permit Approvals in Progress
134	Nestor Creek Channel	02/05/16-02-06-16	Emergency Maintenance; Vegetation and Sediment Removal	Hollister Quarry Mitigation Site	Offsite in Watershed	Wetlands Re-Establishment & Rehabilitation	0.08	Permit Approvals in Progress
122	Parkside Channel	12/23/2015-12/26/2015	Emergency Maintenance; Vegetation and Sediment Removal	Conceptual Wetland Mitigation Plan for 2015/16 Emergency channel maintenance	Offsite out of Watershed	Wetlands Rehabilitation & Enhancement	0.2	Permit Approvals in Progress
84	Washington Channel	1/20/2016-1/30/2016	Emergency Maintenance; Vegetation and Sediment Removal	Conceptual Wetland Mitigation Plan for 2015/16 Emergency channel maintenance	Offsite in Watershed	Wetlands Rehabilitation & Enhancement	0.08	Permit Approvals in Progress
<b>Total Acres</b>							<b>55.325</b>	

# **APPENDIX C**

## **MMP Photos**

## PRE-AND POST-MAINTENANCE PHOTOGRAPHS (MMP)



Photo 1. Tijuana River Valley Channel Maintenance Project, looking north into Smuggler's Gulch from the Disney Bridge, pre maintenance, 08/14/17



Photo 2. Tijuana River Valley Channel Maintenance Project, looking north into Smuggler's Gulch from the Disney Bridge, post maintenance, 05/11/18





Photo 3. Tijuana River Valley Channel Maintenance Project, looking west from the confluence towards the western section of the Pilot Channel, pre maintenance, 07/11/17



Photo 4. Tijuana River Valley Channel Maintenance Project, looking west from the confluence towards the western section of the Pilot Channel, post maintenance, 05/11/18

## **APPENDIX D**

### **List of Anticipated Biological and Cultural Resources to be Impacted**



## Projected Biological Impacts

Map No.	Facility	Proposed Maintenance Type	Vegetation Impacts (acres)		Mitigation
70, 76	Auburn Creek*	Routine	0.01	Disturbed Wetland (Arundo dominated)	0.12 acres of wetlands restoration and enhancement is assigned at the Stadium Mitigation Site
			0.06	Natural Flood Channel	
			0.01	Chaparral	0.005 acres of Habitat Acquisition Fund credits have been purchased
66	Montezuma	Routine	0.017	Freshwater Marsh	0.08 acres of restoration and enhancement credits reserved at the Stadium Wetlands Mitigation Site.
			0.004	Streambed/Natural Flood Channel	
			0.097	Disturbed Wetland (Palm Dominated)	None required per condition 15 of the approved Site Development Permit.
			0.041	Non-native Grassland	0.021 acre of Habitat Acquisition Fund or Marron Valley Mitigation Bank credits will be purchased.
			0.009	Disturbed and Non-Native Vegetation/ Ornamental	None required per Mitigation Measure 4.3.11 of the MMP PEIR.
131	Nestor	Routine	0.1	Southern Willow Scrub	0.98 acres will be assigned at the Otay Reed Wetland Mitigation Site with a combination of wetlands
			0.07	Freshwater Marsh	

			0.07	Disturbed Wetland	creation, restoration, and enhancement.
			0.06	Natural Flood Channel/Streambed	
			0.02	Disturbed Diegan Coastal Sage Scrub	0.41 acre purchase of upland credits at Marron Valley
			0.39	Non-native Grasslands	
134	Nestor	Routine	0.03	Freshwater Marsh	0.42 acres of wetlands restoration/enhancement will be assigned at the Hollister Quarry Mitigation Site
			0.07	Disturbed Wetland	
			0.01	Disturbed Wetland (arundo dominated)	
			0.01	Streambed (earthen)	
126-127	Siempre Viva and Bristow Court Storm Water BMP	Routine	0.71	Artificially created wetland vegetation	None required. Site is an artificially created wetland for the purposes of storm water detention and treatment. It was constructed in an upland area.
101	South Chollas Creek	Routine	0.04	Southern Riparian Forest	0.12 acres of wetlands restoration and enhancement

			0.16	Concrete Channel	reserved at the Stadium Mitigation site
			0.04	Diegan Coastal Sage Scrub	0.04 acres of Habitat Acquisition Fund credits have been purchased
<b>MMP Total New Vegetation Impacts (acres)</b>			<b>2.108</b>	<b>Total New Mitigation (acres):</b> <b>2.196</b>	
<b>*Auburn 70 was maintained in 2015 through emergency circumstances. No new impacts are associated with the current project.</b>					

### Projected Cultural Impacts

Map No.	Facility	Proposed Maintenance Type	Cultural Resources Impacts
70, 76	Auburn Creek	Routine	None
66	Montezuma Channel	Routine	None
131	Nestor Channel	Routine	None
134	Nestor Channel	Routine	None. Flagging, avoidance, and archaeological and Native American monitoring will be implemented as PEIR mitigation measures to avoid potential impacts to resources adjacent to the access and loading area.
126-127	Siempre Viva and Bristow Court Storm Water BMP	Routine	None
101	South Chollas Creek	Routine	None