

# **APPENDIX K**

## ***Selection of Representative Projects***



**Selection of Representative Projects for the Municipal  
Waterways Maintenance Plan  
City of San Diego, California  
PTS #616992**

*Prepared for:*



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# Selection of Representative Projects for the Municipal Waterways Maintenance Plan

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## 1 INTRODUCTION

The analysis of the effects of the proposed *Municipal Waterways Maintenance Plan* (MWMP) on air quality and odor (Environmental Impact Report (EIR) Section 5.2), greenhouse gas emissions (EIR Section 5.4), noise (EIR Section 5.9), and solid waste (EIR Section 5.11) resource areas was completed as part of the EIR for the MWMP using a representative sample of proposed project-level activities within facilities with proposed Facility Management Plans (FMPs) identified in the MWMP. For a project area overview, see Figure 1, Regional Map, and Figure 2, Vicinity Map. As described in the MWMP, the primary project-level activities are as follows:

- Vegetation management
- Sediment and debris removal
- Concrete repair (major and minor)
- Structural clearing

These activities may occur in a number of identified facilities throughout the City of San Diego (City) in accordance with an FMP (see Figure 4-2, City-Wide Overview/Index Map, and Figures 4-2a–4-2h.2 in Chapter 4, Project Description, of the EIR). The identified facilities consist of the following:

- Channels and ditches (both concrete-lined and earthen-bottom)
- Basins
- Structures (i.e., outlets and inlets)

There are 113 facility segments with proposed FMPs throughout the City (Figures 3A–3C of Appendix C, Air Quality and GHG Technical Report). Biological resources, hydrological resources, historical and cultural resources, paleontological resources, and water quality were analyzed in the EIR for each of these 113 facility segments. Technical reports for these resources are included as appendices to this EIR and may include a larger set of facilities. For the resources listed above (air quality, greenhouse gas emissions, noise, and solid waste), a representative sample can provide an adequate and appropriate estimation of the impacts that approval of the MWMP would have on those environmental resource areas, assuming that the selection of representative sites encompasses the scope and range of proposed activities and locations.

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## 2 REPRESENTATIVE ACTIVITIES

To provide a sample to appropriately analyze impacts, a representative list of activities was identified:

1. Vegetation removal within approximately 20% or more of the facility area in concrete-lined facilities
2. Vegetation removal within less than approximately 20% of the facility area in concrete-lined facilities
3. Sediment and vegetation removal in the Tijuana River Facility Group (Pilot Channel and Smuggler's Gulch segments)
4. Sediment and vegetation removal in earthen-bottom facilities
5. Major concrete repair activities
6. Minor concrete repair activities
7. Structural clearing (i.e., inlet and outlet maintenance)

Activity 3 (sediment and vegetation removal in the Tijuana River Facility Group) was identified separately due to the large size of this facility, the amount of maintenance it requires, and the frequency of maintenance, which, combined, creates a unique scope among all other proposed FMPs. Activity 4 (sediment and vegetation removal in earthen-bottom facilities) represent a wide variety of facilities, and therefore multiple segments are chosen to represent this activity.

This list is considered representative of the activities proposed in the MWMP because all proposed activities can fit into one of these identified categories, with the exception of bank repair and post-maintenance erosion control measures, which are proposed in only a handful of facilities and would be conducted in conjunction with the activities listed above.

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### 3 REPRESENTATIVE FACILITY MAINTENANCE PLANS

The second step was to identify a facility or facilities that would be representative of each activity type. To complete this task, the size (measured in linear feet) and vegetation condition (provided from biological surveys) were reviewed to determine the range of concrete-lined and earthen-bottom facilities. In general, facilities with a length approximate to the median length of all facilities where the representative activities are proposed were selected as representative FMP segments. Ditches, channels, and basins were included together in the data reviewed. Table 1 lists the representative FMPs (i.e., facility segment) for each activity and the number of FMPs that are represented by that activity (see Figures 3A, 3B, 3C, Representative Projects, herein). Due to the wide range of earthen-bottom facility conditions, four representative segments were selected.

**Table 1**  
**Representative FMP Segments and Total Number of MWMP FMPs per Activity**

Activity	Representative Segment(s)	Number of MWMP FMP Segments Similar to the Representative Segment(s)*
Sediment and vegetation removal in concrete-lined facilities that are 20% or more vegetated	San Diego River – Camino del Rio Segment 1	11
Sediment and vegetation removal in concrete-lined facilities that are less than 20% vegetated	Alvarado Canyon Creek – Mission Gorge Segment 2	43
Sediment and vegetation removal of the Tijuana River Facility Group (Pilot Channel and Smuggler's Gulch segments)	Tijuana River – Pilot Channel and Smuggler's Gulch Segments	2
Sediment and vegetation removal in earthen-bottom facilities (1 through 4)	Mission Bay – Mission Bay Drive Segment 1 Murphy Canyon Creek – Stadium Segment 1 Tecolote Creek – Genesee Segment 1, and Mission Hills Canyon Creek – Titus Segment 1	47
Major concrete repair activities	Tijuana River – Via Encantadoras Segment 3	Estimated 5

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**Table 1**  
**Representative FMP Segments and Total Number of MWMP FMPs per Activity**

Activity	Representative Segment(s)	Number of MWMP FMP Segments Similar to the Representative Segment(s)*
Minor concrete repair activities	Generic 50-linear-foot repair	Estimated 50
Structural clearing (i.e., inlet and outlet maintenance)	4202 J Street	10
<b>Total</b>		<b>Sediment, vegetation, and trash/debris removal from 113 facilities plus an estimated 50 major concrete repair projects, and 5 minor concrete replacement projects that may be within those 113 facilities</b>

\* Includes the representative segment itself.

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### 4 ESTIMATED IMPLEMENTATION SCENARIOS

The third step was to determine the mixture of representative FMPs that would occur for the following durations:

- Average annual period
- Maximum daily period
- Maximum annual period

To complete this step, the City reviewed past, current, and projected future operational capacity and budgetary constraints to develop the estimates (see Table 2). Estimates of maximums included use of both City crews and contractors.

**Table 2**  
**Representative FMP Segments and Total Number of MWMP FMPs per Activity**

Activity	Representative Segment(s)	Number During Average Annual Period	Number During Maximum Daily Period	Number During Maximum Annual Period
Sediment and vegetation removal in concrete-lined facilities that are 20% or more vegetated	San Diego River – Camino del Rio Segment 1	2	1	3
Sediment and vegetation removal in concrete-lined facilities that are less than 20% vegetated	Alvarado Canyon Creek – Mission Gorge Segment 2	5	1	6
Sediment and vegetation removal of the Tijuana River Facility Group (Pilot Channel and Smuggler’s Gulch segments)	Tijuana River – Pilot Channel and Smuggler’s Gulch Segments	1	1	1
Sediment and vegetation removal in earthen-bottom facilities (1 & 2)	Mission Bay – Mission Bay Drive Segment 1 and Murphy Canyon Creek – Stadium Segment 1	2	1	3

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**Table 2**  
**Representative FMP Segments and Total Number of MWMP FMPs per Activity**

Activity	Representative Segment(s)	Number During Average Annual Period	Number During Maximum Daily Period	Number During Maximum Annual Period
Sediment and vegetation removal in earthen-bottom facilities (3 & 4)	Tecolote Creek – Genesee Segment 1 and Mission Hills Canyon Creek – Titus Segment 1	5	2	6
Major concrete repair activities	Tijuana River – Via Encantadoras Segment 3	1	1	2
Minor concrete repair activities	Generic 50-linear-foot repair	6	1	12
Structural clearing (i.e., inlet and outlet maintenance)	4202 J Street	5	2	10

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## 5 ESTIMATED EXPORT VOLUME

Dudek and City staff collaborated on developing an estimate of export volume from each representative FMP segment or activity (Table 3). To aid in tracking representative projects and because multiple segments are identified for each activity type, the representative projects are listed with an ID number in Table 3.

The estimate includes components for sediment, vegetation, and trash/debris. Sediment removal was estimated from hydrology and hydraulic modeling information. Vegetation was estimated based on an estimated portion of the facilities supporting each of the following three vegetation types and a compacted export depth corresponding to each:

- 0-foot depth where no vegetation is present
- 1-foot depth for herbaceous/marsh-type vegetation
- 2-foot depth for riparian/invasive-type vegetation

Trash and debris was estimated to be 10%, in addition to the estimated sediment and vegetation volume. These results were compared to historical information recorded by the City, and both sets of numbers were found to be within the range of 20 to 100 cubic yards per linear foot of maintenance, indicating that the estimates are likely reliable.

**Table 3**  
**Representative Projects ID Numbers and Summary of Estimated Linear Feet and Export Volume**

Representative Project ID	Maintenance Activity Category	Representative FMP(s)	Approximate Linear Feet	Approximate Cubic Yards
1	Concrete with vegetation removal (20% or more vegetated)	San Diego River – Camino del Rio Segment 1	1,000	800*
2	Concrete with vegetation removal (less than 20% vegetated)	Alvarado Canyon Creek – Mission Gorge Segment 2	600	1,400*
3	Minor concrete repair	Generic Concrete Repair FMP	50	32
4	Major concrete repair	Tijuana River – Via Encantadoras Segment 3	900	121

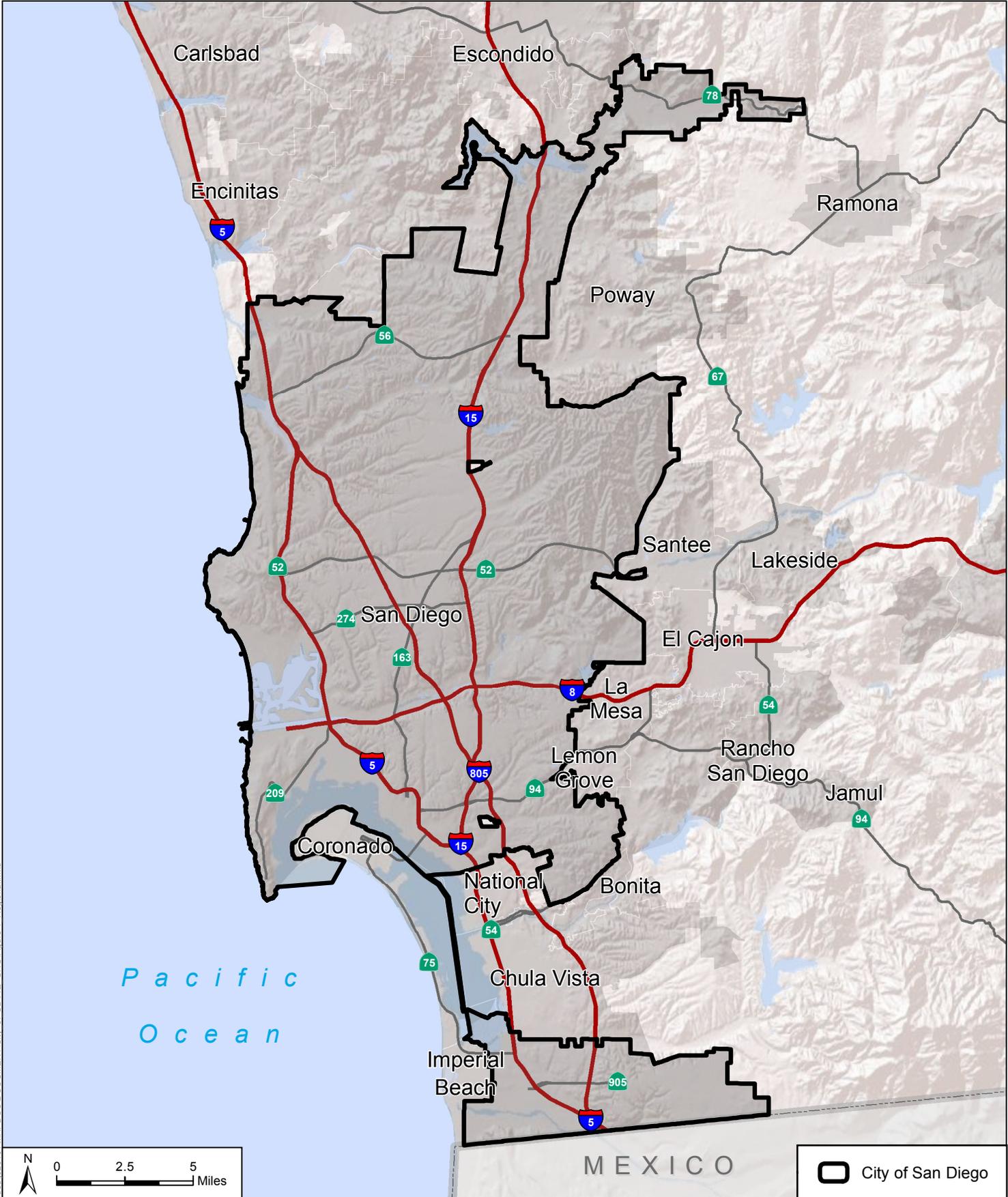
## Selection of Representative Projects for the Municipal Waterways Maintenance Plan

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**Table 3**  
**Representative Projects ID Numbers and Summary of Estimated Linear Feet and  
Export Volume**

Representative Project ID	Maintenance Activity Category	Representative FMP(s)	Approximate Linear Feet	Approximate Cubic Yards
5	Earthen Facility Typical – 1	Mission Bay – Mission Bay Drive Segment 1	1,000	2,600
6	Earthen Facility Typical – 2	Murphy Canyon Creek – Stadium Segment 1	1,700	3,800
7	Earthen Facility Typical – 3	Tecolote Creek – Genesee Segment 1	700	3,600
8	Earthen Facility Typical – 4	Mission Hills Canyon Creek – Titus Segment 1	80	200
9	Earthen facility typical outlet/inlet structure	Outlet/Inlet Structure – 4202 J Street	115	32
10	Tijuana River Smuggler’s Gulch Project	Tijuana River Smuggler’s Gulch	8,300	30,000

\* Cubic yards for representative project ID 2 are greater than representative project ID 1 even though representative project ID 1 is vegetated in a greater proportion. This is because representative project ID 2 is approximately twice the size (i.e., total surface area) of representative project ID 1, and the majority of cubic yard export is derived from excavated sediment and not vegetation.



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**DUDEK**

The City of  
**SAN DIEGO**

Municipal Waterways Maintenance Plan

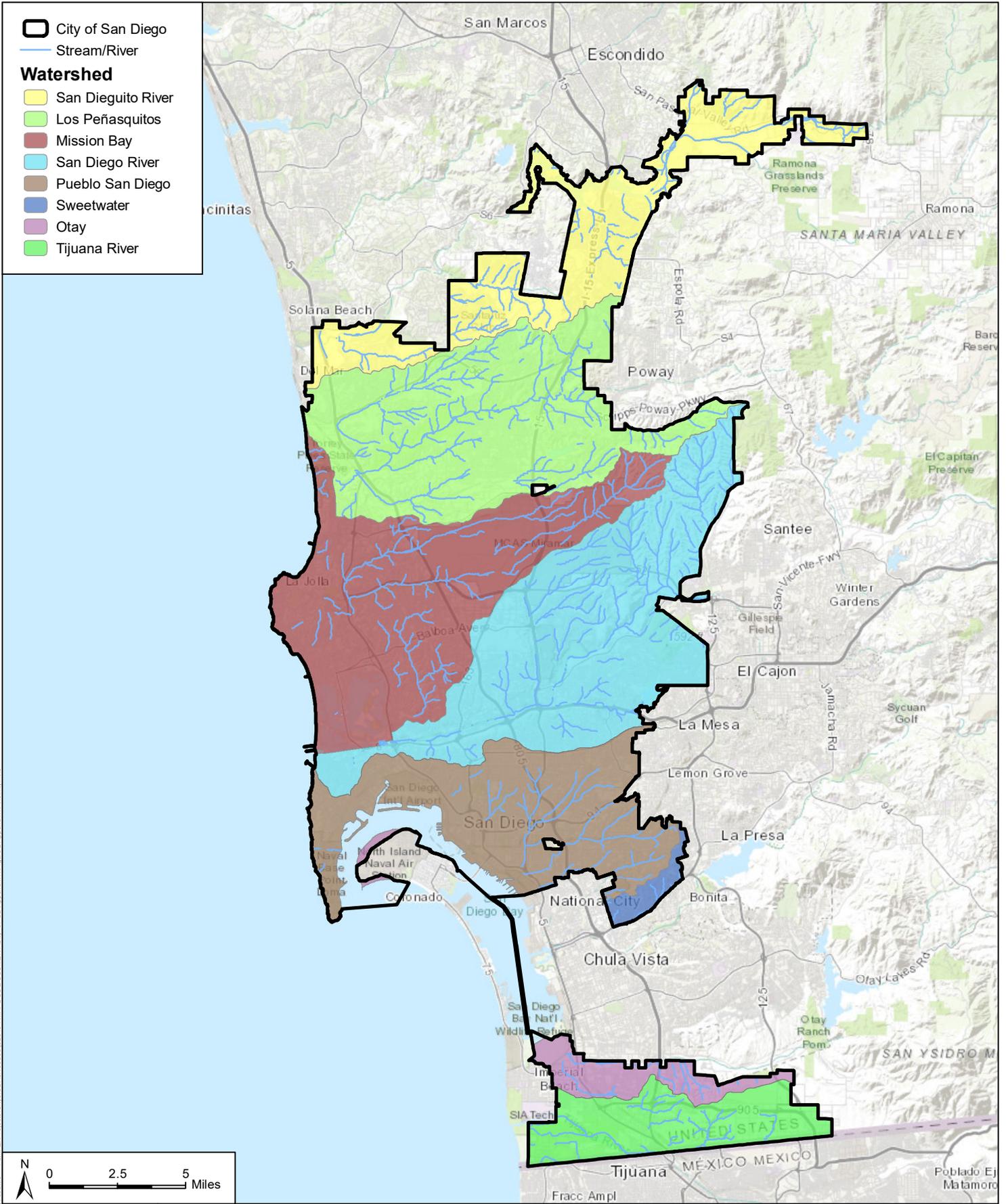
Appendix K - Representative Projects

**Figure 1 - Regional Map**

## **Selection of Representative Projects for the Municipal Waterways Maintenance Plan**

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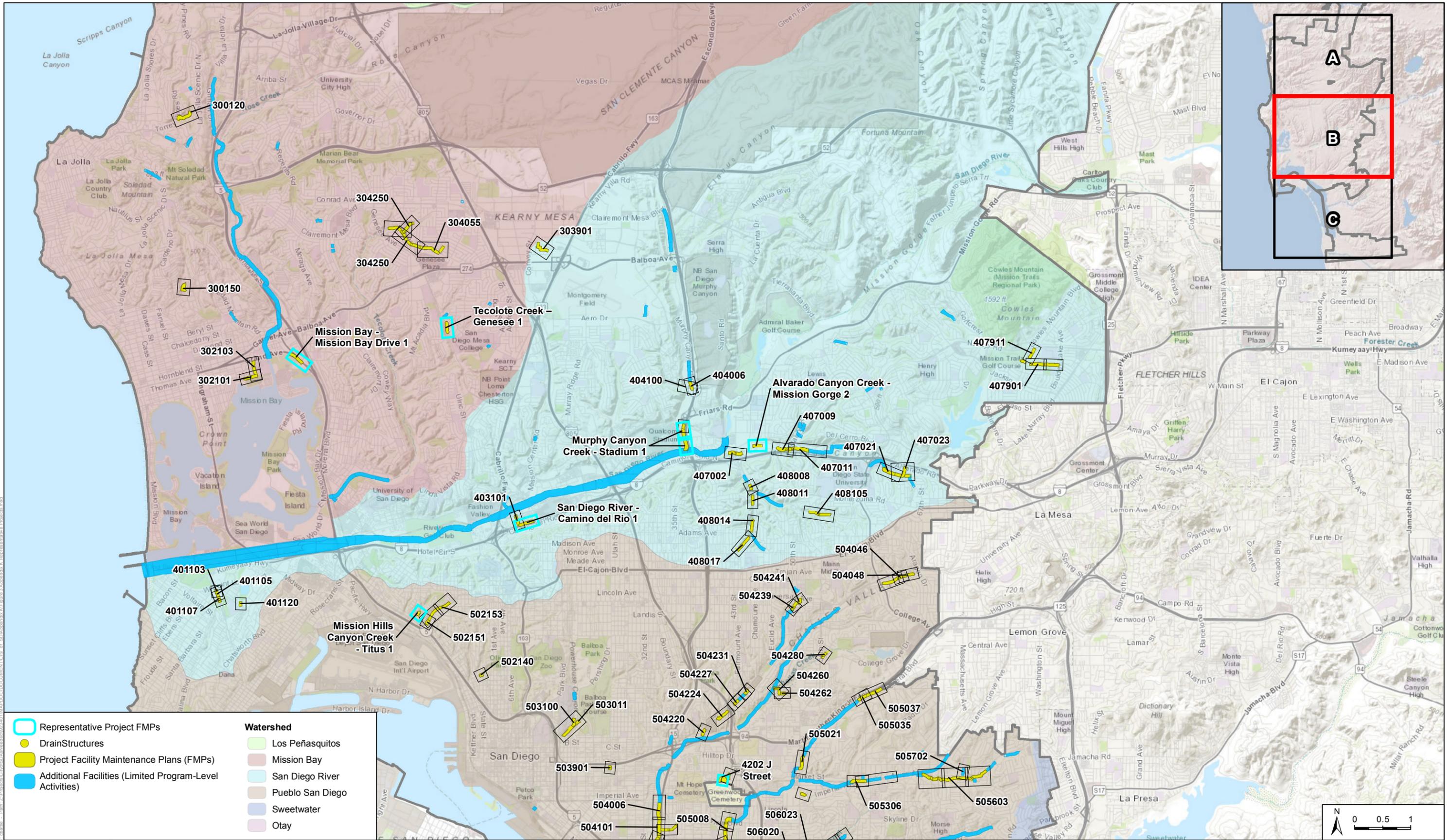
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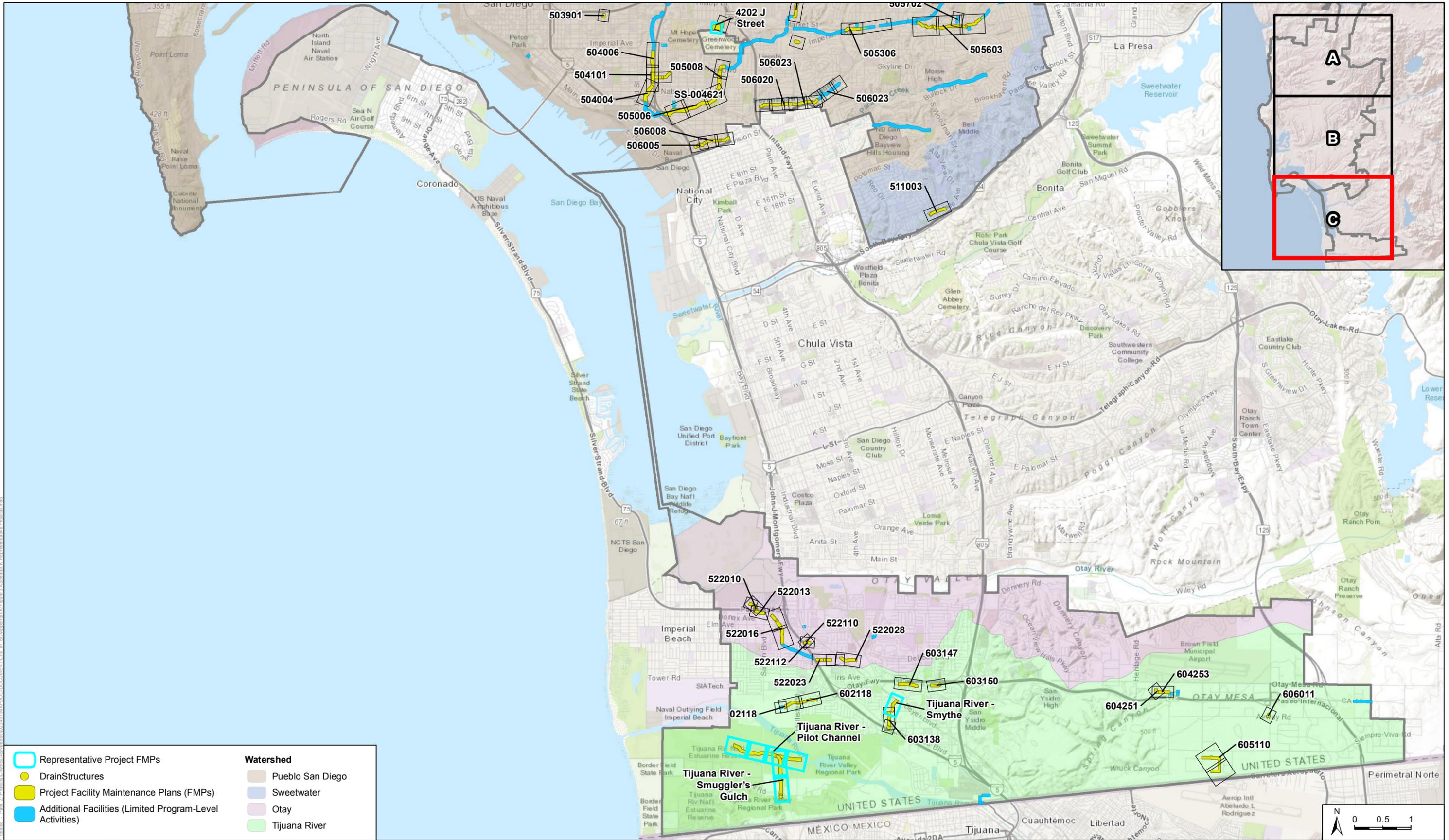
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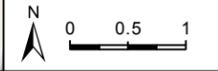
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<ul style="list-style-type: none"> <li> Representative Project FMPs</li> <li> Drain Structures</li> <li> Project Facility Maintenance Plans (FMPs)</li> <li> Additional Facilities (Limited Program-Level Activities)</li> </ul>	<p><b>Watershed</b></p> <ul style="list-style-type: none"> <li> Pueblo San Diego</li> <li> Sweetwater</li> <li> Otay</li> <li> Tijuana River</li> </ul>
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