



**SAFE  
CLEAN  
WATER  
PROGRAM**

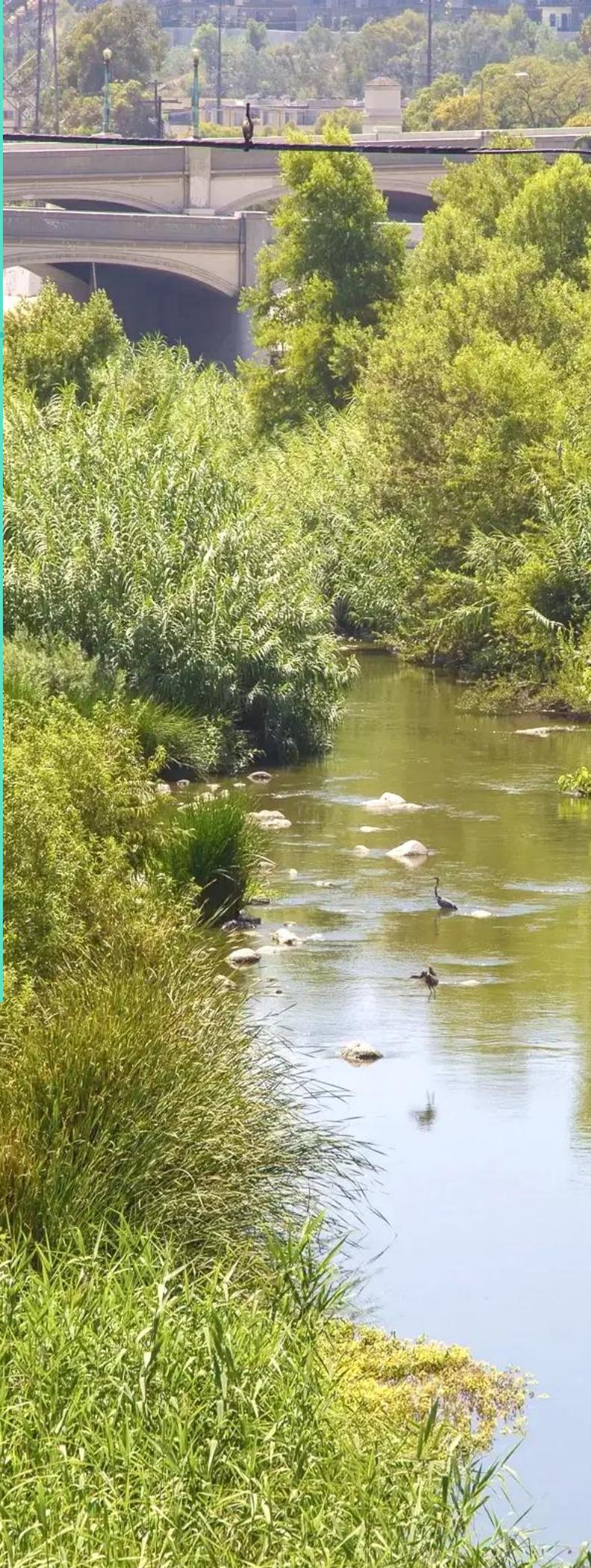
# Initial Watershed Plan

## Upper Los Angeles River Watershed Area

### Appendix I. Opportunity Analysis



February 2026





# Initial Watershed Plan: Appendix I. Opportunity Analysis

## Upper Los Angeles River Watershed Area

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# Appendix I. Opportunity Analysis

This appendix describes the data, methods, and sources used to identify the geographic areas of opportunities. Opportunities are areas with the most potential for SCW Projects or Programs to address Watershed Area (WA) Needs and support achievement of SCW Program Goals (Goals). Identified opportunities are not specific actions; rather, they are resources designed to assist proponents identify potential Projects and Programs and inform strategic funding decisions by Watershed Area Steering Committees (WASCs), Municipalities, and Los Angeles County Public Works (Public Works). Reference Chapter 6 in the SCW Watershed Planning Tool (Planning Tool) for descriptions on how opportunities are visualized through the interactive Planning Tool's Map and Dashboard and details on how it is used to support strategic decision making.

Opportunity analyses were completed for the SCW Planning Themes with spatial opportunities that are listed below and organized according to the following sections:

- Section I.1: Improve Water Quality (Goal A)
- Section I.2: Increase Drought Preparedness (Goal B)
- Section I.3: Improve Public Health (Goal C)
- Section I.4: Deliver Multi-Benefits with Nature-Based Solutions and Diverse Projects (Goals E, F, and G)
- Section I.5: Equitably Distribute Benefits (Goals J and K)
- Section I.6: Development of selected composite opportunities

Analyses were conducted through the integration of targeted geospatial datasets<sup>1</sup> and hydrologic modeling inputs which included, but were not limited to, pollutant loading estimates (e.g., zinc load distributions), locations and service areas of major stormwater capture infrastructure, and delineated hydrologic capture areas. Each opportunity analysis was defined by a unique analytical methodology and selection

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<sup>1</sup> Data sources for each analysis were developed from the SCW Program Watershed Planning process or from other key planning efforts. See Chapters 1 through 5 in the Initial Watershed Plans for additional discussion.

criteria that incorporated spatial correlations between opportunity metrics and WA Needs.

## I.1 Improve Water Quality Opportunity Analysis

This section identifies areas with the highest potential for SCW Program Projects and Programs to deliver benefits to address WA Needs for Indicators under the Improve Water Quality Planning Theme and supports the achievement of Goal A.

The two opportunity analyses described in this section identified areas within the WA with the highest potential to reduce pollutant loads from stormwater. Identifying these favorable locations helps guide prioritization and implementation of Projects and Programs that achieve individual pollutant reductions or composite pollutant load reductions (2+ pollutants) and helps avoid disjointed implementation. Because all SCW Program Projects are required to deliver a Water Quality Benefit, this analysis can support identification of areas where Projects are most likely to meet this requirement.

Three Indicators (zinc, total phosphorus, and bacteria<sup>2</sup> load reductions) were used to determine the areas and relative magnitudes of potential Water Quality Benefit that may be achieved. These contaminants were identified based on the limiting pollutants identified by the applicable Watershed Management Programs (WMPs) for the Upper Los Angeles River (ULAR) WA as they present significant barriers to achieving compliance with water quality standards in receiving waters (reference Appendix H for additional details).

The following subsections describe inputs and methods for the following opportunities:

- I.1.1 Pollutant Load Reduction
  - **Bacteria load reduction opportunity:** Highlights areas with the most potential to reduce bacteria loads.
  - **Zinc load reduction opportunity:** Highlights areas with the most potential to address zinc load reduction WA Needs.

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<sup>2</sup> In this analysis, bacteria capture opportunity is represented as runoff capture opportunity, as bacteria loads are primarily driven by hydrology and runoff is used as a proxy in the absence of direct estimates.

- **Total phosphorus load reduction opportunity:** Highlights areas with the most potential to reduce total phosphorus loads.
- I.1.2 Opportunity to Improve Water Quality
  - **Opportunity to Improve Water Quality:** A composite of the individual pollutant load reduction opportunities, highlighting areas with the greatest potential to address all priority pollutants in the ULAR WA and improve overall water quality.

## I.1.1 Pollutant Load Reduction Opportunities

The following describes the development of two opportunities:

- Bacteria Load Reduction Opportunity,
- Zinc Load Reduction Opportunity, and
- Total Phosphorus Load Reduction Opportunity.

Areas highlighted by these opportunities identified in this analysis represent areas where stormwater runoff is not currently managed by a wet-weather SCW Program Project<sup>3</sup> *and* where zinc, total phosphorus, and bacteria loads are relatively higher. Relative determination of pollutant load reduction opportunity included simulation of modeled runoff and pollutant load values from the calibrated Watershed Management Modeling System 2.0 (WMMS2).

Table I-1 summarizes data sources, attributes, and processes included in this analysis, while

Table I-2 lists the relative Pollutant Load Reduction opportunity classification (high, higher, highest). Opportunities are illustrated in Figure I-1, Figure I-2, and Figure I-3 for bacteria, zinc, and total phosphorus load reduction, respectively. Areas with the darkest shades of pink (Figure I-1), blue (Figure I-2), or orange (Figure I-3) in these maps indicate areas with the highest potential for bacteria, zinc, and total phosphorus load reduction, respectively. Project and Program proponents should always perform additional site-scale analyses to determine pollutant loading at the Project scale.

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<sup>3</sup> Wet-weather Projects are those which are designed to capture and treat both stormwater *and* non-stormwater runoff. These Projects are typically designed to capture 100% of the 85<sup>th</sup> percentile, 24-hour design storm event and to treat at least 50% of influent pollutant loads.

Table I-1. Pollutant Load Reduction opportunity: Data sources and analysis

Data Source(s)	Key Attributes	Opportunity Analysis & Considerations
<a href="#">WMMS2</a>	Pollutant load and runoff volume (25-year continuous modeled timeseries for water year 1999 through 2023)	<ul style="list-style-type: none"> <li>• Pollutant load and runoff volume outputs from WMMS2 were area-weighted across each watershed area by dividing the total load and runoff values by the respective WA, resulting in pollutant yield and runoff yield expressed per unit area (i.e., lbs/acre).</li> <li>• Next, capture areas of funded wet-weather SCW Program Projects were removed from consideration. This was completed to emphasize areas with high pollutant loads or runoff that do not have a downstream Project.</li> <li>• Lastly, percentile classifications were calculated based on the remaining areas (see</li> <li>• Table I-2).</li> </ul>
SCW Program Project capture areas	Project type: Wet-weather	

Table I-2. Pollutant Load Reduction opportunity: Classification criteria

Opportunity	Classification Description
High	75 <sup>th</sup> Percentile to 85 <sup>th</sup> Percentile
Higher	85 <sup>th</sup> Percentile to 95 <sup>th</sup> Percentile
Highest	>95 <sup>th</sup> Percentile

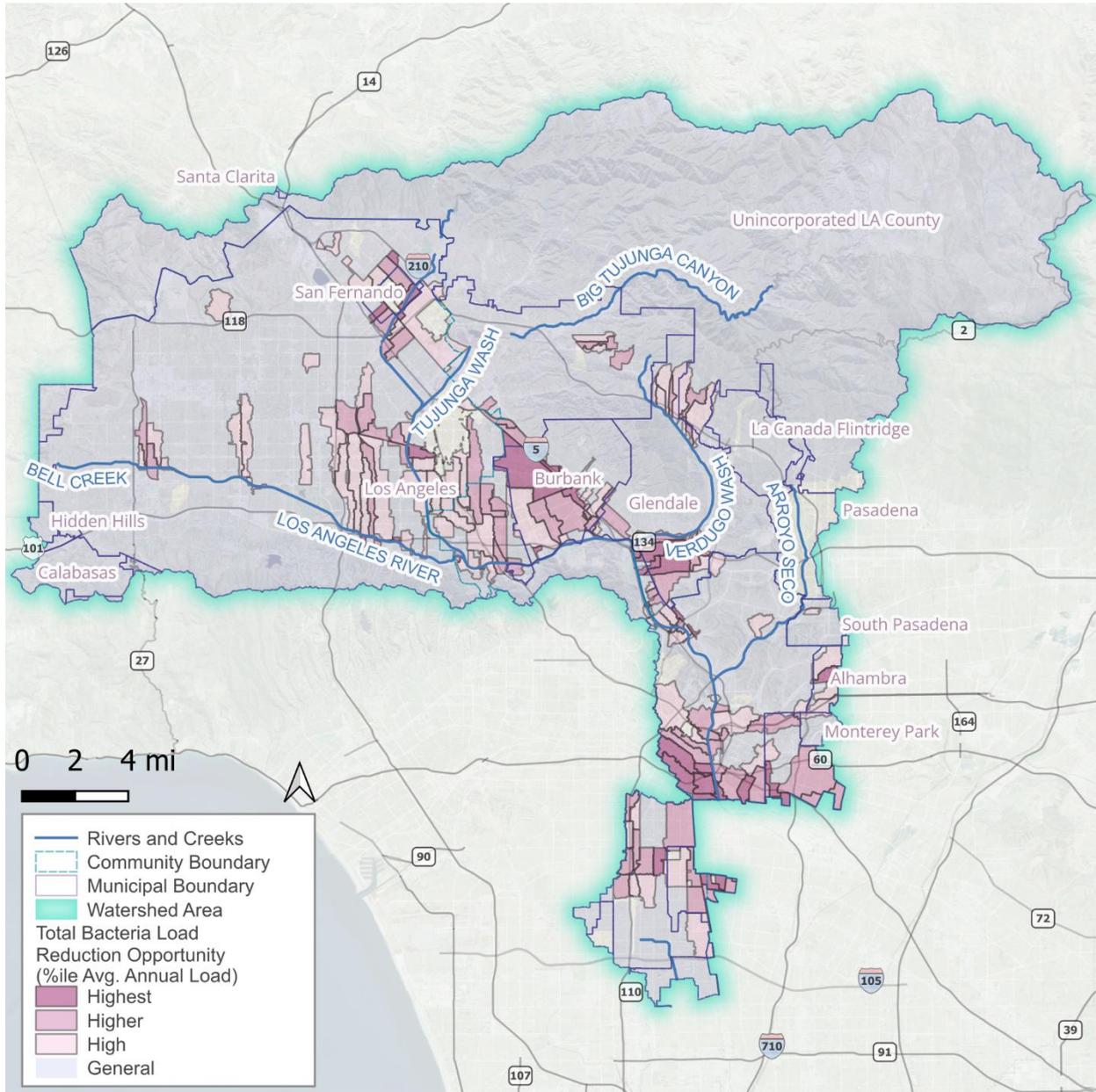


Figure I-1. Bacteria Load Reduction Opportunity

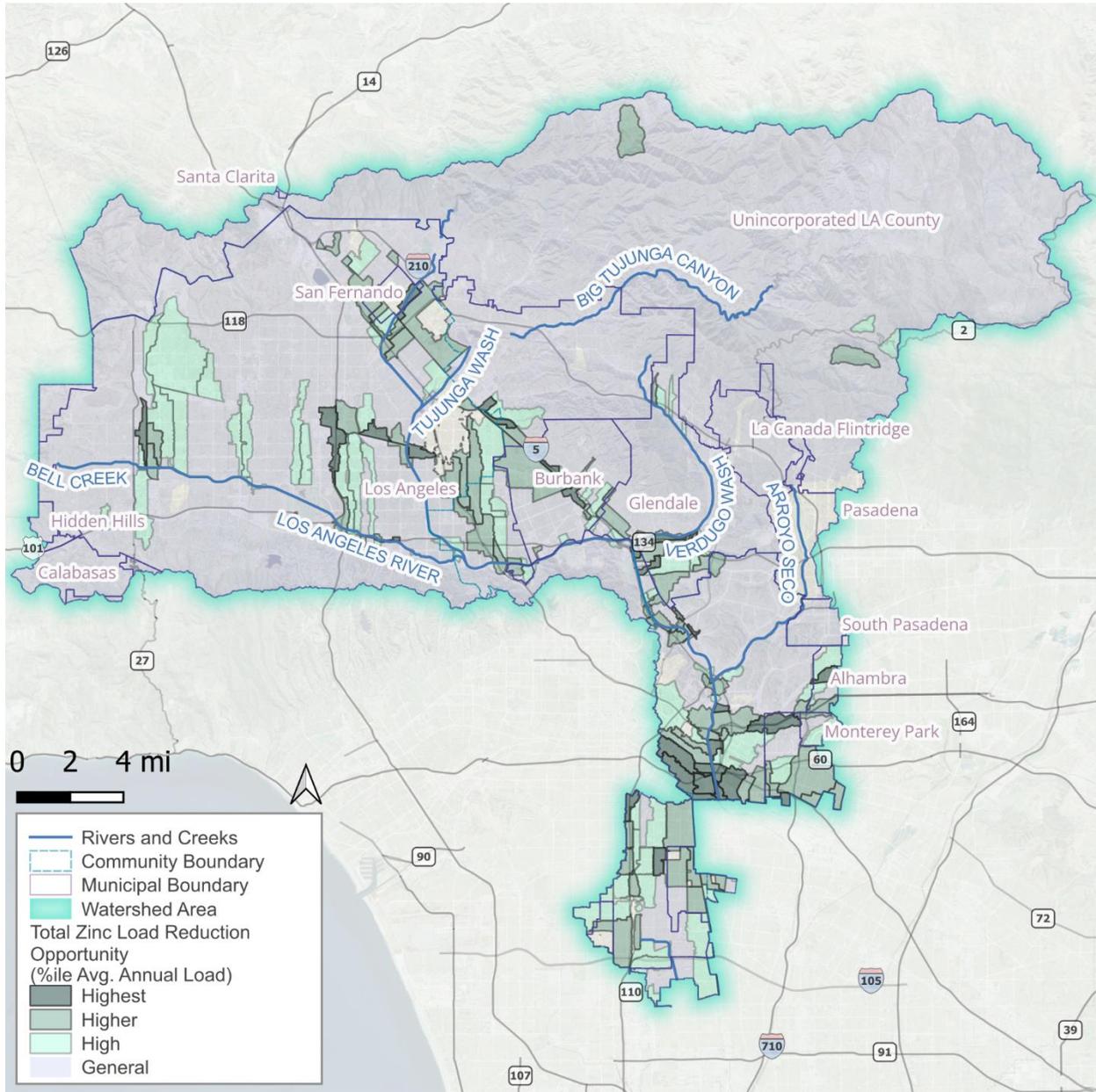


Figure I-2. Zinc Load Reduction Opportunity

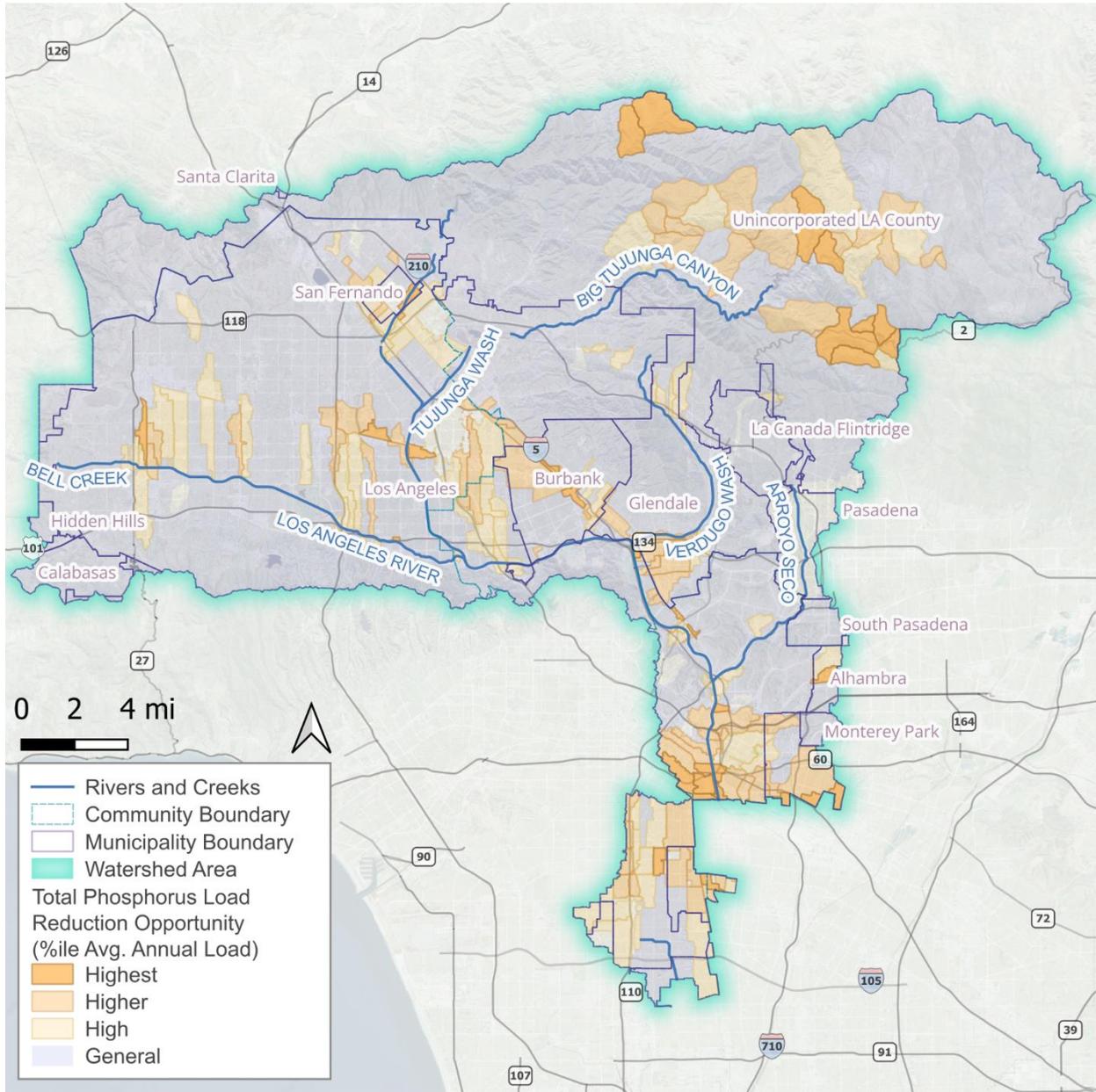


Figure I-3. Total phosphorus Load Reduction Opportunity

## I.1.2 Opportunity to Improve Water Quality

The Opportunity to Improve Water Quality is a composite opportunity which combines the individual load reduction opportunities described above.

Areas identified in this analysis represent areas where stormwater runoff is not currently managed by a wet-weather SCW Program funded Project and there is a relative pollutant load reduction opportunity for one or more pollutants. The relative determination of the Opportunity to Improve Water Quality was based on the summation of individual pollutant scores—zinc, total phosphorus, and bacteria—assigned to each area. Each pollutant was scored from 0 to 3 based on the following pollutant loading ranges:

- **General opportunity:** Score = 0 (<75<sup>th</sup> Percentile),
- **High opportunity:** Score = 1 (75<sup>th</sup> to 85<sup>th</sup> Percentile),
- **Higher opportunity:** Score = 2 (85<sup>th</sup> to 95<sup>th</sup> Percentile), and
- **Highest opportunity:** Score = 3 (>95<sup>th</sup> Percentile).

The maximum unweighted score an area could achieve is 9 (three priority pollutants × 3 points each). However, in others WAs where only one or two priority pollutants are identified for Watershed Planning are present, the maximum unweighted score is 3 or 6, respectively. To ensure comparability across WAs, the weighting factors listed below were applied as applicable. This standardization enables comparisons across all WAs and supports regional prioritization (e.g., within Supervisorial Districts).

- **Areas with two priority pollutants:** Scores multiplied by 1.5, and
- **Areas with one priority pollutant:** Scores multiplied by 3.

Table I-3 summarizes the score framework, and weighting methodology used in this analysis with examples for three areas, while Table I-4 lists the multi-Pollutant Load Reduction opportunity classification (high, higher, highest). Figure I-4 illustrates the Opportunity to Improve Water Quality.

Table I-3. Opportunity to Improve Water Quality: Scoring method example

Example Area	A	B	C	D=A+B+C	E= D x 1
	Zinc	Bacteria	Total Phosphorus	Total Score	Final Score (Indexed to 9)
1	3 (Highest)	3 (Highest)	0 (Limited)	6	6
2	1 (High)	2 (Higher)	0 (Limited)	3	3
3	0 (Limited)	1 (High)	0 (Limited)	1	1

Table I-4. Opportunity to Improve Water Quality: Classification criteria

Opportunity	Final Score (Indexed to 9)
High	0 to 3
Higher	>3 to 6
Highest	>6 to 9

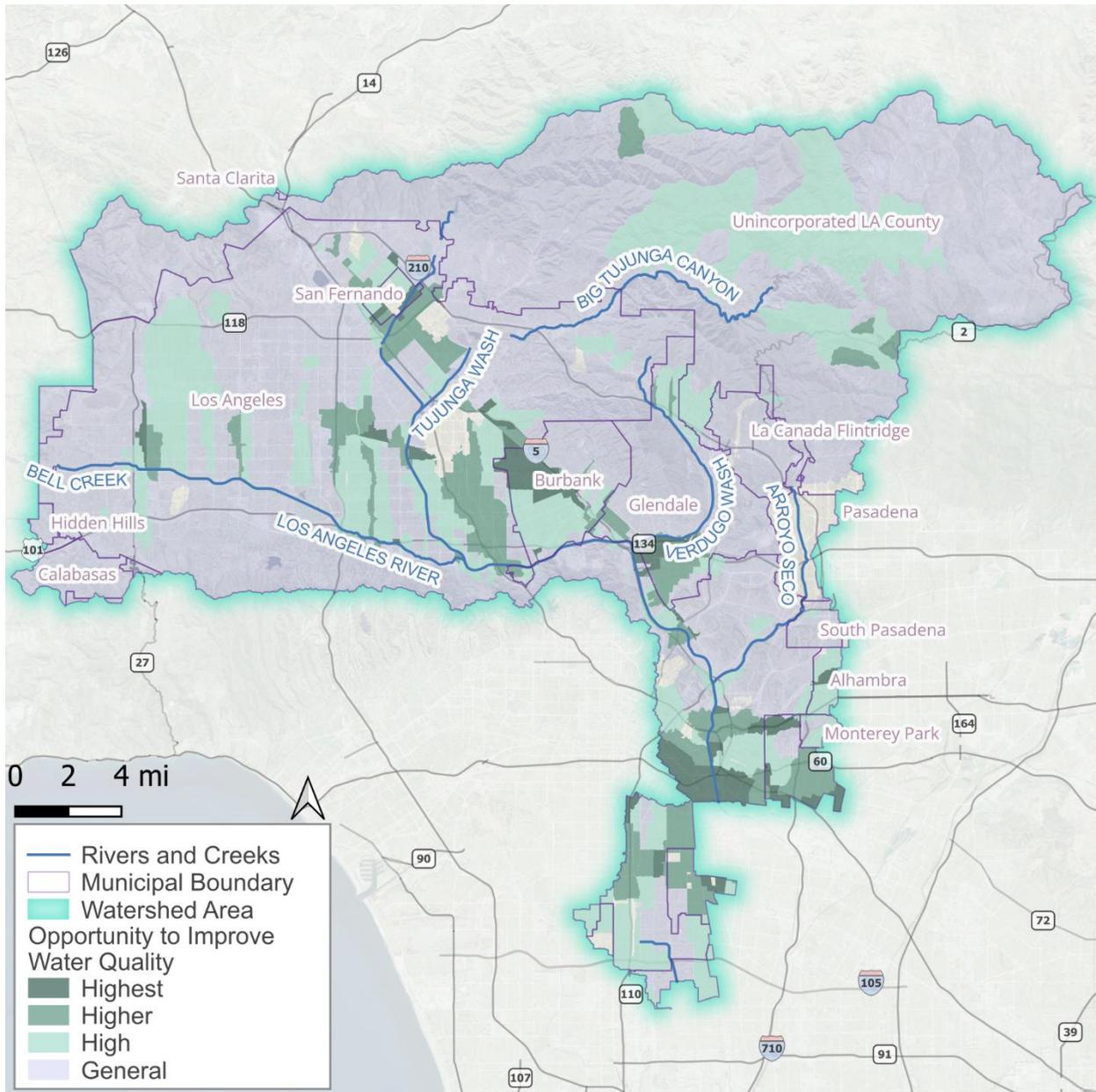


Figure I-4. Opportunity to Improve Water Quality

## I.2 Increase Drought Preparedness Opportunity Analysis

The opportunities outlined in this section identify areas with the highest potential for SCW Program Projects and Programs to deliver benefits to address WA Needs for Indicators under the Increase Drought Preparedness Planning Theme and supports the achievement of Goal B.

The two opportunities described in the following subsections identify areas within the WA with the highest potential to increase local water supply through stormwater capture and via groundwater recharge and storage. These opportunities are:

- Opportunity to Increase Water Supply Through Stormwater Capture, and
- Opportunity to Increase Water Supply Through Groundwater Recharge and Storage.

Hydrologic modeling outputs and spatial datasets—including modeled runoff volumes, locations of major capture facilities, and defined capture areas—were used to identify regions where stormwater runoff is currently *not* intercepted by a downstream Project or infrastructure. These regions represent spatial gaps in the capture area of the WA and highlight opportunities for new Project and Program implementation. The resulting opportunities support improved water supply self-reliance and resilience to prolonged dry periods. This allows for sustainable, distributed water resource management into the future.

### I.2.1 Opportunity to Increase Water Supply Through Stormwater Capture

The Opportunity to Increase Water Supply Through Stormwater Capture highlights areas within the WA where stormwater is not currently captured by an existing SCW Program Project, indicating where there is potential for new wet-weather and/or dry-weather capture Projects<sup>4</sup>. This opportunity can help guide the siting of future Projects

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<sup>4</sup> Dry-weather Projects are those which are designed to capture non-stormwater runoff (i.e., runoff generated during dry weather).

that capture stormwater and/or non-stormwater runoff to contribute to new water supply and provide Water Supply Benefits.

To develop this opportunity, areas where runoff is already captured by major capture facilities, such as dams, reservoirs, and spreading grounds, were removed if they fell below a 30% Net Countable Supply threshold. Net Countable Supply is the portion of runoff that would not have already been captured by an existing water recharge/treatment facility. Additionally, areas managed by existing SCW Program wet-weather Projects were similarly excluded<sup>5</sup>. Remaining areas represent locations where Projects could provide the greatest incremental benefit.

To further prioritize areas of highest potential, the Opportunity to Increase Water Supply through Stormwater Capture was stratified by runoff volume, allowing for a more targeted approach to identifying high-impact locations for future Projects.

Figure I-5 summarizes the data sources, attributes, and processes used in this analysis, while Table I-6 lists the stormwater capture opportunity classification (high, higher, highest). Figure I-5 illustrates the Opportunity to Increase Water Supply Through Stormwater Capture; the mapped opportunity classifications can be interpreted as follows:

- **Wet- or dry-weather Project (blue):** The darkest blue areas represent areas with the highest opportunity for siting either a wet-weather or dry-weather Project. These areas generate the most stormwater runoff in the WA, lack existing SCW Program Projects of either type, and are not already managed by a major capture facility that captures more than 30% of their capture area.
- **Wet-weather Project only (green):** The darkest green areas represent areas with the highest opportunity for siting a wet-weather Project. These areas generate the most stormwater runoff in the WA, lack an existing SCW Program wet-weather Project, and are not already managed by a major capture facility that captures more than 30% of their capture area. Unlike the blue areas, these areas already have dry-weather Projects managing non-stormwater runoff, leaving opportunity to capture stormwater runoff through a wet-weather Project.

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<sup>5</sup> While some existing SCW Program dry-weather Projects are designed to capture some stormwater runoff, they typically are unable to capture 100% of the 85<sup>th</sup> percentile, 24-hour storm event and treat less than 50% of influent pollutants loads. As a result, their capture areas were not excluded when identifying opportunities for new wet-weather Projects to further manage pollutant loads.

**Table I-5. Opportunity to Increase Water Supply through Stormwater Capture: Data sources and analysis**

Data Source(s)	Key Attributes	Opportunity Analysis & Considerations
SCW Program funded Project capture areas	Project type: Wet-weather or dry-weather, and Wet-weather only	<ul style="list-style-type: none"> <li>As described in Section I.1.1, runoff yield was calculated for each area, accounting for stormwater capture by major capture facilities.</li> <li>Then, capture areas upstream of major capture facilities with less than 30% Net Countable Supply were removed. Additionally, areas already managed by SCW Program-funded wet-weather capture Projects were removed.</li> <li>Remaining areas were then evaluated for wet-weather and dry-weather runoff capture opportunity, with existing SCW Program Projects categorized to distinguish between wet-weather or dry-weather and wet-weather only capture potential. Note: low flow diversion areas were included in the wet-weather only opportunity.</li> <li>Lastly, percentile classifications were calculated based on the remaining area (see Table I-6).</li> </ul>
Major capture facilities	Dams, reservoirs, spreading grounds, and low flow diversions	
SCW Program Metrics and Monitoring Study Net Countable Supply	Entries meeting the 30% Net Countable Supply threshold ("NET_COUNT" $\geq$ 0.3)	
<a href="#">WMMS2</a>	Runoff volume (25-year continuous model timeseries, water year 1999 through 2023)	

**Table I-6. Opportunity to Increase Water Supply through Stormwater Capture: Classification criteria**

Opportunity	Classification Description
High	75 <sup>th</sup> Percentile to 85 <sup>th</sup> Percentile
Higher	85 <sup>th</sup> Percentile to 95 <sup>th</sup> Percentile
Highest	>95 <sup>th</sup> Percentile

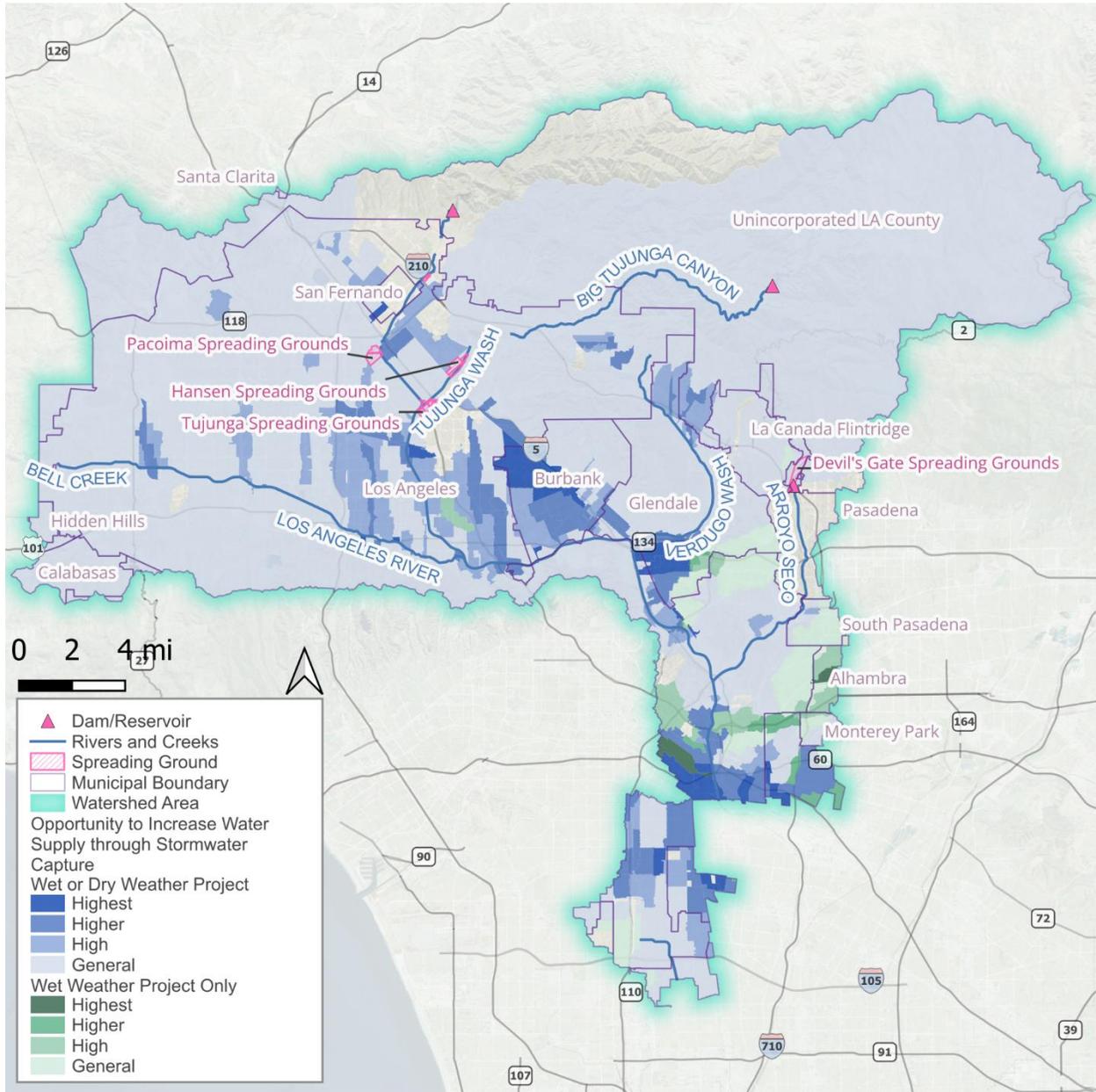


Figure I-5. Opportunity to Increase Water Supply through Stormwater Capture

## I.2.2 Opportunity to Increase Water Supply Through Groundwater Recharge and Storage

The Opportunity to Increase Water Supply Through Groundwater Recharge and Storage highlights areas within the WA with the highest potential for new infiltration Projects to increase local supply through groundwater recharge via a managed unconfined aquifer. Like the Opportunity to Increase Water Supply Through Stormwater Capture, the analysis excluded areas where stormwater runoff is already managed by an existing wet-weather SCW Program Project or a major capture facility.

Table I-7 summarizes the data sources, attributes, and processes used in this analysis. Figure I-6 illustrates the Opportunity to Increase Water Supply Through Groundwater Recharge and Storage.

**Table I-7. Opportunity to Increase Water Supply Through Groundwater Recharge and Storage: Data sources and analysis**

Data Source(s)	Key Attributes	Opportunity Analysis & Considerations
<a href="#">Managed Groundwater Basins</a>	Entries with “Unconfined” in the Basin Type field name	<ul style="list-style-type: none"> <li>• First, groundwater basin data was filtered to only include “unconfined” managed aquifers.</li> <li>• Next, capture areas upstream of major capture facilities and SCW Program funded wet-weather capture Projects were removed as described in the section above.</li> <li>• The resulting layer was exported and is illustrated in Figure I-6.</li> </ul>
SCW Program funded Project capture areas	Project type: Wet-weather or dry-weather	
SCW Program Metrics and Monitoring Study Net Countable Supply	Entries meeting the 30% Net Countable Supply threshold (“NET_COUNT” ≥ 0.3)	
Major capture facilities	Capture areas for dams, reservoirs, spreading grounds, low flow diversions	

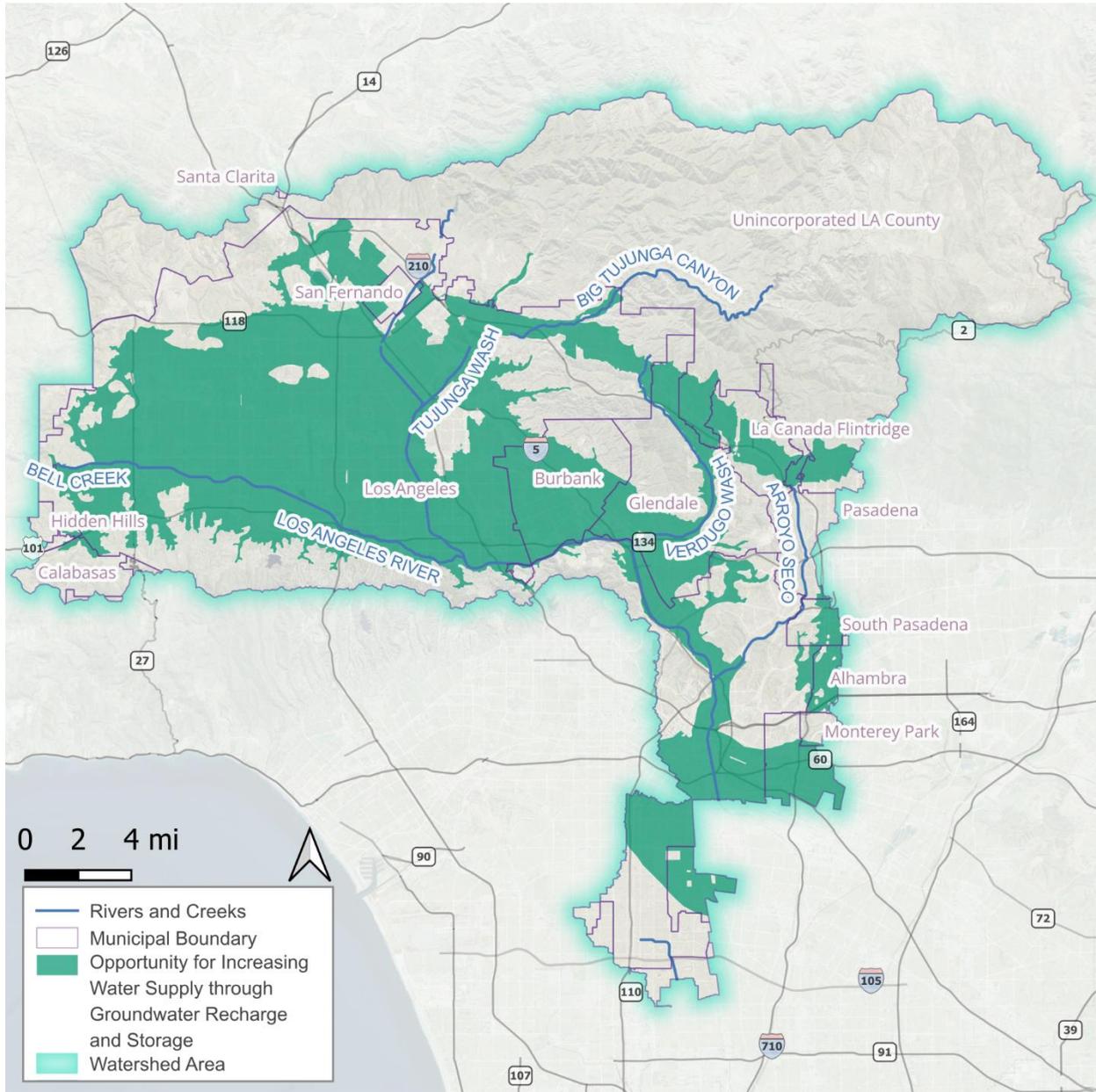


Figure I-6. Opportunity to Increase Water Supply Through Groundwater Recharge and Storage

## I.3 Improve Public Health Opportunity Analysis

This section identifies areas with the highest potential for SCW Program Projects and Programs to deliver benefits to address WA Needs for Indicators under the Improve Public Health Planning Theme and supports the achievement of Goal C. These opportunities include:

- Opportunity for Park and Green Space Creation,
- Opportunity for Park Enhancement or Restoration,
- Opportunity to Create Green Space at Schools, and
- Opportunity to Create Canopy, Cooling, and Shading Surfaces.

The four opportunity analyses described in this section identified areas within the WA where public health benefits can be improved through integration with Projects and Programs primarily designed to address stormwater and urban runoff pollution. Under the SCW Program, Projects and Programs are required to deliver a Water Quality Benefit. As such, efforts like increasing access to open space, expanding recreational opportunities, and strengthening community resilience to climate change are pursued as co-benefits—rather than as standalone objectives. During planning and design, Project and Program proponents and Municipalities should proactively seek opportunities to incorporate features such as nature-based, multi-benefit green infrastructure. These elements can simultaneously meet SCW Program water quality requirements and address broader community health needs.

### I.3.1 Opportunity for Park and Green Space Creation

The Opportunity for Park and Green Space Creation highlights areas within the WA with the highest need for parks and green space to be created. This analysis draws on two regional datasets developed through key efforts to date:

- 2016 Parks Needs Assessment, and
- Los Angeles River Master Plan (LARMP) Access Need.

Using the 2016 Parks Needs Assessment Study Areas, this opportunity analysis identified areas that (1) are classified as having “High” or “Very High” park need in the 2016 Parks Needs Assessment<sup>6</sup> and (2) have less than 3.3 acres of existing park space per 1,000 residents<sup>7</sup>. Together, these criteria focus the analysis on communities with limited existing access to recreational park and green space. The 2016 Parks Needs Assessment was used for this analysis because of its comprehensive evaluation of the scope, scale, and location of park need in LA County, using population density and various park metrics to determine an overall level of Park Need (ranked from Very Low to Very High) for each Study Area. Park metrics evaluated by the 2016 Parks Needs Assessment include:

- **Park Land:** How many acres of park are there per 1,000 people in each Study Area?
- **Park Access:** What percentage of the population lives within a half mile of a park?
- **Park Pressure:** How much park land is available to residents in the area around each park?
- **Park Amenities:** What amenities are available in parks?
- **Park Condition:** Are parks in good, fair, or poor condition?

The resulting areas are further categorized based on their Los Angeles River Master Plan (LARMP) Access Need values (listed below). The LARMP Access Need dataset provides a consistent, regionally comprehensive assessment of access-related needs along waterways and incorporates multiple criteria relevant to community access and connectivity. An Access Needs score of 2.825 was used as a threshold as it represented a measure of the approximate central tendency across the dataset as follows:

- **“High” opportunity:** Access Needs score less than or equal to 2.825 and
- **“Higher” opportunity:** Access Needs score greater than 2.825.

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<sup>6</sup> See the [2016 Parks Needs Assessment Appendix E. Technical Appendix](#) for more information on the park need analysis. In WAs where there are no Study Areas classified as “High” or “Very High” need, this criterion was not applied.

<sup>7</sup> Countywide, the [2016 Parks Needs Assessment](#) reported there are 3.3 acres of local and regional recreation park per 1,000 residents (p. 2-45). This opportunity analysis references the same benchmark to maintain consistency with the 2016 Parks Needs Assessment.

Finally, the resulting layer was clipped to urban areas only and to remove areas that overlap with (1) existing local and regional recreational parks<sup>8</sup> and/or (2) wet-weather Project capture areas, to avoid redundancy in potential future investments.

Table I-8 summarizes the data sources, attributes, and processes included in this analysis, while Table I-9 lists the Opportunity for Park and Green Space Creation classification (high, higher). Figure I-7 illustrates the Opportunity for Park and Green Space Creation.

**Table I-8. Opportunity for Park and Green Space Creation: Data sources and analysis**

Data Source(s)	Key Attributes	Opportunity Analysis & Considerations
<a href="#">2016 Parks Needs Assessment</a>	<ul style="list-style-type: none"> <li>Need Description</li> <li>Acres/1000: &lt; 3.3</li> </ul>	<ul style="list-style-type: none"> <li>First, 2016 Parks Needs Assessment Study Areas with (1) a Need Description of “High” or “Very High”, and (2) an Acres/1000 value of less than 3.3 were selected.</li> <li>Note: In the North Santa Monica Bay (NSMB) and Santa Clara River (SCR) WAs there are no Study Areas with “High” or “Very High” Park Need. In these two WAs, all Study Areas with any Need Description were considered and those with Acres/1000 less than 3.3 are selected. In the SCR WA, no Study Areas meet the Acres/1000 less than 3.3 criteria.</li> <li>The remaining Study Areas were then intersected with the LARMP Access Need layer and categorized into high or higher based on their LARMP Access Need values (see Table I-9).</li> <li>The resulting layer was clipped to urban areas to focus the analysis on locations with the greatest potential for new park and green space creation in urban settings, where stormwater runoff pollutant loads are generally higher and SCW Program Projects are typically implemented.</li> <li>Existing local and regional recreational parks, as well as capture areas associated with existing SCW Program wet-weather Projects, were removed to reduce redundancy in potential future investments.</li> </ul>
<a href="#">LARMP Access Need</a>	Access Need	
<a href="#">Urban Areas</a>	Extent of the urban area	

<sup>8</sup> Local and regional recreational parks are identified using the [Countywide Parks and Open Space](#) layer.

Table I-9. Opportunity for Park and Green Space Creation: Classification criteria

Opportunity	2016 Park Needs Assessment Population Park Area per Residents	2016 Park Needs Assessment Results	LARMP Access Need
High	Less than 3.3 acre per 1,000 people	High or Very High <sup>1</sup>	<2.825
Higher			>2.825

<sup>1</sup> In the NSMB and SCR WAs, there are no Study Areas with “High” or “Very High” park need. As a result, all park need categories are considered in the analysis for these two WAs.

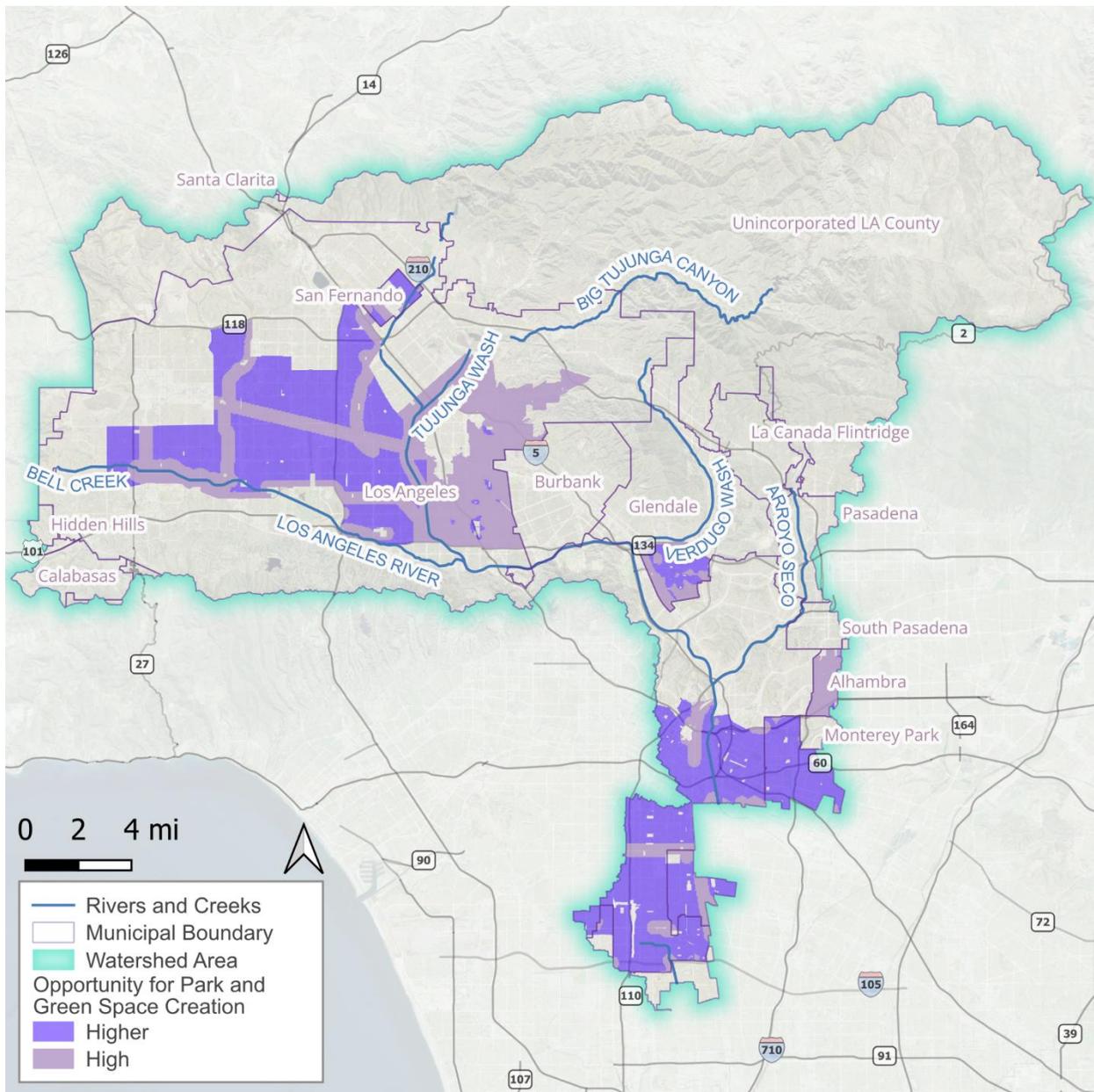


Figure I-7. Opportunity for Park and Green Space Creation

## I.3.2 Opportunity for Park Enhancement or Restoration

The Opportunity for Park Enhancement or Restoration highlights areas within the WA with the highest need for parks to be enhanced or restored, addressing both park need and park condition improvements.

Areas identified in this analysis represent existing local or regional recreational parks that are classified as being in “Poor” or “Fair” condition<sup>9</sup> and are located in 2016 Parks Needs Assessment Study Areas classified as “High” or “Very High” need. These criteria focus the analysis to reflect communities with limited access to quality recreational space and where restoration efforts could yield greater benefit. These areas were then further filtered to remove those located outside of urban areas or that overlap with a capture area of an existing SCW Program wet-weather Project. Areas were then categorized based on a combined assessment of park condition and LARMP Access Need (described in Section I.3.1).

Table I-10 summarizes the data sources, attributes, and processes included in this analysis, while

Table I-11 lists the Opportunity Park Enhancement or Restoration classification (high, higher, highest). Figure I-8 illustrates the Opportunity for Park Enhancement or Restoration.

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<sup>9</sup> General Park Infrastructure Condition was reported by each park’s lead agency during the Inventory Web Portal phase of the 2016 Parks Needs Assessment. Each of the participating cities, the County of Los Angeles, and other state, regional, and local agencies reviewed their parks and reported the condition of each park’s general infrastructure. General park infrastructure includes walkways, parking lots, park furniture, drainage and irrigation, lighting systems and vegetation. General park infrastructure in “Good” condition is fully functional and does not need repairs. General park infrastructure in “Fair” condition is functional but needs minor or moderate repairs. General park infrastructure in “Poor” condition is largely or completely unusable and requires major repairs to be functional ([2016 Parks Needs Assessment Appendix E. Technical Appendix](#), p. 4).

Table I-10. Opportunity for Park Enhancement or Restoration: Data sources and analysis

Data Source(s)	Key Attributes	Opportunity Analysis & Considerations
<a href="#">Countywide Parks and Open Space (LA County)</a>	<ul style="list-style-type: none"> <li>Type: Local Park or Regional Recreation Park</li> <li>PRKINF_CND (i.e., Park Infrastructure Condition): “Poor” or “Fair”</li> <li>ACCESS_TYP: Open Access</li> </ul>	<ul style="list-style-type: none"> <li>Starting with the countywide parks and open space data layer, features with an ACCESS_TYP value of “Open Access” were selected to include only parks that are accessible.</li> <li>The resulting parks were intersected with the 2016 Parks Needs Assessment Study Areas to identify parks in Study Areas with a Need Description value of “High” or “Very High”. For WAs with no Study Areas classified as “High” or “Very High” need, parks in Study Areas with an Acres/1000 value of less than 3.3 were selected.</li> <li>Resulting areas were clipped to urban areas, where stormwater runoff pollutant loads are generally higher and SCW Program Projects are typically implemented.</li> <li>Lastly, the areas were categorized into high, higher, or highest opportunity based on their park condition and LARMP Access Need and park condition (see Table I-11).</li> </ul>
<a href="#">2016 Parks Needs Assessment</a>	Need Description	
<a href="#">LARMP Access Need</a>	Access Need	
<a href="#">Urban Areas</a>	Extent of the urban area	

Table I-11. Opportunity for Park Enhancement or Restoration: Classification criteria

Opportunity	Park Condition	Park Needs Assessment Results	LARMP Access Need
High	Fair	High or Very High <sup>1</sup>	<2.825
Higher	Fair		>2.825
Highest	Poor		>2.825

<sup>1</sup> In the NSMB and SCR WAs, there are no Study Areas with “High” or “Very High” park need. For these WAs, parks were instead filtered by those in Study Areas with less than 3.3 acres of park per 1,000 residents.

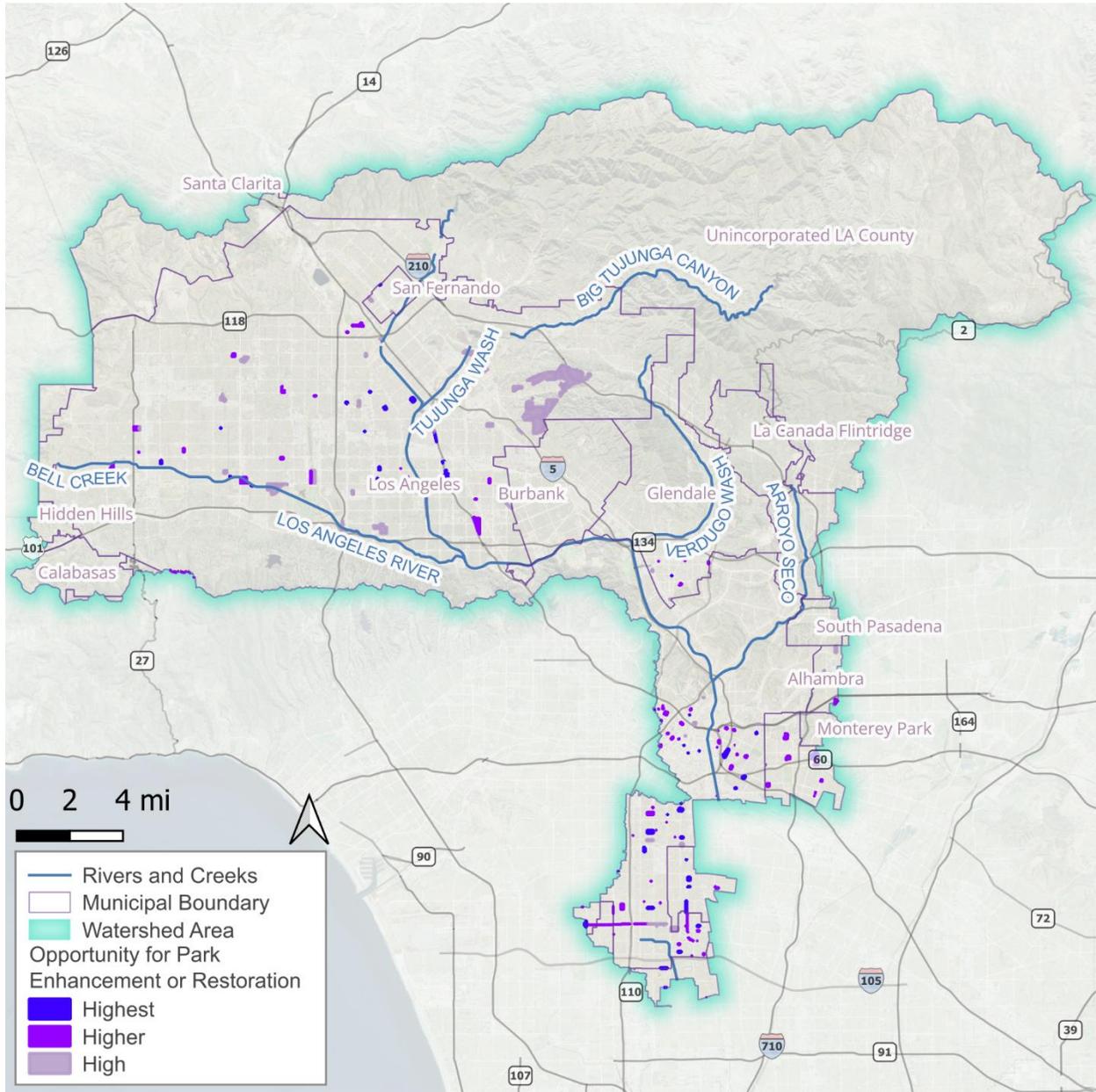


Figure I-8. Opportunity for Park Enhancement or Restoration

### I.3.3 Opportunity to Create Green Space at Schools

The Opportunity to Create Green Space at Schools highlights areas within the WA with the highest potential for creating green space at schools, supporting SCW Program Goals for enhancing community health and environmental resilience.

School parcels were prioritized based on criteria outlined in the [Los Angeles Unified School District \(LAUSD\) Green Schoolyards for All Plan](#) Prioritization Methodology, focusing specifically on parcels that serve the K-12 population. While not all school parcels analyzed are part of the LAUSD, the methodology developed for LAUSD school sites was considered robust and broadly applicable. As a result, this approach is extended by this opportunity analysis to include all K–12 school parcels within the SCW Program area to ensure consistency in analysis and to comprehensively evaluate opportunities across school sites.

Each selected school parcel was assigned a CalEnviroScreen (CES) score and an Extreme Heat Temperature score, reflecting environmental and climate vulnerability. These two scores were combined using a weighted formula, with CES contributing 75% and Extreme Heat Temperature contributing 25% to the final composite score. This approach ensures that parcels with both high environmental burden and heat exposure are prioritized for green space improvements.

Table I-12 summarizes the data sources, attributes, and processes included in this analysis, while Table I-13 lists the Opportunity to Create Green Space at Schools classification (high, higher, highest). Figure I-9 illustrates the Opportunity to Create Green Space at Schools.

Table I-12. Opportunity to Create Green Space at Schools: Data sources and analysis

Data Source(s)	Key Attributes	Opportunity Analysis & Considerations
<a href="#">LAUSD and Other School District K-12 School Parcels</a> (Los Angeles County GeoHub)	K-12 only	<ul style="list-style-type: none"> <li>• First, school parcels were filtered to include only those serving K–12.</li> <li>• Resulting parcels were then spatially joined to the CES and Extreme Heat Temperature database to determine a score for each.</li> <li>• Lastly, opportunities were categorized into high, higher, or highest based on percentile of composite score (see Table I-13).</li> </ul>
<a href="#">Parking Lots</a> (Los Angeles Region Imagery Acquisition Consortium)	Parking lots	
<a href="#">WMMS2 Mapped HRU Raster</a>	Impervious surfaces	
<a href="#">CalEnviroScreen 4</a>	CES 4.0 Score, Greening Index 2.0	
<a href="#">CalAdapt Extreme Heat</a>	Mid-century RCP 8.5 Number of Extreme Heat Days per Year	

Table I-13. Opportunity to Create Green Space at Schools: Classification criteria

Opportunity	Classification Description
High	<50 <sup>th</sup> percentile
Higher	50 <sup>th</sup> to 75 <sup>th</sup> percentile
Highest	>75 <sup>th</sup> percentile

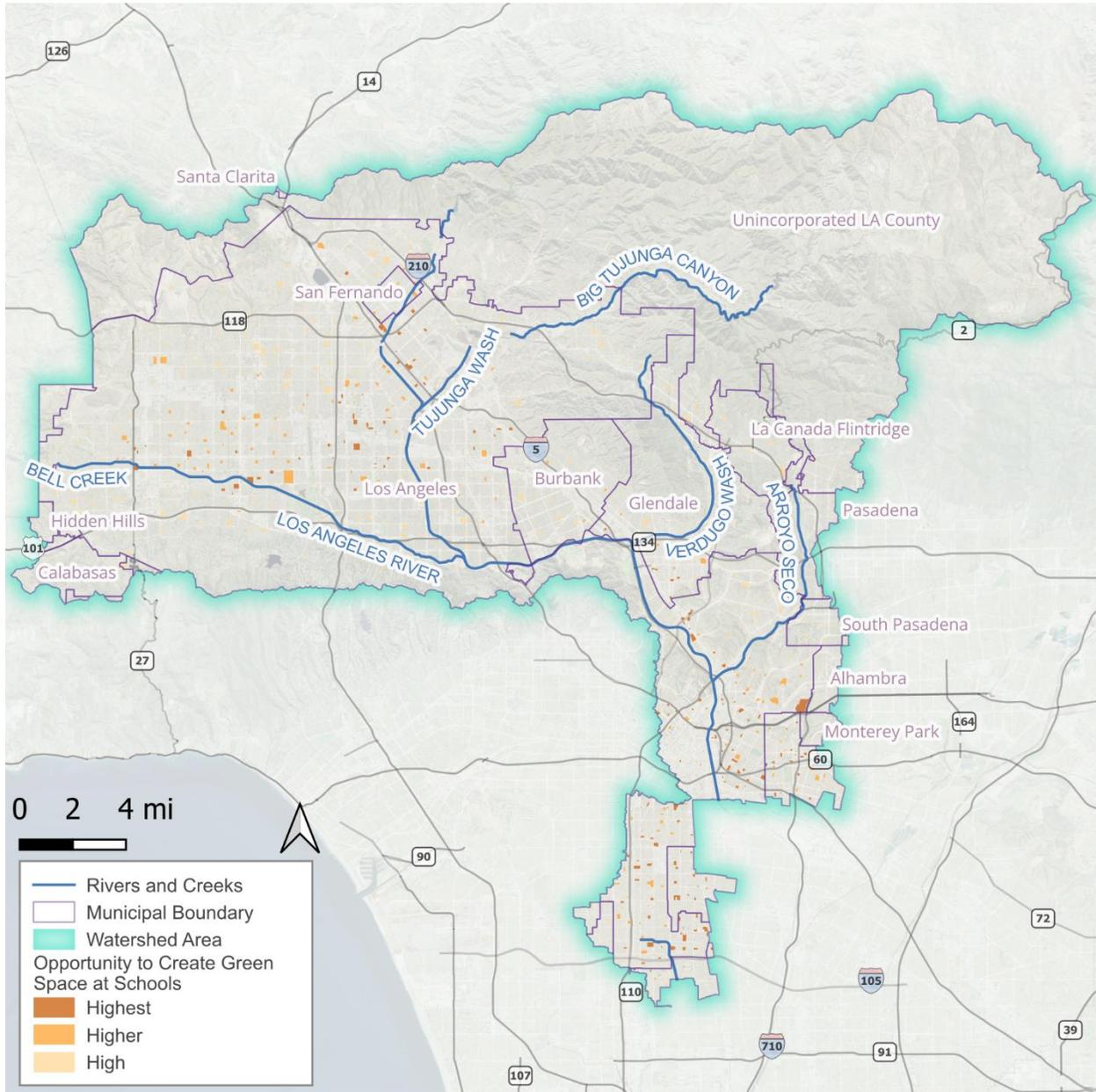


Figure I-9. Opportunity to Create Green Space at Schools

## I.3.4 Opportunity to Create Canopy, Cooling, and Shading Surfaces

The Opportunity to Create Canopy, Cooling, and Shading Surfaces highlights areas within the WA with the highest need for increased tree canopy, supporting SCW Program Goals for urban cooling, shading, and environmental equity. This analysis builds on the methodology developed in the [Community Forest Management Plan \(CFMP\)](#), which originally focused on unincorporated areas. For this analysis, the same approach was applied across the entire Los Angeles region to identify areas with the greatest potential for tree canopy expansion.

Each Countywide Statistical Area (CSA), defined in the CFMP, was evaluated based on its existing tree canopy coverage and classified into three bins:

- **Low:** < 10% canopy cover,
- **Medium:** 10% to 15% canopy cover, and
- **High:** >15% canopy cover.

To incorporate social vulnerability, each CSA was also assigned a [Social Sensitivity Index \(SSI\)](#) value—categorized as Low, Medium, or High—based on the provided mean SSI score for that area.

A composite score was then calculated for each CSA. This was done by combining its canopy cover classification with its SSI category, following the scoring matrix outlined in Table I-14. This scoring approach ensures that areas with both low canopy cover and high social sensitivity are prioritized for urban greening efforts.

Table I-15 summarizes the data sources, scoring methodology, and classification framework used in this analysis. Figure I-9 illustrates the Opportunity to Create Canopy, Cooling, and Shading Surfaces.

**Table I-14. Opportunity to Create Canopy, Cooling, and Shading Surfaces: Classification criteria**

Urban Tree Canopy Cover	Low SSI	Medium SSI	High SSI
Low (<10%)	Higher	Higher	Highest
Medium (10% to 15%)	High	Higher	Highest
High (>15%)	High	High	High

Table I-15. Opportunity to Create Canopy, Cooling, and Shading Surfaces: Data sources and analysis

Data Source(s)	Key Attributes	Opportunity Analysis & Considerations
<a href="#">Countywide Statistical Area (CSA)</a>	Entries with "COMMUNITY"	<ul style="list-style-type: none"> <li>• First, CSAs were used to define the geographic boundaries for evaluating tree-canopy opportunity.</li> <li>• Remaining area was then clipped to urban areas to focus on locations in more densely populated regions.</li> <li>• Within these areas, the percentage of existing urban canopy cover was calculated for each CSA. Each CSA was then spatially joined with the SSI categories.</li> <li>• Lastly, opportunities were categorized into low, medium, or high based on percentile of composite score using the classification matrix adapted from the CFMP and combining canopy cover and SSI categories (see Table I-14).</li> </ul>
<a href="#">United States Forest Service Urban Tree Canopy in California (2018)</a>	Urban canopy area	
<a href="#">Countywide Tree Canopy Coverage (LA County)</a>	Existing tree canopy	
<a href="#">Social Sensitivity Index (SSI)</a>	Entries with "Low", "Med", or "High" in the SoVI_Third field name	
<a href="#">Urban Areas</a>	Extent of the urban area	

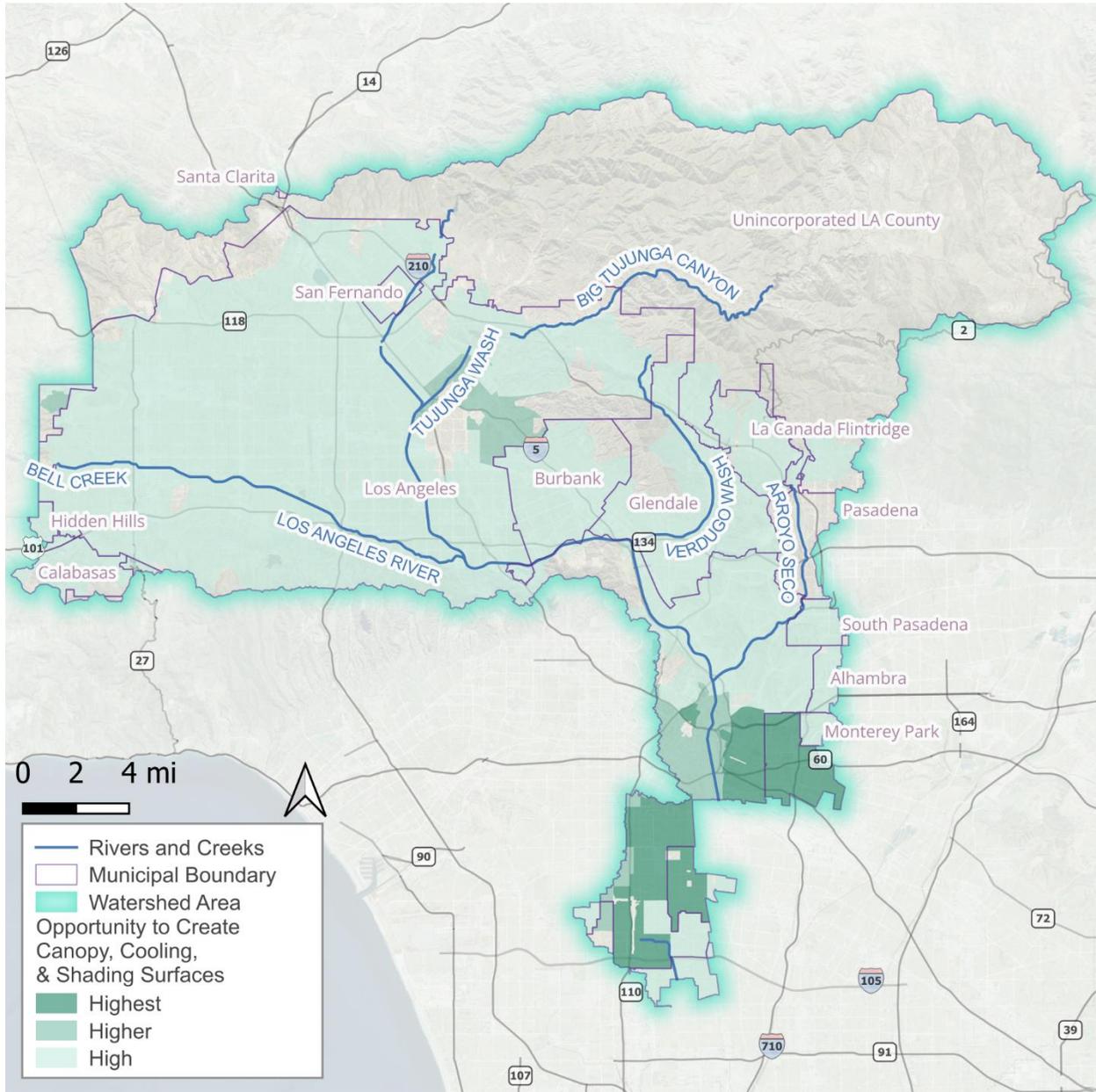


Figure I-10. Opportunity to Create Canopy, Cooling, and Shading Surfaces

## I.4 Deliver Multi-Benefits with Nature-Based Solutions and Diverse Projects Opportunity Analysis

The opportunities outlined in this section identifies areas with the highest potential for SCW Program Projects and Programs to deliver benefits to address WA Needs for Indicators under the Deliver Multi-Benefits with Nature-Based Solutions and Diverse Projects Planning Theme and supports the achievement of Goals E, F, and G. These opportunities are:

- Opportunity for Habitat Creation, Restoration, or Enhancement, and
- Opportunity to Address Community-Stated Priorities and Concerns.

The two opportunity analyses described in this section identified areas within the WA with the highest potential to (1) increase the net area of habitat created, enhanced, or restored and to (2) address a community-identified priority or concern. Spatial datasets (e.g., existing habitat layers, ecological restoration potential, and community engagement inputs such as documented needs, watershed engagement priorities, and equity Indicators) were integrated to identify opportunities.

Nature-based, multi-benefit Projects do more than meet technical and regulatory stormwater performance targets, they also restore ecological functions and build a more inclusive, resilient, and livable watershed for future generations. To incorporate these Projects, watershed planning must account for a WA's unique physical, social, and environmental characteristics such as the degree of urbanization, exposure to urban heat and localized flooding, access to green space, and baseline habitat quality.

## I.4.1 Opportunity for Habitat Creation, Restoration, or Enhancement

The Opportunity for Habitat Creation, Restoration, or Enhancement highlights areas within the WA with the highest need for habitat to be created or improved.

Opportunities were identified using the LARMP Ecosystem Need dataset, which evaluates habitat needs. The LARMP Ecosystem Need dataset was selected as foundational for this analysis for its comprehensive regional scope, science-based prioritization framework, and alignment with multi-benefit planning objectives. It considers a comprehensive range of factors important for assessing opportunities for habitat creation, restoration, or enhancement including existing habitat areas and buffers, ecological linkages and confluences, and unprotected areas.

Areas were assigned a relative need based on the LARMP Ecosystem Need classification as follows:

- **High:** LARMP Ecosystem Need value = 2,
- **Higher:** LARMP Ecosystem Need value = 3, and
- **Highest:** LARMP Ecosystem Need value = 4 or 5.

This classification framework ensures areas with the greatest ecological need are prioritized for habitat-focused Projects and Programs. Such areas represent opportunities to strengthen habitat corridors, improve biodiversity, and enhance natural buffers along the river and surrounding landscapes. Project and Program proponents should conduct meaningful outreach to consider additional local habitat sensitivities.

Table I-16 summarizes the data sources, attributes, and processes included in this analysis. Figure I-11 illustrates the Opportunity for Habitat Creation, Restoration, or Enhancement.

**Table I-16. Opportunity for Habitat Creation, Restoration, or Enhancement: Data sources and analysis**

Data Source(s)	Key Attributes	Opportunity Analysis & Considerations
<a href="#">LARMP Ecosystem Need</a>	Ecosystem Need Value	<ul style="list-style-type: none"> <li>• Opportunities were categorized into high, higher, and highest based on Ecosystem Need classification in LARMP.</li> </ul>
<a href="#">California Protected Areas Database</a>	Entries with "State" and "Federal" Ownership	<ul style="list-style-type: none"> <li>• Existing protected areas (e.g., ecological preserves) were clipped from consideration as they generally, already benefit from existing management frameworks, ecological stewardship, etc.</li> </ul>

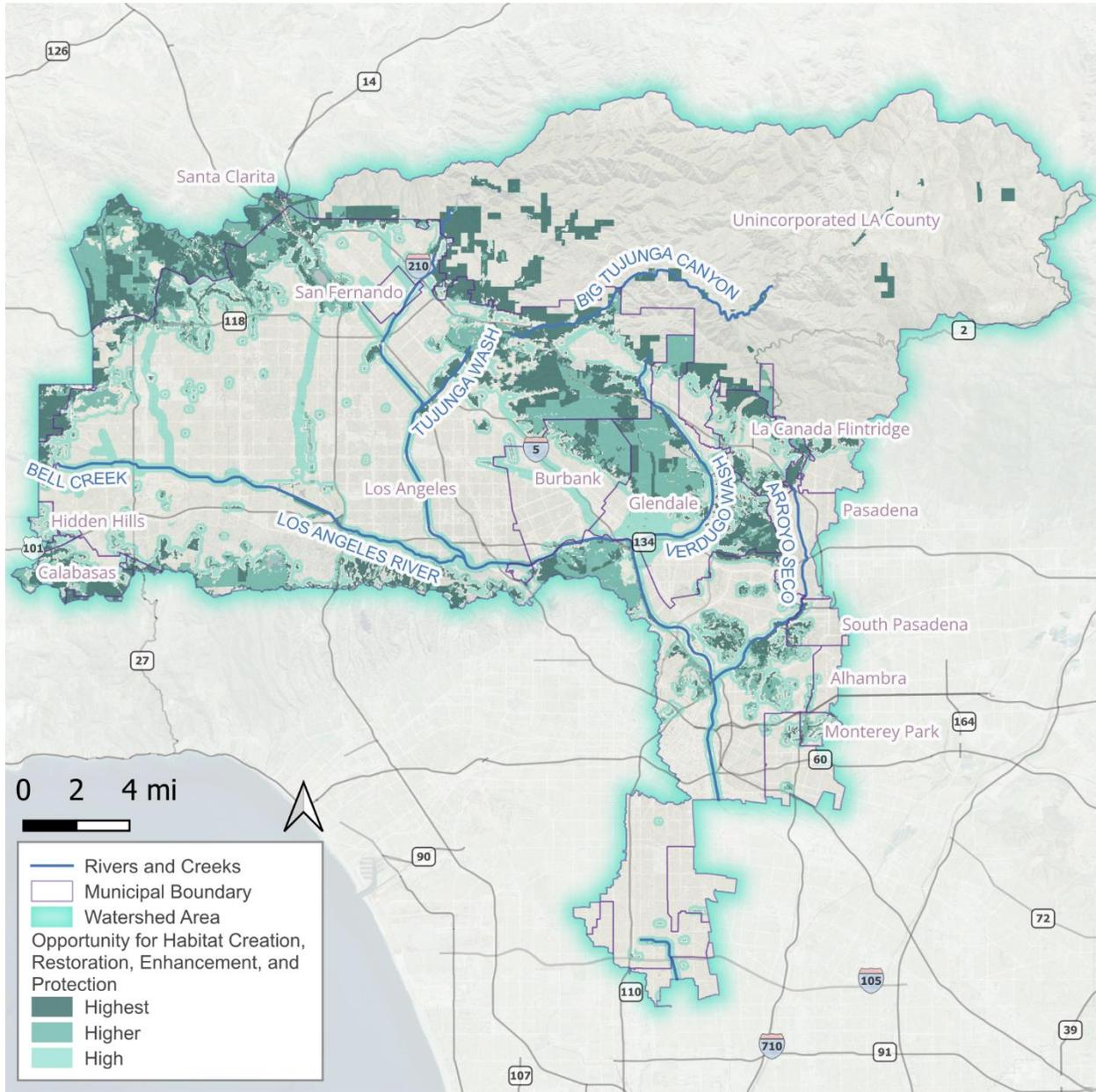


Figure I-11. Opportunity for Habitat Creation, Restoration, or Enhancement

## I.4.2 Opportunity to Address Community-Stated Priorities and Concerns

The Opportunity to Address Community-Stated Priorities and Concerns compiles community-identified priorities and concerns to help guide the development of Projects and Programs that directly serve local needs. This opportunity is a point layer that is built from two engagement efforts,

- **The Community Strengths and Needs Assessment (CSNA)**: The blue and green points on this opportunity map represent responses from the CSNA Survey and Watershed Coordinator–adapted surveys (see Appendix D). Blue points reflect general CSNA Survey responses, while green points identify outdoor areas that community members indicated are in need of beautification. The CSNA Survey and Dashboard are key public engagement tools developed under the SCW Program to better align Watershed Planning, as well as Project and Program implementation, with community priorities. The CSNA is a dynamic dataset that will continue to evolve as new survey responses are collected. Reviewing CSNA data promotes alignment of Projects and Programs with community-stated needs. Note that survey responses should not be extrapolated across broad spatial boundaries; they are intended to be reviewed individually, especially when evaluating responses near proposed Projects and Programs.
- **The Los Angeles County Drainage Needs Assessment Program (DNAP)**: DNAP provides a structured means for Municipalities to report localized drainage challenges, such as flooding, erosion, or infrastructure limitations. Incorporating DNAP data into this opportunity supports Project and Program Proponents in aligning with municipal priorities and addressing stormwater infrastructure needs that may not be captured through community surveys.

Together, these datasets reflect a spectrum of community and municipal input; each point represents a potential opportunity to improve environmental conditions, public space, or infrastructure in direct response to a community-stated need.

Due to the temporal and spatial complexities of this opportunity, Municipalities, Project and Program proponents, and other interested parties are encouraged to consider it using the [Planning Tool](#), rather than rely on the static map included in this appendix. Additionally, the Planning Tool allows users to view individual survey responses.

Table I-17 summarizes the data sources and attributes included in this analysis. Figure I-12 illustrates the Opportunity to Address Community-Stated Priorities and Concerns.

**Table I-17. Opportunity to Address Community-Stated Priorities and Concerns: Data sources and analysis**

Data Source(s)	Key Attributes
<a href="#">CSNA Dashboard</a>	<ul style="list-style-type: none"> <li>• Outdoor Areas identified by participants.</li> <li>• CSNA Survey (2024-to early 2025).</li> </ul>
<a href="#">Los Angeles County DNAP</a>	<ul style="list-style-type: none"> <li>• Municipality-submitted drainage issues.</li> </ul>

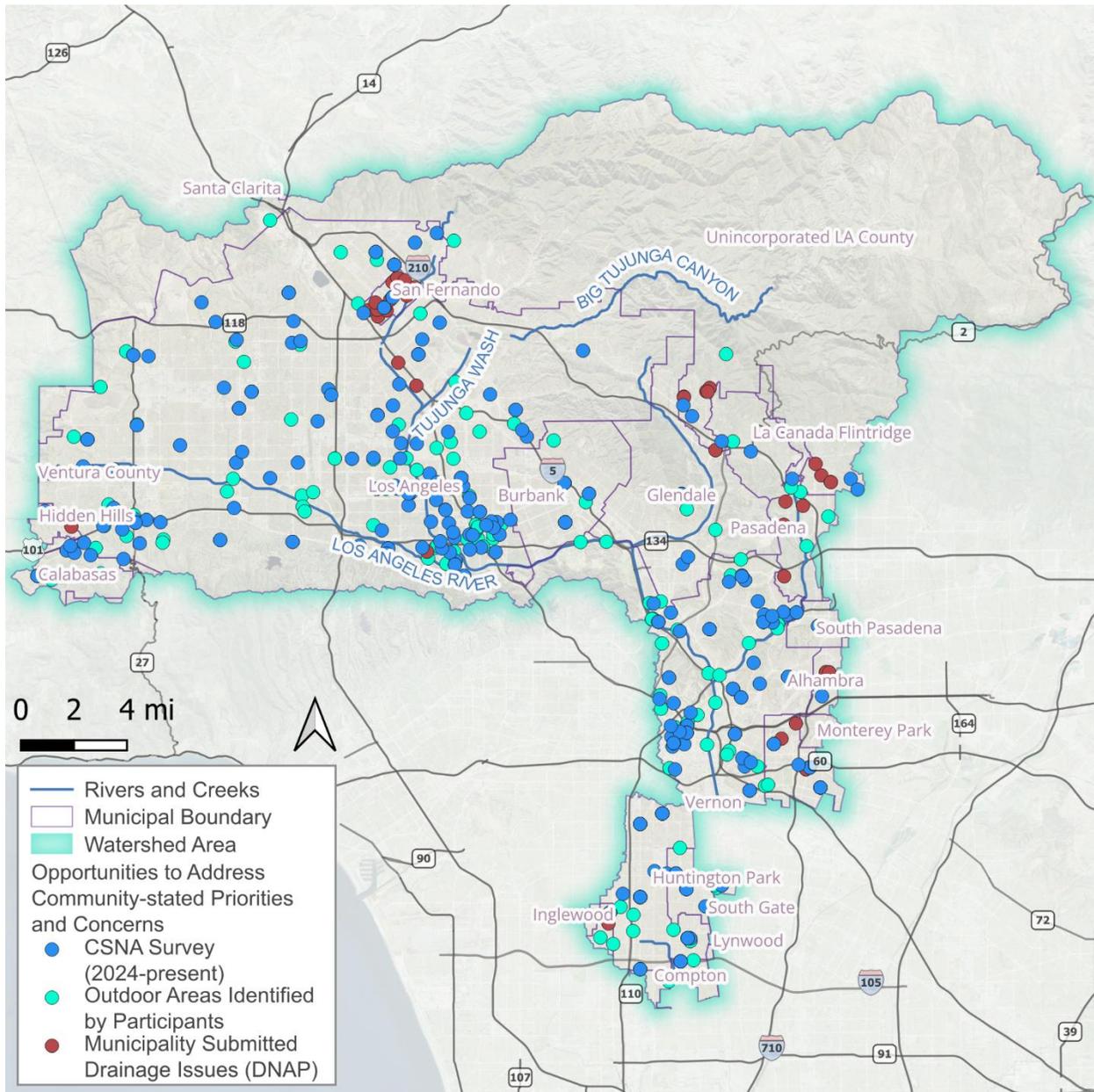


Figure I-12. Opportunity to Address Community-Statement Priorities and Concerns. Note, not all entries in the legend will be present in every WA.

## I.5 Equitably Distribute Benefits Opportunity Analysis

The opportunity outlined in this section identifies areas with the highest potential for SCW Program Projects and Programs to deliver benefits to address WA Needs for Indicators under the Equitably Distribute Benefits Planning Theme and supports the achievement of Goals J and K.

The opportunity analysis described in this section, Opportunity to Provide Benefits to Disadvantaged Communities (DACs), identified areas within the WA with the highest potential to provide benefits to disadvantaged communities (DACs). Advancing equity requires a deliberate and sustained focus to invest in Projects and Programs that directly benefit historically underserved communities. The Equitably Distribute Benefits opportunity analysis highlighted areas not currently served by a SCW Program Project to guide future implementation toward underserved and climate-vulnerable communities.

### I.5.1 Opportunity to Provide Benefits to Disadvantaged Communities (DACs)

The Opportunity to Provide Benefits to DACs highlights DACs within the WA that are not currently served—or could be better served—by an existing SCW Program Project, supporting SCW Program Goals for equity, climate resilience, and targeted investment.

Opportunities were identified using the [2022 SB 535 DAC](#) boundary, which defines communities disproportionately burdened by environmental and socioeconomic stressors. To prioritize opportunities, each DAC was assigned an SSI value from the Los Angeles County Climate Vulnerability Assessment, which reflects a community's relative sensitivity to climate-related impacts based on socioeconomic and demographic indicators as follows:

- **High opportunity:** Area is a DAC and the SSI is Low,
- **Higher opportunity:** Area is a DAC and the SSI is Medium, and
- **Highest opportunity:** Area is a DAC and the SSI is High.

To focus on areas with unmet needs, the analysis excluded DAC areas located within a 0.25-mile walkshed<sup>10</sup> of an existing SCW Program Project. This buffer ensures that the opportunity layer highlights locations where new Projects will deliver direct benefits.

Table I-18 summarizes the data sources, attributes, and processes included in this analysis. Figure I-13 illustrates the Opportunity to Provide Benefits to DACs.

**Table I-18. Opportunity to Provide Benefits to DACs: Data sources and analysis**

Data Source(s)	Key Attributes	Opportunity Analysis & Considerations
<a href="#">SB535 DAC Area 2022</a>	Extent of DAC boundaries	<ul style="list-style-type: none"> <li>Extent of SB535 DACs areas were spatially joined with SSI score to be classified into low, med, or high categories.</li> <li>Areas with 0.25 miles walking distance from an existing SCW Program Project.</li> </ul>
<a href="#">Social Sensitivity Index</a>	Entries with "Low", "Med", or "High" in the SoVI_Third field name	
Walksheds Metrics and Monitoring Study (direct from Public Works)	Entries within 0.25 miles of a Project	

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<sup>10</sup> A walkshed is the geographic area that can be reached on foot from a specific location within a given threshold

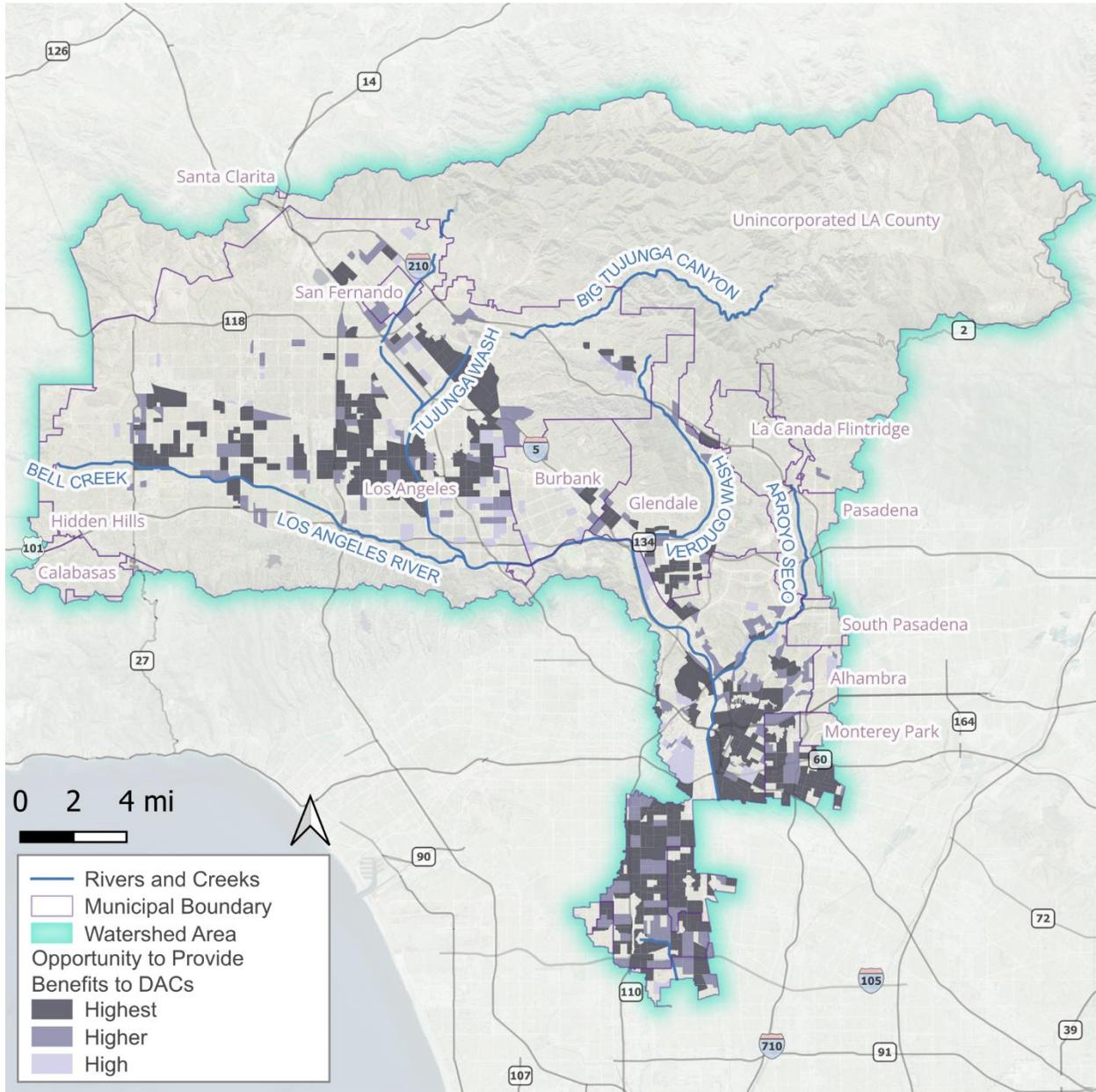


Figure I-13. Opportunity to Provide Benefits to a DAC

## I.6 Composite Opportunity Analyses

Projects and Programs that deliver multiple benefits are a cornerstone of the SCW Program. While individual strategies can support specific SCW Program Goals, they are most effective when implemented together to create synergies across Planning Themes.

For example, creating, enhancing, and restoring park and green space in high-need communities (reference Section I.3.1 and I.3.2) through the delivery of nature-based, multi-benefit Projects and Programs (reference Section I.4.1) also helps communities most affected by extreme heat (reference Section I.3.3).

Similarly, strategies that Improve Water Quality and Increase Water Supply are closely interconnected. For example, maximizing stormwater runoff capture and management for water supply (Section I.2) goes together with prioritizing high-performance Projects and Programs in areas with the highest pollutant loads (Section I.1). Projects that augment water supply through infiltration to an unconfined managed aquifer, diversion to sanitary sewers, or onsite reuse must also first treat that stormwater runoff by Project best management practices (BMPs) or existing wastewater treatment and water reclamation facilities.

To support the implementation of these synergies across Planning Themes, two composite opportunities were developed are outlined in the following subsections:

- Opportunity to Improve Water Quality and Increase Water Supply, and
- Multiple Benefit Opportunity Across Planning Themes.

These composite opportunities are described in the subsections below and provide guidance to the WASC, Municipalities, and Project and Program proponents by highlighting areas within the WA, where strategies can be aligned to deliver multiple benefits and support multiple SCW Program Goals.

## I.6.1 Opportunity to Improve Water Quality and Increase Water Supply

The Opportunity to Improve Water Quality and Increase Water Supply highlights areas within the WA with the highest potential to deliver dual benefits—specifically, to Improve Water Quality through pollutant load reduction and Increase Water Supply through Stormwater Capture. This composite opportunity supports SCW Program goals by identifying locations where investments can maximize these multi-benefit outcomes.

To identify these dual-benefit areas, a composite water quality opportunity layer—based on pollutant load reduction potential for zinc, total phosphorus, and bacteria—was overlaid with a stormwater capture opportunity layer that represents water supply potential. The water quality layer was developed by assigning each pollutant a score within each watershed based on the following opportunity classification:

- **General opportunity:** Score = 0 (<75<sup>th</sup> Percentile),
- **High opportunity:** Score = 1 (75<sup>th</sup> to 85<sup>th</sup> Percentile),
- **Higher opportunity:** Score = 2 (85<sup>th</sup> to 95<sup>th</sup> Percentile), and
- **Highest opportunity:** Score = 3 (>95<sup>th</sup> Percentile).

Individual pollutant scores were summed to generate a total water quality improvement score for each area of opportunity. To enable comparability for these scores across WAs, weighting factors were applied:

- Scores are multiplied by 1.5 for areas with two priority pollutants, and
- Scores are multiplied by 3 for areas with one priority pollutant.

All scores are indexed on a 0 to 9 scale. For ULAR, a multiplier of 1 was used to account for the three priority pollutants (zinc, total phosphorus, and bacteria). Table I-19 illustrates an example of this scoring approach for three areas and Table I-20 defines the indexed total score scheme in this figure. Figure I-14 illustrates the Opportunity to Improve Water Quality and Increase Water Supply.

**Table I-19. Opportunity to Improve Water Quality and Increase Water Supply: Scoring method example**

Example Area	Zinc	Bacteria	Total Phosphorus	Raw Total Score	Indexed Total Score (Max 9)
1	0 (Limited)	1 (High)	0 (Limited)	1	1
2	1 (High)	2 (Higher)	0 (Limited)	3	3
3	3 (Highest)	3 (Highest)	0 (Limited)	6	6

Table I-20. Opportunity to Improve Water Quality and Increase Water Supply: Classification criteria

Opportunity	Total Score (Indexed to 9)
High	1.0 to 3.0
Higher	3.1 to 6.0
Highest	6.1 to 9.0

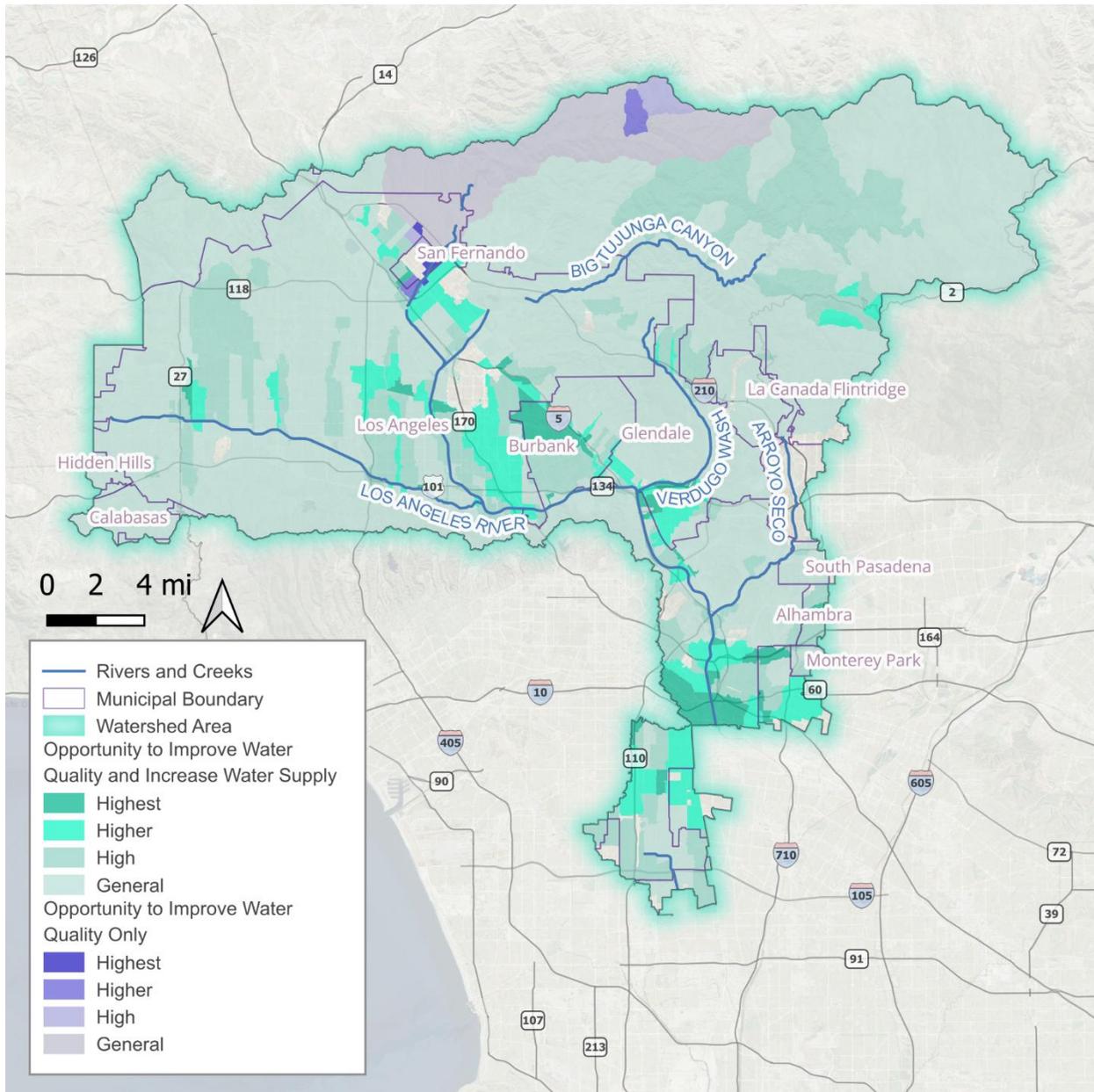


Figure I-14. Opportunity to Improve Water Quality and Increase Water Supply

To highlight areas within the WA with the highest potential to Improve Water Quality and Increase Water Supply, a two-square-mile planning grid was developed. Each grid cell was ranked in accordance with its relative opportunity, and the top 12 highest-scoring cells are highlighted in Figure I-15. See Appendix J for full-page maps of each grid cell.

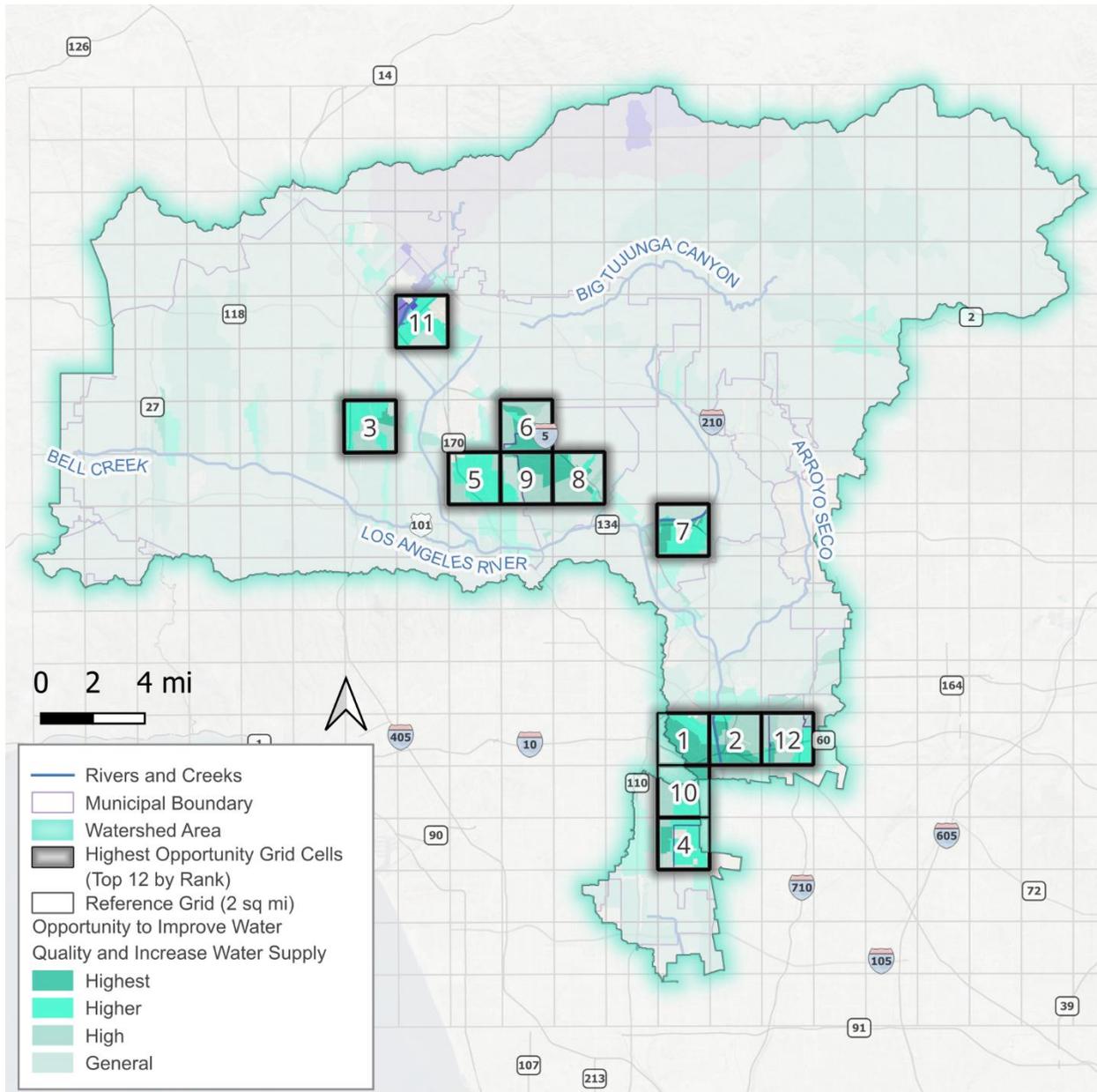


Figure I-15. Grid analysis for Opportunity to Improve Water Quality and Increase Water Supply

To support targeted implementation by Municipalities, the opportunity to Improve Water Quality and Increase Water Supply was exported at the municipal scale to highlight the relative opportunity levels within each municipality. See Appendix J for full-page maps of each.

## I.6.2 Multiple Benefit Opportunity Across Planning Themes

The Multiple Benefit Opportunity Across Planning Themes highlights areas within the WA with the highest potential to deliver multiple benefits across four key SCW Program Planning Themes (Increase Drought Preparedness, Improve Public Health, Deliver Multi-Benefits with Nature-Based Solutions and Diverse Projects, and Equitably Distribute Benefits). To assess this multi-benefit potential, seven opportunity metrics were evaluated and given a maximum score of three each (unless otherwise noted):

- Opportunity to Increase Water Supply Through Groundwater Recharge and Storage (maximum score of two to avoid over-weighting this metric),
- Opportunity for Park and Green Space Creation,
- Opportunity for Park Enhancement or Restoration,
- Opportunity to Create Green Space at Schools,
- Opportunity to Create Canopy, Cooling, and Shading Surfaces Tree,
- Opportunity for Habitat Creation, Restoration, or Enhancement, and
- Opportunity to Provide Benefits to DACs.

Individual scores from the metrics above were summed to generate a “Multi-benefit Score”, representing cumulative opportunity across all. See Table I-21 for an example of this for an area of opportunity. To capture thematic breadth, a “Theme Score” was calculated by counting how many of the four Planning Themes an area contributed to. For example, an area received a point under the Public Health Theme if it had a nonzero score in any of the following: new parks, restored parks, school greening, or tree canopy. See Table I-22 for an example of this for an area.

The final composite score was calculated by equally weighting the Multi-benefit Score and Theme Score, summing them, then reindexing from 0–1 to create a consistent, comparable scoring system across all WAs. This approach ensures that areas with both high cumulative benefit potential and broad thematic coverage are prioritized for SCW Program investment. See Table I-23 for an example of this for an area.

Table I-21. Example illustrating the multi-benefit scoring method for an area

Opportunity for	Individual Opportunity Scores	Multi-benefit Score <sup>1</sup>
Increase Water Supply Through Groundwater Recharge and Storage	2	0.47
Park and Green Space Creation	1	
Park Enhancement or Restoration	0	
Creating Green Space at Schools	0	
Habitat Creation, Restoration, or Enhancement	2	
Creating Canopy, Cooling, and Shading Surfaces Tree	0	
Provide Benefits to DACs	2	

<sup>1</sup> The sum of the individual opportunity scores (7 in the example above), divided by the max observed score across all WAs (15).

Table I-22. Example illustrating the Planning Theme scoring method for an area

Individual Planning Theme Scores				Planning Theme Score <sup>1</sup>
Improve Public Health	Increase Drought Preparedness	Deliver Multi-Benefit Projects	Equitably Distribute Benefits	
1	1	1	1	1

<sup>1</sup> The sum of the individual Planning Theme scores (4 in the example above), divided by the max observed score across all WAs (4).

Table I-23. Example illustrating the total score using the Theme Score and Multi-benefit Score above

Multi-benefit Score	Theme Score	Total Score <sup>1</sup>
0.47	1	0.735

<sup>1</sup> The average of the multi-benefit score and the Theme Score. This effectively reindexes the total score from 0 to 1.

Table I-24. Multiple Benefit Opportunity Across Planning Themes: Classification criteria

Opportunity	Total Score
High	0 to 0.25
Higher	0.25 to 0.5
Highest	0.5 to 1.0

Figure I-16 illustrates the Multiple Benefit Opportunity Across Planning Themes.

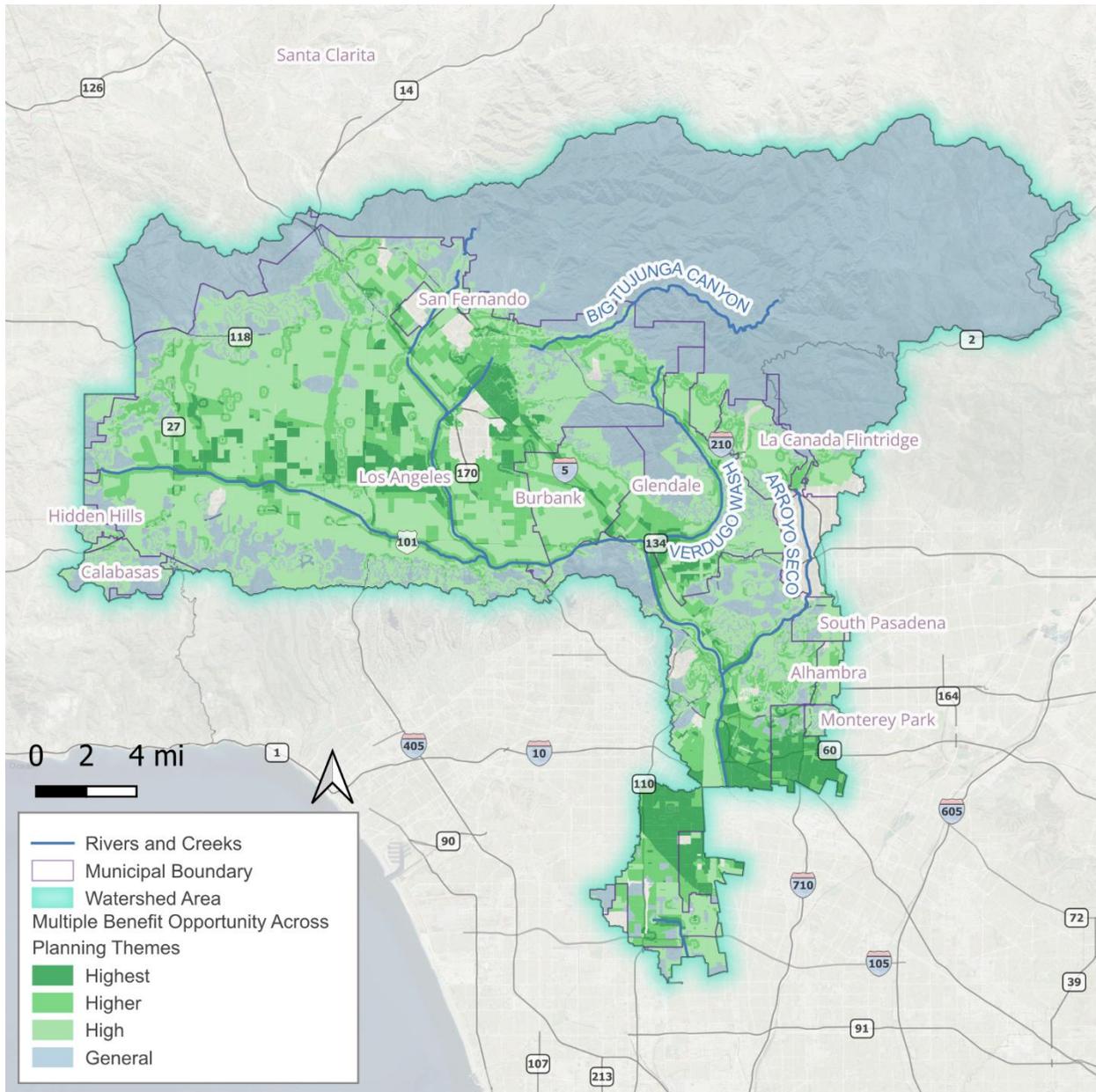


Figure I-16. Multiple Benefit Opportunity Across Planning Themes (serving 2 or more themes)

To highlight the areas within the WA with the greatest potential for implementing cross-thematic Projects and Programs, a 2 square mile grid was created. Each cell was ranked by the opportunity within to serve two or more themes. The top 12 grid cells serving two or more planning themes are highlighted in the map below. See Appendix J for full-page maps of each.

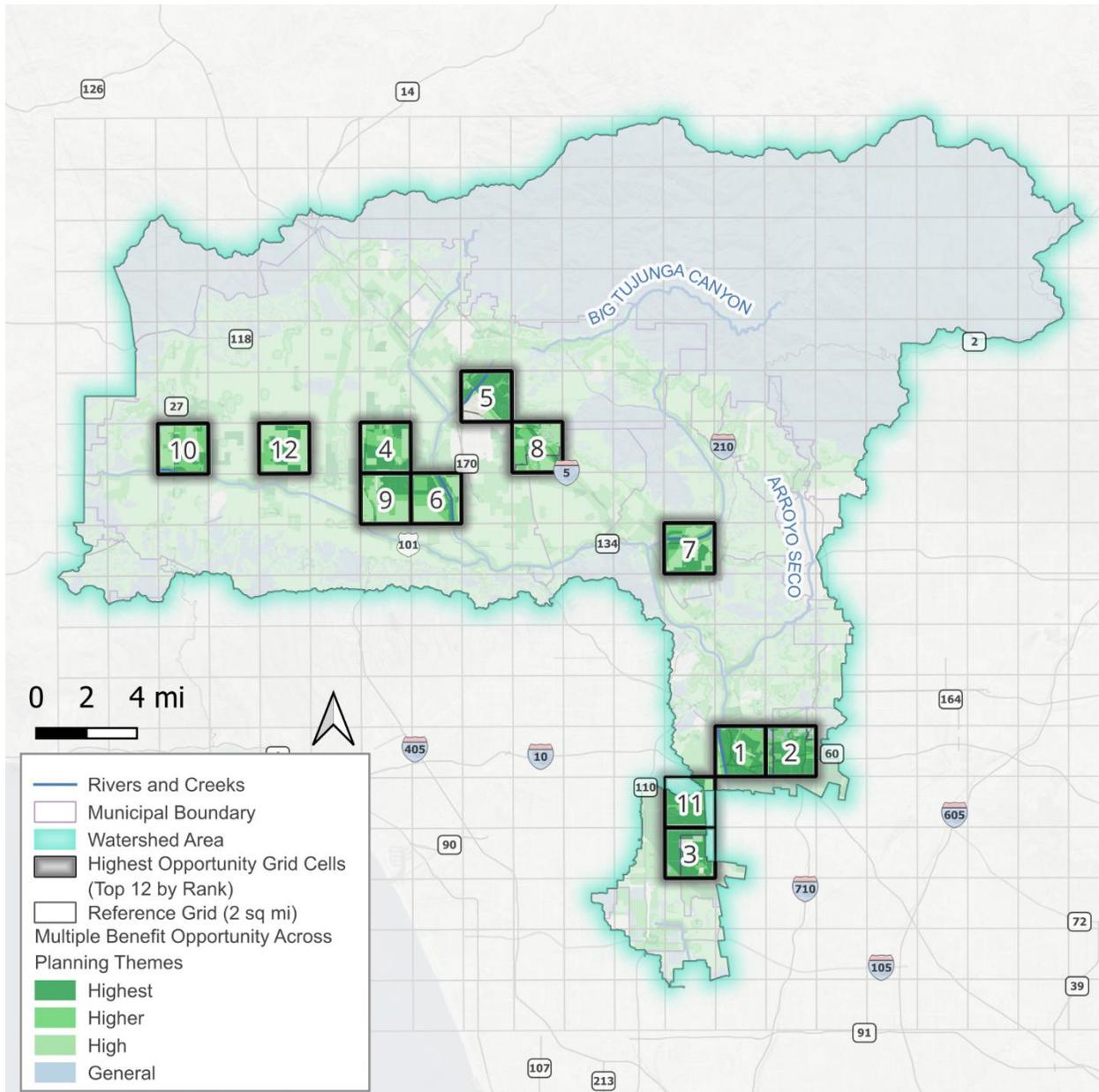


Figure I-17. Grid analysis for Multiple Benefit Opportunity Across Planning Themes (serving 2 or more themes)

To support targeted implementation by Municipalities and Supervisor Districts, the Multiple Benefit Opportunity Across Planning Themes was also exported at the municipal and Supervisor District scale to highlight the relative opportunity levels—high, higher, and highest—within each. See Appendix J for full-page maps of each.