

# 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 (TSW) Storm Water Division adopted the Master Storm Water System Maintenance Program (MMP) in 2013 to perform channel maintenance activities for flood protection in a manner that minimizes environmental impacts associated with channel maintenance over a five-year period. The MMP included 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, 2018 - June 30, 2019 (FY 2019). More detail on the background of the program is provided in Section 1.

During FY 2019, the Storm Water Division performed planned maintenance activities in the following channel areas, and this work is described in more detail in Section 2:

- Auburn Creek Channel Maintenance MMP Maps 70 and 76
- Montezuma Creek Channel MMP Map 66
- Siempre Viva and Bristow Drainage Maps 126-127
- South Chollas Creek Maintenance MMP Map 101

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 projects implemented in FY 2019. Permitting is also 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.

As part of the MMP in FY 2019, 594.57 tons of trash, sediment, and debris were removed from flood control channels. 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. This annual report documents the last full year of maintenance under the current program. Remaining work is limited to completing the maintenance work that was started in FY 2019 but was not finished due to

inclement weather and bird nesting season. 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, 2018 - June 30, 2019 (FY 2019). The SDP for the program expired in September



2018; and thus, this report documents the last full year of maintenance under the MMP. Remaining work is limited to completing the maintenance work that was started in FY 2019 but was not finished due to inclement weather and bird nesting season. A new program is in development to replace the MMP.

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 conducted 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 implemented the planned channel maintenance activities, ensured permit conditions and mitigation measures were 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.

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 rendered 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 and allow for critical channel maintenance efforts to continue.

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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 2019 season are presented in Table 1 – MMP Facilities Maintenance and Associated Mitigation Fiscal Year 2019. Figure 1 in Appendix A depicts an overview of the location of these facilities and Figure 2 shows associated mitigation.

Additional details regarding channels that were maintained during the FY 2019 season are provided in subsequent sections of this report. Appendix A includes location maps for facilities maintained during FY 2019.

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 2019**

Map No.	Facility	Maintenance Date(s)	Maintenance Type	Vegetation Impacts (acres)	Vegetation Type	Mitigation
70	Auburn Creek	September 2018 – May 2019	Sediment and Vegetation Removal	No new impacts. All work occurred within areas previously maintained		Original impacts mitigated by 0.10 acre of enhancement via the Wetland Mitigation Plan for 2015/2016 Emergency Channel Maintenance and 0.16 acre at the Otay Reed Wetland Mitigation Site.
76	Auburn Creek	September 2018 – May 2019	Sediment and Vegetation Removal	0.01	Disturbed Wetland (Arundo-dominated)	0.06 acre of riparian rehabilitation and 0.06 acre of riparian enhancement at the Stadium Mitigation Site; 0.005 acre of Tier IIIA chaparral credits from the Marron Valley Cornerstone Lands Conservation Bank.
				0.06	Natural Flood Channel	
				0.01	Chaparral	
				0.01	Ornamental	
				0.05	Disturbed	
				0.24	Developed	
66	Montezuma Creek Channel	October 2018 – June 2019*	Partial Vegetation Removal, Installation of a Check Dam and Trash Fence, and Concrete Repair	0.075	Disturbed Wetland (palms)	0.021 acre upland of Tier IIIB Non-native grassland mitigated at Marron Valley Cornerstone Lands Bank. 0.021 of riparian rehabilitation and 0.057 of riparian enhancement at the Stadium Mitigation Site.
				0.017	Freshwater Marsh	
				0.004	Streambed	
				0.041	Non-native Grassland	
				0.009	Non-native vegetation/ ornamental	
101	South Chollas Creek	January 2019 – TBD*	Sediment and vegetation removal	0.04	Southern Riparian Forest	0.04 acres wetlands rehabilitation and 0.08 acres wetlands enhancement at the

**Table 1**  
**MMP Facilities Maintenance and Associated Mitigation Fiscal Year 2019**

Map No.	Facility	Maintenance Date(s)	Maintenance Type	Vegetation Impacts (acres)	Vegetation Type	Mitigation
				0.16	Developed concrete-lined channel	Stadium Mitigation site
126-127	Siempre Viva and Bristow Drainage	Aug 2018 – October 2018*	Sediment and Vegetation Removal	Artificially Created Wetland and Upland Vegetation		No mitigation required

\* Project not yet complete.





## **2.1 AUBURN CREEK MMP MAPS 70 AND 76**

This project included the removal of trash, debris, vegetation, and accumulated sediment from within two segments of the Auburn Creek Channel - Map 70 and Map 76 - to provide public safety and protection of property. The FY 2019 maintenance cycle for Auburn Creek Maps 70 and 76 ran from September 26, 2018 through May 24, 2019.

Auburn Creek Channel Map 70 is located near the intersection of Fairmont Avenue and Home Avenue east of I-805. Auburn Creek Channel Map 76 is located near Spillman Drive and Home Avenue west of I-805. Both are located outside the MHPA in the City Heights Community.

Auburn Creek Channel Map 70 was previously maintained via an emergency maintenance project in January 2016. Since the emergency maintenance in 2016, some herbaceous vegetation regrew on the channel banks and a small stand of *Arundo* grew on the bank next to the upstream culvert. There was minimal sediment accumulation and the bottom of the channel remained largely unvegetated. Auburn Creek Channel Map 76 had not been previously maintained under the MMP.

During maintenance, the full permitted areas of both Maps 70 and 76 were cleared of accumulated sediment, vegetation and debris to return the channel segments to as-built dimensions. Maintenance at Map 70 spanned approximately 274 linear feet of channel and resulted in impacts to 0.11 acre of natural flood channel habitat. The maintenance footprint at Map 70 was previously impacted by emergency maintenance activities in 2016. Maintenance at Map 76 spanned approximately 160 linear feet of channel and resulted in the following habitat impacts: 0.01 acre of disturbed wetland (*Arundo*-dominated), 0.06 acre of natural flood channel, 0.01 acre of chaparral, 0.01 acre of ornamental, 0.05 acre of disturbed lands and 0.24 acre of developed lands. Approximately 0.22 tons of material were removed from Map 70 and approximately 43.52 tons of material were removed from Map 76.

Mitigation for previous impacts to the Auburn Creek Map 70 include an allocation as part of the final Wetland Mitigation Plan for 2015/16 Emergency channel maintenance as well as the Otay Reed Wetland Mitigation Site. Mitigation for impacts to Map 76 for this project is assigned at the Stadium Mitigation Site and via purchase of upland credits from the Marron Valley Cornerstone Lands Conservation Bank. Details on the mitigation efforts are presented in the Mitigation Projects section of this report.

Figures 3-6 in Appendix A display pre-maintenance and post-maintenance vegetation. Photographs showing conditions of the channel during maintenance in FY 2019 are included in Appendix C.

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

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

The project IHHA determined that in the pre-project condition both Map 70 and Map 76 had a 25-year storm event capacity. With the sediment and vegetation removed, the conveyance capacity of Map 70 would remain at a 25-year storm event capacity. Note that when the IHHA was prepared in 2017, Map 70 was still relatively clean as a result of emergency maintenance in 2016. Consequently, the IHHA did not show a large improvement in storm event capacity from proposed maintenance at Map 70. However, maintenance was still recommended because it was anticipated additional sediment would build up in the coming years. With sediment and vegetation removed, the conveyance capacity of Map 76 would increase to a 100-year storm event capacity.

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

The pre-project analysis of Auburn Creek Channel concluded that there would be no negative water quality impacts associated with channel maintenance due to no dry water flows in the channel. Consequently, water and/or sediment sampling was not implemented.

The Settlement Agreement provides for specific water quality improvement BMPs to be implemented for channels maintained under the MMP within the SDP framework, regardless of IWQA results. In accordance with the SDP, the City will be conducting quarterly inspections and as-needed cleaning of every catch basin within 100 feet of Maps 70 and 76 through May 2020 (one year after maintenance was completed).

## **2.2 MONTEZUMA CREEK CHANNEL MMP MAP 66**

The Montezuma Creek Channel MMP Map 66 Maintenance Project (project) includes several distinct activities intended to repair and protect the existing concrete-lined and earthen-bottomed Montezuma Creek Channel and reduce flooding hazards related to the potential clogging of a downstream culvert. These activities include: (1) installation of a row of steel fence posts (debris fence) to catch debris; (2) installation of a check dam to slow velocity and reduce erosion; (3) removal of exotic palm trees with roots and stumps left in place to reduce flow velocity; and (4) removal of a single palm tree and repair of damaged concrete in the concrete-lined channel segment. The channel had not been previously maintained under the MMP.

Maintenance commenced in October 2018 but experienced several delays due to inundation from numerous rain events. Work is anticipated to resume and be completed in FY 2020. Prior to maintenance work, the channel contained several Mexican fan palms (*Washington robusta*), with scattered native species of plants comprising freshwater marsh habitat. In FY 2019, 72.64 tons of material (palms and minor sediment) were removed from Montezuma Creek Channel.

Specific habitats affected through partial vegetation removal and construction of the check dam and debris fence were: disturbed wetland (palm-dominated) (0.075 acre), freshwater marsh (0.017 acre), streambed (0.004 acre), non-native grassland (0.041 acre), and disturbed and non-native vegetation/ornamental (0.009 acre). These habitats are anticipated to be impacted by the completion of the project. Details on the mitigation efforts and allocation for this channel area are presented in the Mitigation Projects section of this report.

The project is located in the College West area in the City of San Diego, to the east of Interstate 15 and south of Interstate 8. The channel is within the San Diego Hydrologic Unit, the Lower San Diego Watershed, and the Mission San Diego Hydrologic Sub Area (907.11). The site is not located within or adjacent to the City's Multiple Species Conservation Program's (MSCP) Multi-Habitat Planning Area (MHPA). Figure 7 in Appendix A depicts pre-project vegetation. Photographs showing pre-maintenance conditions of the channel are included in Appendix C.

The City obtained all necessary authorizations to perform channel maintenance within Montezuma Creek Channel. The project was compliant with all environmental permits and no remedial actions were required.

### **2.2.1 CONVEYANCE CAPACITY RESULTING FROM MAINTENANCE**

The project IHHA indicated that, prior to maintenance activities, the hydraulic capacity of Montezuma Creek Channel ranged from less than the 2-year storm event to greater than the 100-year storm event. Proposed maintenance activities would not increase the identified channel hydraulic capacity. However, partial vegetation maintenance in selected parts of the channel would significantly reduce the risk of clogging in the existing 60-inch reinforced concrete pipe underneath the Collwood Villas Apartment Complex and Collwood Boulevard while maintaining non-erosive flow velocities.

### **2.2.2 WATER QUALITY MONITORING SUMMARY**

The pre-project IWQA analysis for Montezuma Creek Channel concluded that there would be no negative water quality impacts associated with channel maintenance due to no dry weather flows in the channel. Due to this, no water or sediment samplings were required.

Post-project water quality monitoring was not required for this project and was not conducted. However, the Settlement Agreement provides for specific water quality improvement BMPs to be implemented for channels maintained under the MMP within the SDP framework, regardless of IWQA results. In accordance with the SDP, the City will increase the frequency of catch basin inspection and as-needed cleaning for one year after maintenance is completed. For every segment that is maintained, the City shall conduct an inspection and cleaning, if necessary, of every catch

basin within 100 feet of the maintained segment. Additional quarterly inspections and as-needed cleaning of those same catch basins will be conducted for one year.

### **2.3 SIEMPRE VIVA AND BRISTOW DRAINAGE FACILITY MMP MAPS 126 AND 127**

The purpose of the Siempre Viva and Bristow Drainage Facility routine maintenance was to restore the original design capacity through excavation, vegetation and sediment removal to provide public safety and protection to adjacent properties. The Siempre Viva and Bristow Drainage is a shared detention facility referenced in the MMP as Maps 126 and 127, respectively. The facility was constructed as a Best Management Practice (BMP) for the Britannia Commerce Center development, which was created wholly within uplands. Prior to the routine maintenance the facility contained sediment and tall, dense vegetation. The facility had not been previously maintained under the MMP.

The facility is located south of the 905 freeway near the intersection of Siempre Viva Road and Britannia Boulevard. The site is located outside of the MHPA.

The maintenance was conducted in accordance with the Project's Individual Maintenance Plan and with the conditions set forth in the MS4 Permit, the City's Storm Water MMRP, the Site Development Permit issued for the MMP, the City's Substantial Conformance Review issued for the project and the Project's Individual Biological Assessment.

The routine maintenance at the facility began August 22, 2018 and was suspended on October 25, 2018 due to several rain events that inundated the facility with storm water runoff. Maintenance is expected to resume and be completed in FY 2020. The full length of the facility was cleared of sediment and vegetation, and some bank repair/excavation was initiated prior to the rain events, but was not completed because the soil along the bank and bottom of the facility was not stable enough to accommodate the equipment used to excavate.

During the FY2019 routine maintenance, 463.09 tons of material (i.e., sediment, trash, vegetation, and debris) was excavated from the facility. Sediment, vegetation, and debris hauled from the facility was disposed of at the Miramar landfill.

While the facility has wetland and upland vegetation, the site was created by human activity as a storm water BMP associated with the adjacent industrial development and was not constructed in a natural drainage course. The facility is an artificially-created ditch constructed wholly within a historically upland landscape to convey urban runoff from the adjacent developed areas; therefore, the wetland and upland vegetation was considered artificially-created. Federal and State regulatory agencies did not delineate the facility as a jurisdictional wetland and no mitigation was required. The

City of San Diego, Development Services Department concurred with the agencies determination that the facility is not jurisdictional and no mitigation was required.

Figure 8 in Appendix A depicts pre-project vegetation. Site photographs are included in Appendix C.

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

### **2.3.1 CONVEYANCE CAPACITY RESULTING FROM MAINTENANCE**

The project IHHA results indicated that, the pre-project condition for the eastern portion of the Bristow Facility could contain less than a 2-year storm event flow within its banks and the western portion could contain a 25-year storm event flow within its banks. With the sediment and vegetation removed, the static storage capacity of the eastern portion would increase from approximately 57,000 cubic feet per second (cfs) to approximately 100,000 cfs, although the facility would still convey less than a 2-year storm. While the capacity would not increase for the western portion of the channel, the water surface elevation would decrease by approximately 0.5 feet for the 100-year storm event.

The IHHA results indicated that, in the pre-project condition, Siempre Viva Facility could contain less than 2-year storm event flow within its banks. With the sediment and vegetation removed, the facility would still hold less than a 2-year storm; however, the static storage capacity of the facility would increase from 37,000 cfs to 59,000 cfs, an approximately 57% increase which decreases the projected overall limits of flooding.

Maintenance will not resolve all the flooding issues within the facility, however, sediment and vegetation removal within the facility will decrease the overall projected limits of flooding by increasing the facilities detention basin capacity to detain runoff.

### **2.3.2 WATER QUALITY MONITORING SUMMARY**

The IWQA for the project noted that on two separate field visits to the facility, there were no dry weather flows observed within the facility and concluded that there would be no negative water quality impacts associated with channel maintenance due to no dry water flows in the channel. Consequently, water and/or sediment sampling was not implemented.

Post project water quality monitoring was not required for this project and was not conducted. However, the Settlement Agreement provides for specific water quality improvement BMPs to be implemented for channels maintained under the MMP within the SDP framework, regardless of IWQA results. In accordance with the SDP, the City will increase the frequency of catch basin inspection and as-needed cleaning for one year after maintenance is completed. For every segment

that is maintained, the City shall conduct an inspection and cleaning, if necessary, of every catch basin within 100 feet of the maintained segment. Additional quarterly inspections and as-needed cleaning of those same catch basins will be conducted for one year.

## **2.4 SOUTH CHOLLAS CREEK CHANNEL MMP MAP 101**

The purpose of maintenance of the South Chollas Creek Map 101 Channel is to provide flood protection to surrounding properties. This channel had not been previously maintained under the MMP.

The channel is located along the 94 freeway near Federal Boulevard and 60<sup>th</sup> Street. The site is not within the MHPA.

Maintenance began in January 23, 2019 and has been on-hold due to the presence of nests.

In FY 2019, 15.1 tons of material (i.e., sediment, trash, vegetation, and debris) was removed from the channel. Approximately 50 feet of the earthen portion of the channel was cleared of vegetation and excavated to its as-built condition during the FY 2019 maintenance period. This portion of the site had dense vegetation within it. Some vegetation was also removed from the concrete portion to allow access to the work area. Additional vegetation removal within the concrete portion (up to 1,370 linear feet) is planned to complete the project in FY 2020. Work was halted in spring due to inundation from rain followed by the presence of nests. Work is anticipated to resume in FY 2020.

Impacts to the earthen channel included 0.04 acres of Southern Riparian Forest. A total of 0.16 acres of concrete lined channel is anticipated to be impacted by the completion of the project.

Details on the mitigation efforts for this channel area, which include mitigation at the Stadium Mitigation Site, are presented in the Mitigation Projects section of this report.

Photographs showing conditions of the channel during maintenance in FY 2019 are included in Appendix C. Figure 9 in Appendix A displays pre-maintenance vegetation.

The project maintained compliance with all environmental permits and no remedial actions were required.

### **2.4.1 CONVEYANCE CAPACITY RESULTING FROM MAINTENANCE**

The project IHHA results indicated that, the project would increase capacity in the earthen portion of the channel from a 10-year to a 25-year storm event and would preserve the 100-year storm

capacity in concrete portion of the channel. The IHHA noted that sediment and vegetation removal would increase the channel capacity and decrease water surface elevation.

#### **2.4.2 WATER QUALITY MONITORING SUMMARY**

The IWQA for the project indicates that overall the proposed and vegetation removal during maintenance of the South Chollas Creek Channel will remove a larger pollutant load than that which is theoretically removed under existing (pre-maintenance) conditions during dry weather flow by natural processes over three years. The maintenance will therefore provide a slight overall water quality benefit. Sediment excavation will prevent the re-suspension and downstream transport of sediment-bound pollutants during wet weather, and regrowth of fresh water marsh species within one year will further enhance pollutant removal from the channel.

Post project water quality monitoring was not required for this project and was not conducted. However, the Settlement Agreement provides for specific water quality improvement BMPs to be implemented for channels maintained under the MMP within the SDP framework, regardless of IWQA results. In accordance with the SDP, the City will increase the frequency of catch basin inspection and as-needed cleaning for one year after maintenance is completed. For every segment that is maintained, the City shall conduct an inspection and cleaning, if necessary, of every catch basin within 100 feet of the maintained segment. Additional quarterly inspections and as-needed cleaning of those same catch basins will be conducted for one year.

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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 6, 2019, Dudek assessed the site and verified 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 2019).

### 3.2 TIJUANA RIVER VALLEY CHANNEL MAINTENANCE MITIGATION PROJECT

In addition to the creation of wetlands described above, wetland enhancement was 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 occurred in two locations per the regulatory permits, Out-of-Channel and In-Channel, and included removal of three target species - giant reed (*Arundo donax*), castor bean (*Ricinus communis*) and salt cedar (*Tamarix ramosissima*). 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 target non-native vegetation within the channel. In FY 2019, maintenance of the In-Channel areas was conducted in October and November 2018.

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. An additional 0.43 acres of Out-of-Channel area was also treated as a contingency to ensure the mitigation requirements for minimum acreage was met. Therefore, the total Out-of-Channel area treated was 4.74 acres. During FY 2019, crews cut and treated minimal re-sprouts within the Out-of-Channel areas as-needed in October and November 2018.

The five-year maintenance and monitoring period for the project was completed in December 2018. At that time, it was determined that the project had met its Year 5 performance metric of complete kill and removal of all originally treated target invasive plants and the City requested sign-off on the project from the regulatory agencies. Sign-off that the project had achieved its performance standards was received from all regulatory agencies involved in the project (United States Army Corps of Engineers, United States Fish and Wildlife Service, San Diego Regional Water Quality Control Board, California Coastal Commission and City of San Diego Development Services Department) by May 2019. At this time, the five-year maintenance and monitoring period for the project is considered complete and the project has entered its long-term maintenance and management phase.

### **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.

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.

Over the past year, significant progress has been achieved, and the project has met all Year 4 standards indicated in the Final Los Peñasquitos Canyon Preserve Wetland Enhancement Plan. Target non-natives cover is less than 1 percent cover and native plant species cover is approximately 25 percent cover which meets the Year 4 standards. Other non-native species cover is less than 1 percent cover which exceeds the Year 4 standard of less than 15 percent cover. During the process of removing the invasives, there were no impacts to the willow monardella or other biologically sensitive species. Willow planting efforts have been successfully conducted to revegetate the site with native plant species in flood damaged areas.

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, 2018, the site is in its second 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, have been tested during 2018-2019 to help increase native vegetative cover in bare areas, and reach our success criteria. Once it is determined what remedial measures will help increase native vegetation cover, this option will be implemented throughout the site.

### **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 submitted the Year Zero Report to the Regulatory Agencies that provided 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 13.288 acres of mitigation credits at this site through a Memorandum of Understanding with the Public Utilities Department. Approximately 11.658 credits have been used for the following channel maintenance locations:

- Murphy Canyon Channel Maintenance (Map 58)
- Alvarado Creek Channel Maintenance (Maps 59, 60, 64)
- San Carlos Creek Emergency Maintenance (Map 54)
- Reservoir Drive Emergency Maintenance (Map 64a)

- Auburn Creek Channel Maintenance (Map 76)
- South Chollas Creek Maintenance (Map 101)
- Montezuma Channel Maintenance (Map 66)
- 2015-2016 El Nino Season Emergency Projects (partially satisfied mitigation obligations):
  - Chollas Creek Emergency Maintenance (Map 71)
  - Chollas Creek Emergency Maintenance (Maps 91 & 93)
  - Cottonwood Creek Emergency Maintenance (Maps 120-121)
  - Jamacha Channel Emergency Maintenance (Map 115)
  - Washington Channel Emergency Maintenance (Map 84)

### **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 the 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 up to 5.21 acres of wetland mitigation (with an additional 0.13 acre of City Tier 1 upland maritime succulent scrub proposed as well). 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), 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 is currently being amended in response to comments from USACE and RWQCB to allow for receipt of required aquatic permits. Final design is currently estimated for completion by June 2020.

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

The proposed Hollister Quarry Wetland Mitigation Site project is partially within the Coastal Zone and consists of implementing wetlands re-establishment and rehabilitation, involving replacement

of giant cane, 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) and past emergencies in 2010 and 2016. The Final Habitat Mitigation and Monitoring Plan and design plans are currently under regulatory agency review.

### **3.10 FINAL 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 (TSW) is working with consultants and regulatory agencies to develop and implement a final 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 2020 and enter the implementation process following approval.

### **3.11 SMYTHE CHANNEL AND VIA DE LA BANDOLA CHANNEL PERMITTEE RESPONSIBLE MITIGATION SITE**

The Smythe Channel and Via de la Bandola Channel Permittee Responsible Mitigation Site 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 approximately 6-acre mitigation site is proposed to include 1.16 acres of wetland rehabilitation credits and 2.62 acres of wetland enhancement credits which 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). This mitigation project is proposed to also include a weed free buffer zone and additional contingency credits of 0.02 acres of wetland rehabilitation credit and 0.04 acres of wetland enhancement credits to provide assurance of meeting the minimum compensatory mitigation requirements for Smythe Channel and Via de la Bandola Channel.

The Draft Habitat Mitigation and Monitoring Plan is currently in review with resource agencies. Pending agency approval of the mitigation plan, final design is anticipated for completion by winter 2019, followed by construction and implementation during spring 2020.

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## 4 CONCLUSIONS AND FUTURE PROJECTS

Over the FY 2019 maintenance period, maintenance was completed at one channel and maintenance was started at three other sites. Trash, sediment, and debris was removed from flood control channels and totaled 594.57 tons. 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 2020 season, the Storm Water Division is planning to complete the routine channel maintenance projects begun in FY 2019 but not yet completed. The Division is also working on a new maintenance program that will replace the MMP. No new channels are proposed for maintenance under the MMP due to the expired PEIR.

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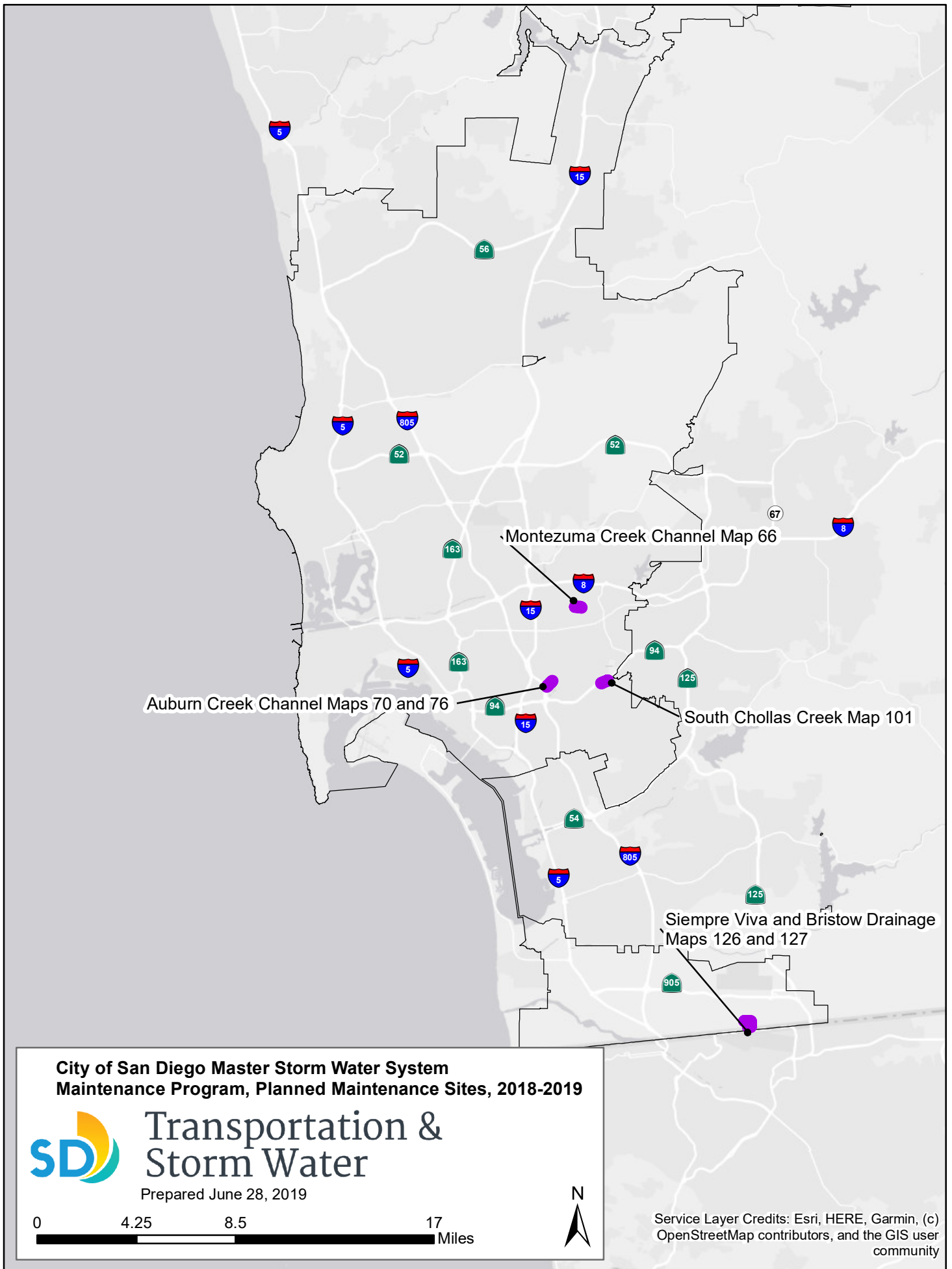
## 5 REFERENCES

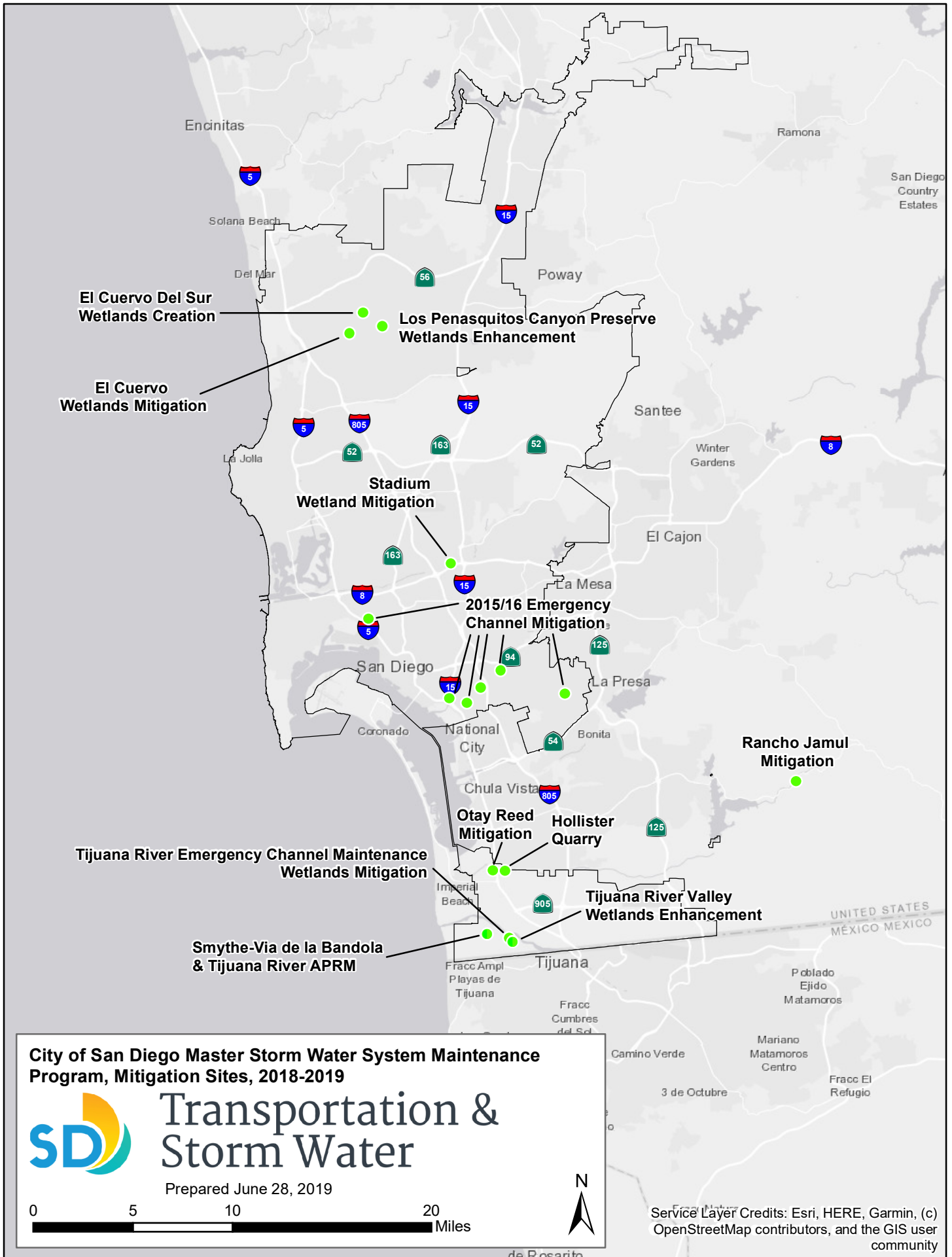
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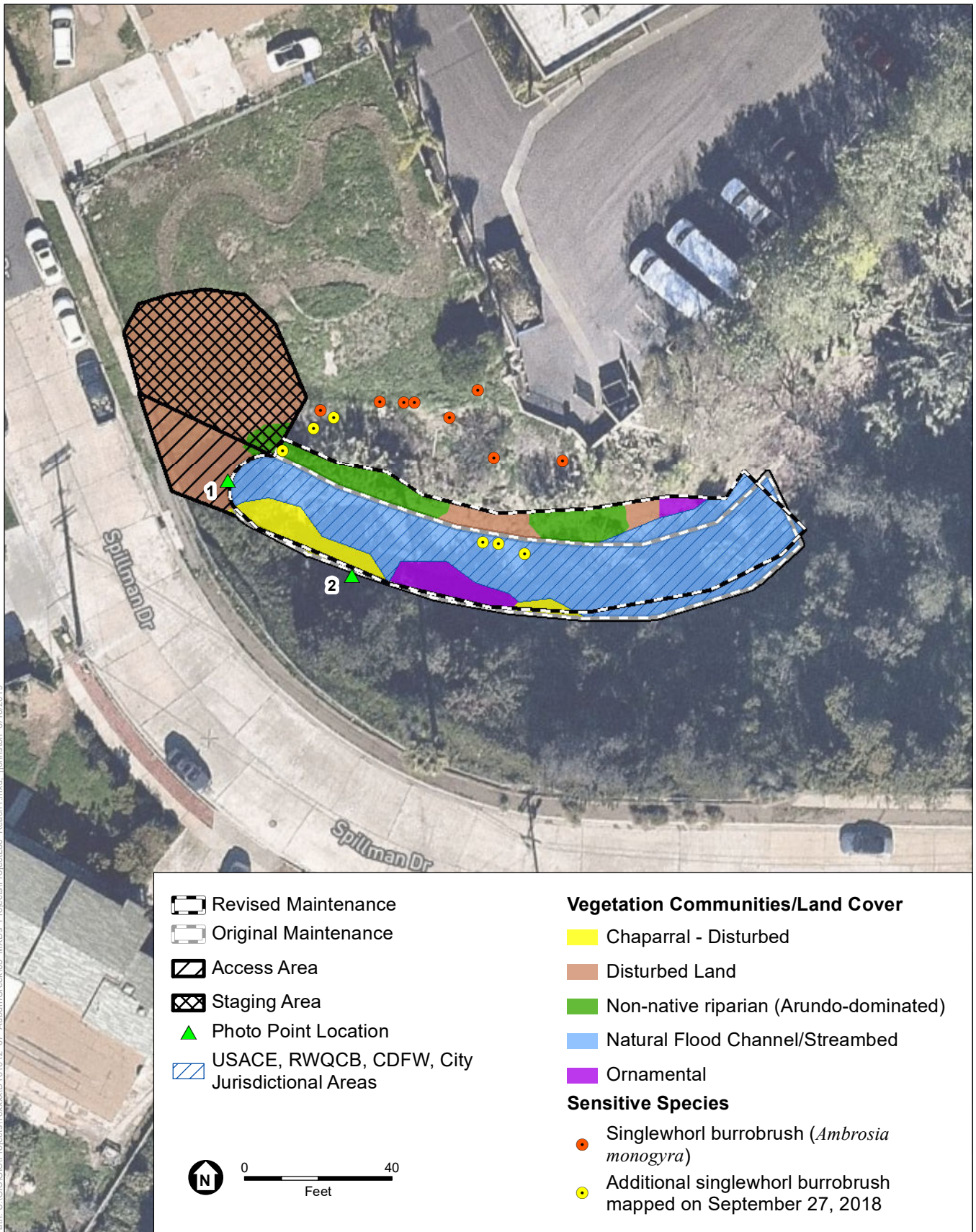
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# **APPENDIX A**

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





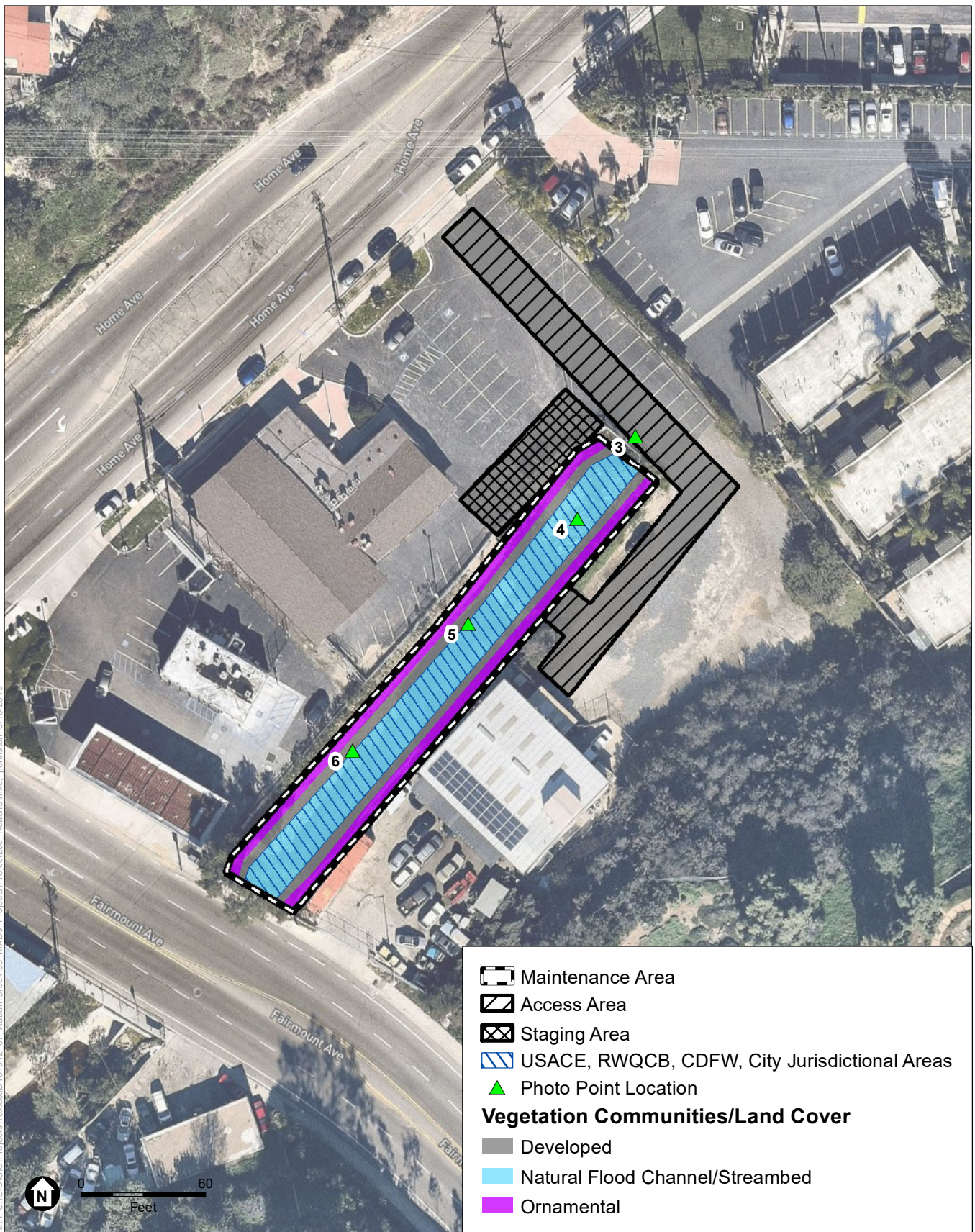


SOURCE: Mapbox

Auburn Creek Reach 1 and 5 (Maps 76 and 70)

Auburn Creek Reach 1 (Map 76) Pre-Maintenance Conditions

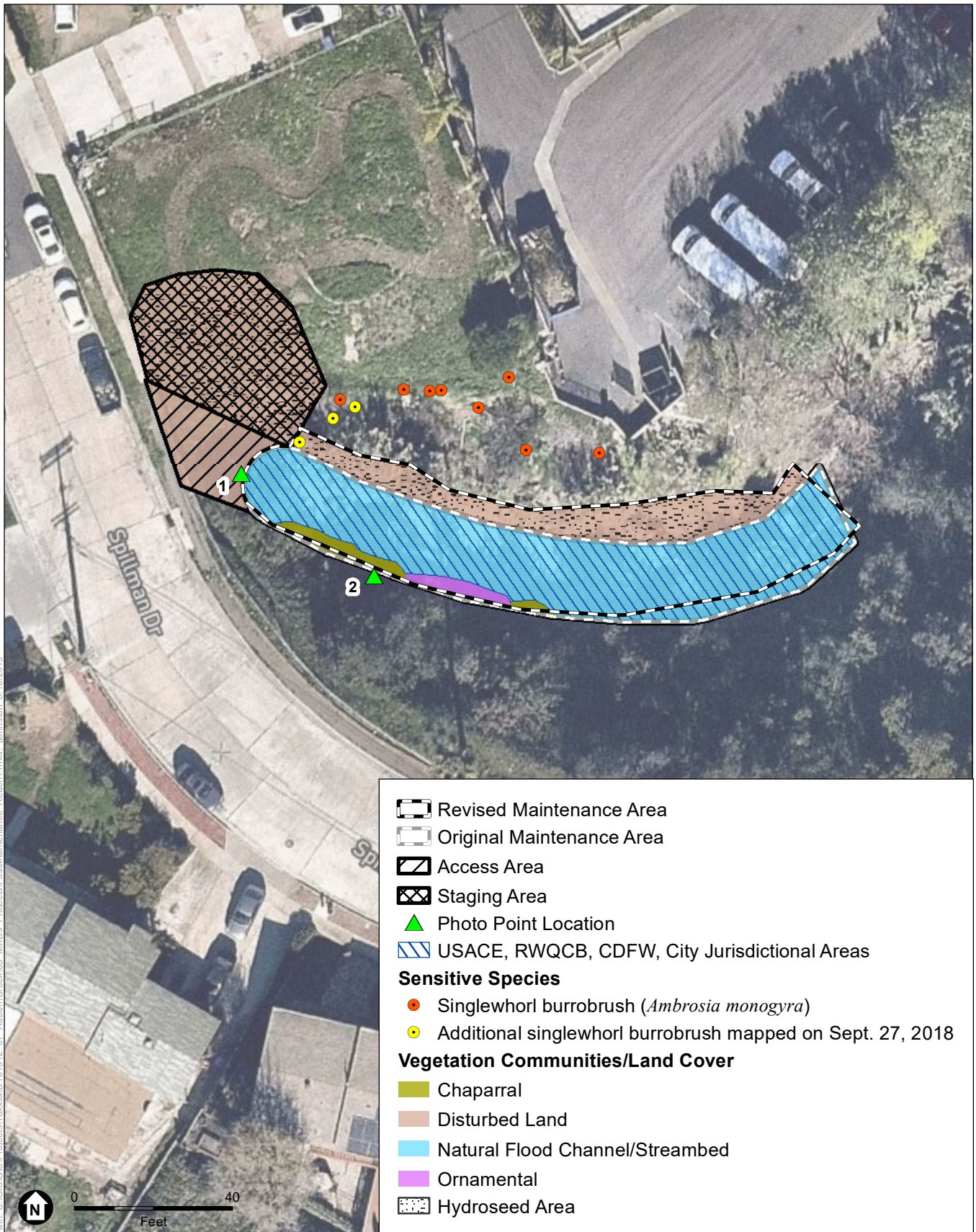




SOURCE: Mapbox

Auburn Creek Reach 1 and 5 (Maps 76 and 70)

Auburn Creek Reach 5 (Map 70) Pre-Maintenance Conditions



SOURCE: Mapbox; ESA 2019

Auburn Creek Reach 1 and 5 (Maps 76 and 70)

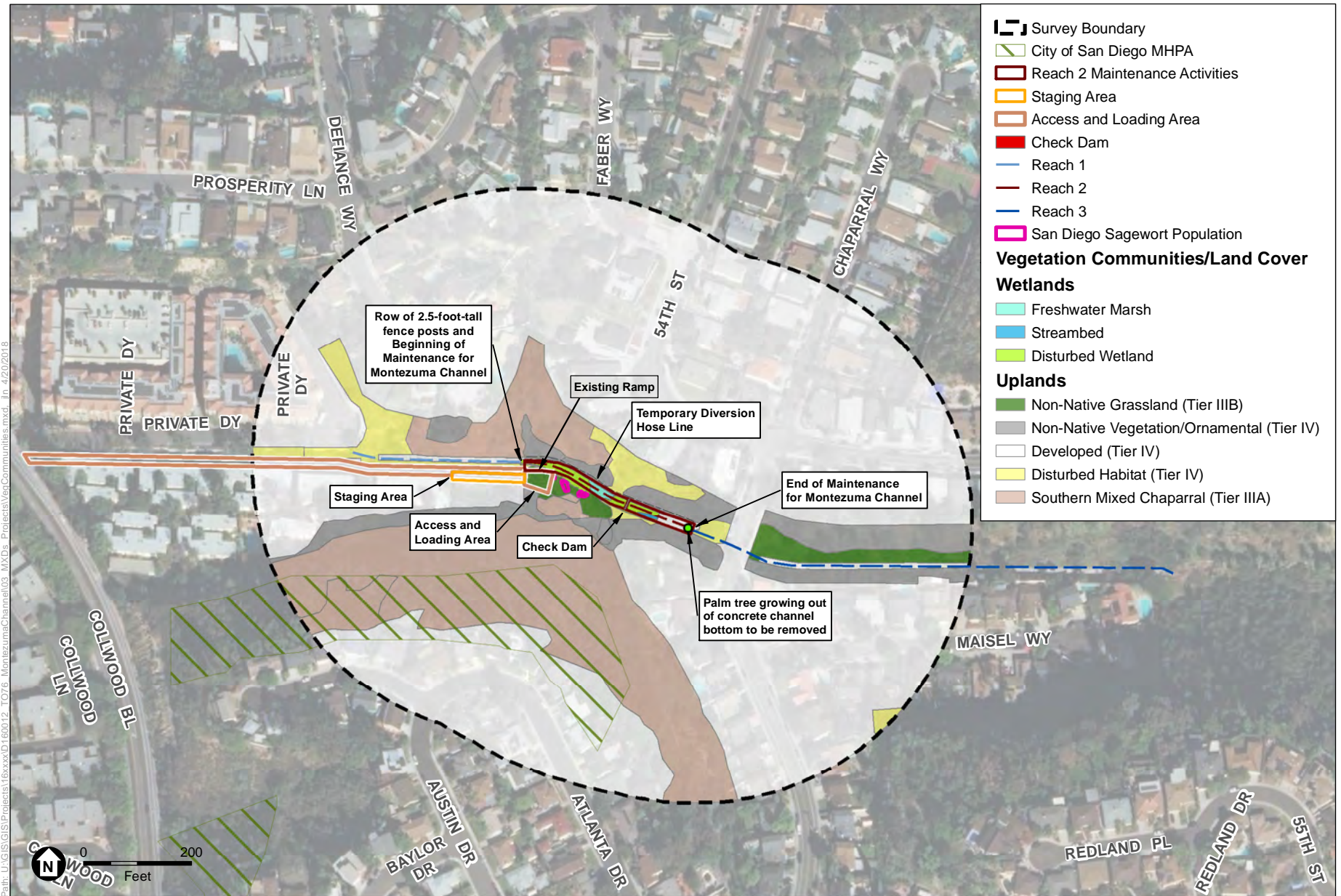
Auburn Creek Reach 1 (Map 76) Post-Maintenance Conditions



SOURCE: Mapbox; SanGIS 2019; ESA 2019

Auburn Creek Reach 1 and 5 (Maps 76 and 70)

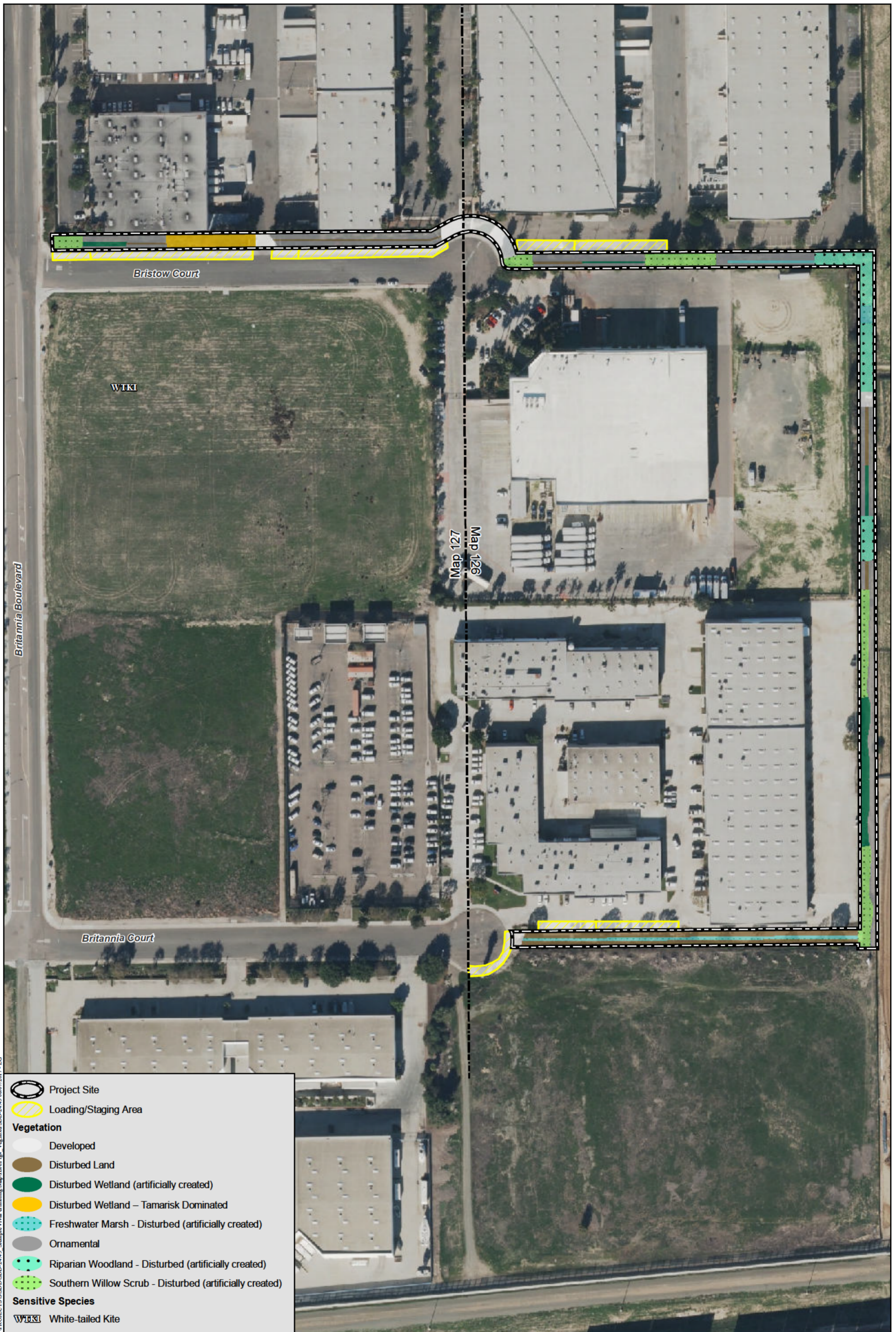
Auburn Creek Reach 5 (Map 70) Post-Maintenance Conditions



SOURCE: ESRI; City of San Diego; SanGIS; ESA

Montezuma Creek Channel Maintenance

Vegetation Communities/Land Cover



## Vegetation and Sensitive Biological Resources

SIEMPRE VIVA AND BRISTOW STORM WATER DETENTION FACILITY



**Vegetation and Sensitive Biological Resources, South Chollas Creek Channel – Map 101**

SOUTH CHOLLAS CREEK CHANNEL

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## **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	Complete in 2018
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 2
				LPC Preserve Wetlands Enhancement	Off Site in Watershed	Wetlands Enhancement	5.53	Maintenance and Monitoring Year 4
				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 Allocated
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 2
				LPC Preserve Wetlands Enhancement	Off Site in Watershed	Wetlands Enhancement	0.96	Maintenance and Monitoring Year 4
				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 Allocated
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 Allocated
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 Allocated
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; 9/26/2018-5/24/2019	Vegetation and Sediment Removal	Final 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
				Final 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	Final 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 Allocated
				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 Allocated
				Final 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	0.84	Credits Allocated
				Final Wetland Mitigation Plan for 2015/16 Emergency channel maintenance	Offsite in watershed	Wetlands Rehabilitation & Enhancement	0.46	Permit Approvals in progress
				Onsite	Onsite	Restoration	0.38	Completed
130	Smythe Channel Emergency	2/3/2016-4/21/2016	Emergency Maintenance; Vegetation	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

Map No.	Facility	Date of Most Recent Maintenance	Type of Most Recent Maintenance	Mitigation Site	Mitigation Location	Mitigation Type	Mitigation Acreage	Mitigation Status
			and Sediment Removal	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 Allocated
				Final 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
				Final Wetland Mitigation Plan for 2015/16 Emergency channel maintenance	Offsite in watershed	Wetlands Rehabilitation & Enhancement	0.08	Permit Approvals in Progress
				Stadium Wetlands Mitigation Site	Offsite in watershed	Wetlands Enhancement	0.02	Credits Allocated
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	Final 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	Final Wetland Mitigation Plan for 2015/16 Emergency channel maintenance	Offsite in Watershed	Wetlands Rehabilitation & Enhancement	0.07	Permit Approvals in Progress
				Stadium Wetlands Mitigation Site	Offsite in Watershed	Wetlands Enhancement	0.01	Credits Allocated
76	Auburn Creek Channel	9/26/2018-5/24/2019	Planned Maintenance; Sediment and Vegetation Removal	Stadium Wetlands Mitigation Site	Offsite out of Watershed	Wetlands Restoration & Enhancement	0.12	Credits Allocated
				Marron Valley Cornerstone Mitigation Bank	Offsite out of Watershed	Payment into Marron Valley Cornerstone	0.005	Credits Purchased
66	Montezuma Channel	10/29/2018 - 6/7/19	Erosion Control and Concrete Repair	Stadium Wetlands Mitigation Site	Offsite in watershed	Wetlands Restoration & Enhancement	0.078	Credits Allocated
				Marron Valley Cornerstone Mitigation Bank	Offsite out of watershed	Payment into Marron Valley Cornerstone	0.021	Credits Purchased
126, 127	Siempre Viva and Bristow Drainage	8/22/2018-10/25/2018	Planned Maintenance; Sediment and Vegetation Removal	Not Required	Not Required	Not Required	Not Required	Not required.

Map No.	Facility	Date of Most Recent Maintenance	Type of Most Recent Maintenance	Mitigation Site	Mitigation Location	Mitigation Type	Mitigation Acreage	Mitigation Status
101	South Chollas Creek	1/23/2019-TBD	Planned Maintenance; Sediment and Vegetation Removal	Stadium Wetlands Mitigation Site	Offsite out of watershed	Wetlands Rehabilitation & Enhancement	0.12	Credits Allocated
<b>Total Acres</b>							<b>55.529</b>	

# **APPENDIX C**

## **MMP Photos**

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



Photo 1. Auburn Channel Maintenance Project (Map 76), pre-maintenance, facing east, 09/24/2018



Photo 2. Auburn Channel Maintenance Project (Map 76), post-maintenance, facing east, 05/30/2019



Photo 3. Auburn Channel Maintenance Project (Map 70), pre-maintenance, facing southwest, 09/24/2018



Photo 4. Auburn Channel Maintenance Project (Map 70), post-maintenance, facing southwest, 05/30/2019



Photo 5. Montezuma Creek Channel Maintenance Project, pre- maintenance, facing east (upstream) toward Montezuma Creek Channel, 04/24/2018



Photo 6. Montezuma Creek Channel Maintenance Project, pre- maintenance, facing west (downstream) toward fan palm stand and ponded surface water at the end of the concrete-lined channel, 04/24/2018



Photo 7. Siempre Viva and Bristow Drainage Facility, pre- maintenance. Facing west from Siempre Viva & Bristow Court cul-de-sac. 8/20/2018.



Photo 8. South Chollas Map 101 Channel Maintenance Project, pre maintenance, looking downstream (west) from east end of maintenance area, 2/21/2018.



## **APPENDIX D**

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

## Projected Biological and Cultural Resource Impacts

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**2018-2019 represents the last year of the Master Storm Water System Maintenance Program (MMP). As such, no future projects are planned under the MMP. 2019-2020 will involve completion of the final MMP projects as well as further development, public review, and City Council consideration of the Municipal Waterways Maintenance Plan (MWMP).**

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