

Assessing Homelessness Impacts on Water Quality, Riparian and Aquatic Habitat in Upper Santa Ana River Watershed

Middle Santa Ana River Watershed TMDL Task Force Meeting

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HOMELESS STUDY PROJECT

Project directed by SAWPA; funded by Prop 1 IRWM Disadvantaged Community Involvement Grant Program.

- **Task 1 – Literature Review and Assessment of Existing Information**
 - Assess current nature and extent of stream and waterbody-adjacent homeless encampments in the upper watershed
 - Provide best information about the relationships between presence of homeless encampments and impacts to water quality and riparian/aquatic habitats
- **Task 2 – Preparation of Preliminary Monitoring Program**
 - Develop a Preliminary Monitoring Program to assess the potential impacts of homeless encampments on water quality and riparian and aquatic habitats

HOMELESS STUDY: TASK 1

Assessment of Existing Conditions



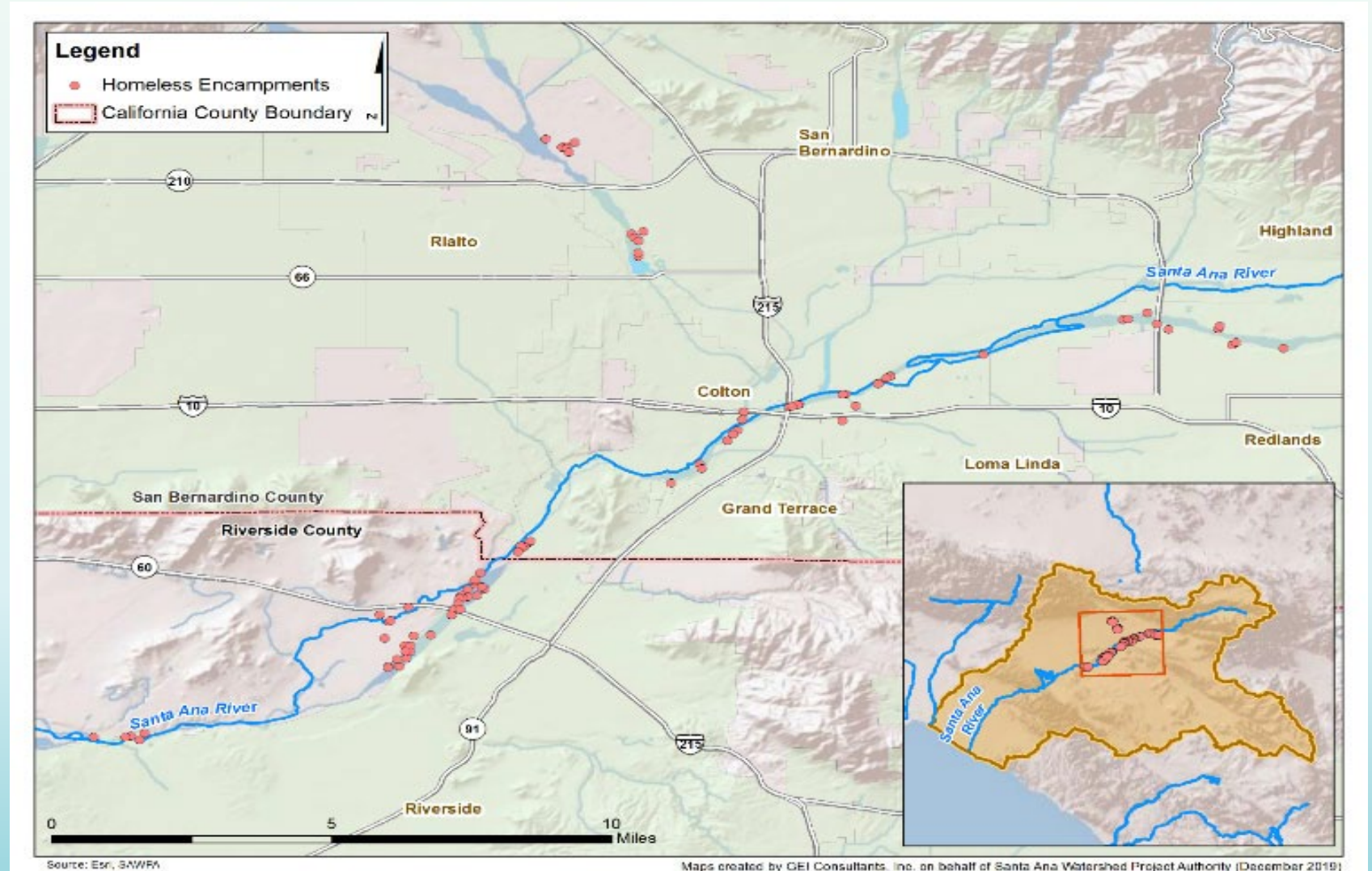
LOCAL WATERSHED INFORMATION SOURCES

Data gathered from the regional sources, including:

- SAWPA and SAWPA Task Forces
- San Bernardino County Sheriff Department
- San Bernardino County Department of Public Works
- Riverside County Flood Control & Water Conservation District (including information from County of Riverside County Executive Office)
- Inland Empire Waterkeeper
- City of Rialto (represented by Lynn Merrill and Associates, Inc. and Geovironment Consulting)
- Riverside Regional Water Quality Control Plant
- Santa Ana Regional Water Quality Control Board
- San Bernardino Valley Water Conservation District

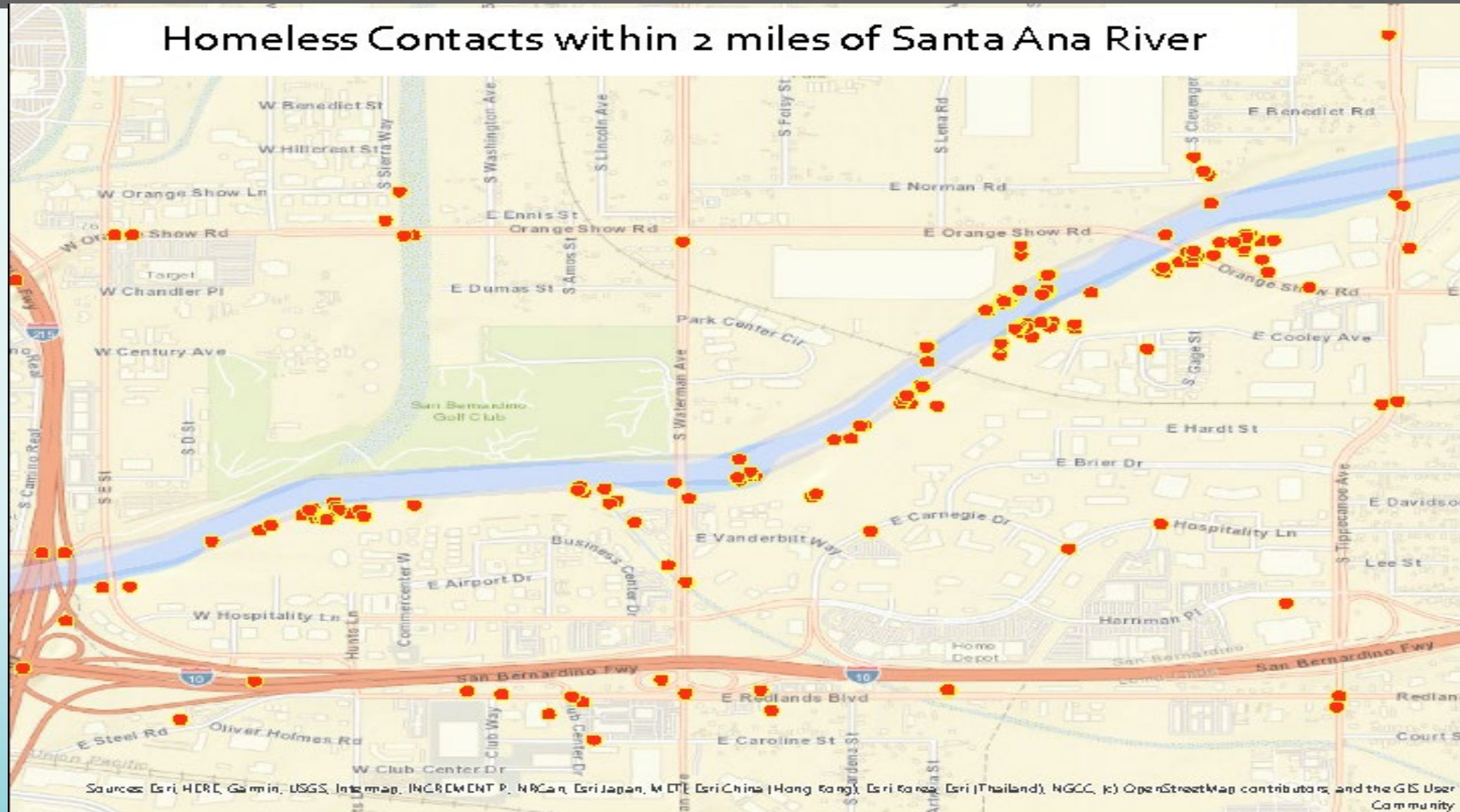
SAWPA 2016 ASSESSMENT

- Data Sources: San Bernardino County and Riverside County Sheriff Departments
- High concentrations of camps around Hwy 60 and I-215 & I-10

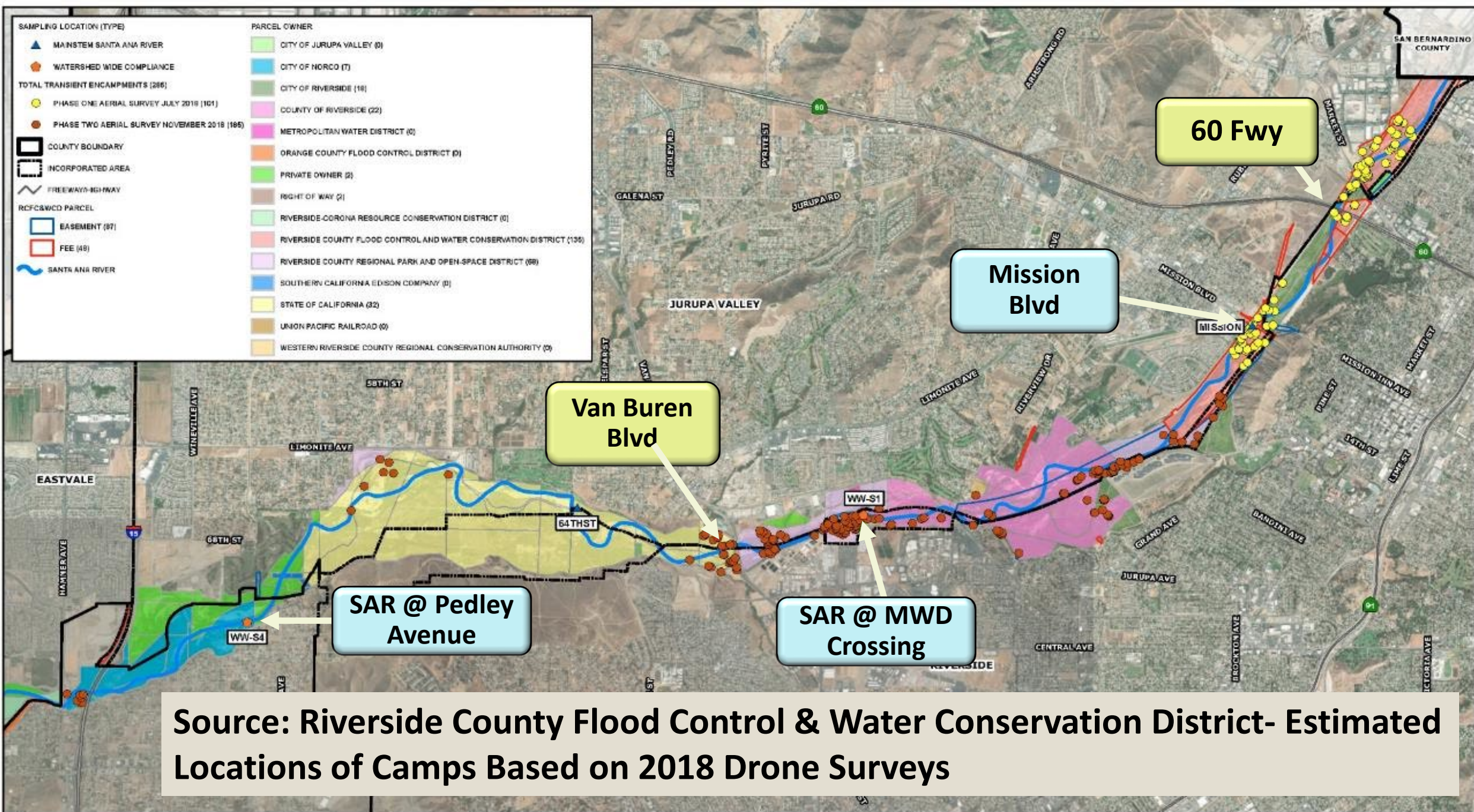


FALL 2019 ASSESSMENT: SAN BERNARDINO COUNTY SHERIFF DEPARTMENT

Homeless Contacts within 2 miles of Santa Ana River



This aerial map shows the proposed Santa Ana River Trail route in green, starting from the intersection of Tippecanoe Avenue and Waterman Avenue. The trail runs along the river, passing through industrial and commercial areas. Key roads labeled include Tippecanoe Avenue, Waterman Avenue, E Street, and various local streets like S Grand Ave, S Orange St, and S Santa Ana St. The map also shows the Santa Ana River and surrounding urban development.



ENCAMPMENT IMPACTS IN SANTA ANA RIVER WATERSHED

- Source: Mike Jones, San Bernardino County Sheriff Department
- Santa Ana River upstream of I-215 bridge



ENCAMPMENT IMPACTS IN SANTA ANA RIVER WATERSHED

- Source: Arlene Chun – San Bernardino County Department of Public Works
- City Creek

Site Conditions



ENCAMPMENT IMPACTS IN SANTA ANA RIVER WATERSHED

- Source: Ed Filadelfia, Riverside Regional Water Quality Control Plant
- Santa Ana River Reach 3, upstream of Van Buren Blvd



LITERATURE REVIEW INCLUDED OTHER AREAS OF CALIFORNIA AND A FEW SELECTED STATES

Other California Sources

- Santa Ana River Watershed
 - *California State University Fullerton*
 - *San Bernardino Valley Municipal Water District*
- San Gabriel River Watershed
- San Diego Area
 - *San Diego River*
 - *Other San Diego Area Examples*
- Contra Costa County
- Santa Clara County
 - *Santa Clara Valley Water District*
 - *Guadalupe River Watershed Study*
- Sacramento Area
 - *Water Quality Impacts*
 - *Levee Impacts*
- Russian River

Other States

- Colorado (South Platte River)
- Oregon (Portland Area)
- Texas (Austin and San Antonio Areas)
- Utah (Jordan River)



Upstream of Mission Blvd Bridge
(provided by Lynn Merrill)

HOMELESS STUDY: TASK 1 FINDINGS

- Observed impacts in Upper Santa Ana River watershed are no different than what is observed in other areas:
 - Trash
 - Human waste disposal
 - Degradation of riparian areas, including vegetation, habitat and riverbanks
 - Fish barriers created by large trash (e.g., shopping carts)
 - Impacts to the physical integrity of levees
 - Fire impacts
- Impact characterizations are anecdotal in nature



Levee Excavation, Sacramento Area

HOMELESS STUDY: TASK 1 FINDINGS

- No studies found that clearly demonstrate a direct relationship between encampments and poor water quality...but,
- ...SCCWRP developing a study in the San Diego River watershed to address investigative order
- Trash volume has been reported; but relationship between volume to number of homeless encampments or campers is unclear
- One source identified misperception regarding relationship between homeless encampments in riverbeds and safety of drinking water



HOMELESS STUDY: TASK 1 FINDINGS

- Five key areas where camps are currently concentrated in Upper Santa Ana River Watershed:
 - Van Buren Blvd Bridge upstream to Anza Drain
 - Along the Tequesquite Landfill
 - Mission Boulevard Bridge crossing
 - Upstream of the 60 Freeway
 - Between the I-215 Bridge and Tippecanoe Road
- All of these locations have two things in common:
 - Near water
 - Vegetative cover
- Most interviewees believe the number of encampments and numbers of residents is on the increase.

HOMELESS STUDY: TASK 2

Preliminary Monitoring Program

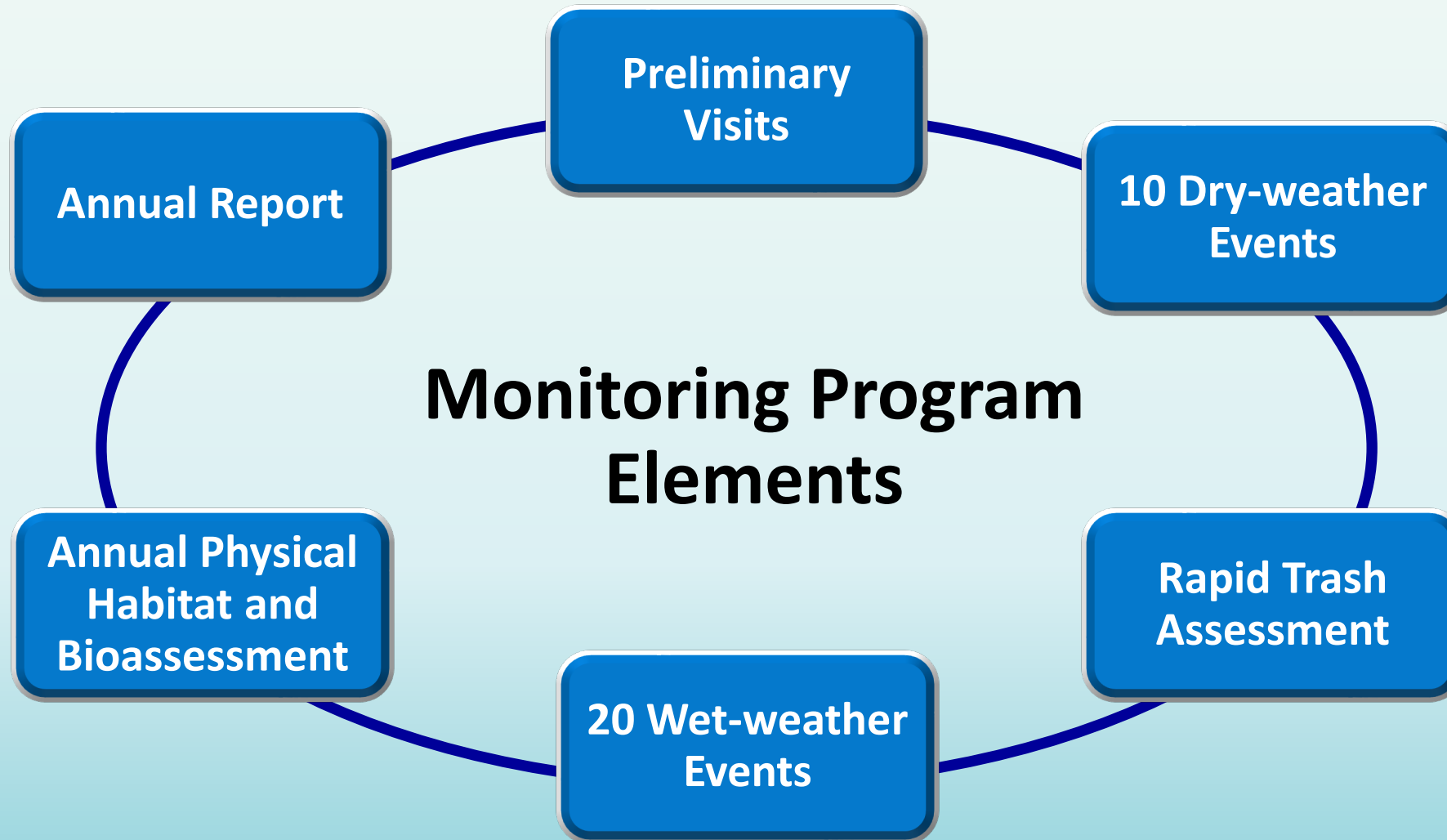


RECOMMENDED MONITORING LOCATIONS

- Proposed Monitoring Program recommends three locations:
 - Market Street Bridge
 - Mission Blvd Bridge
 - Van Buren Blvd Bridge
- Report identifies proposed upstream/ downstream sample sites



IMPLEMENTATION STEPS



DRY-WEATHER MONITORING EVENTS

- Complete 10 total monitoring events at each site
 - Collect water samples for laboratory analysis: *E. coli*, HF183 and Total Suspended Solids
 - Gather water quality sonde measurements – temperature, pH, dissolved oxygen, conductivity, turbidity
 - Complete Rapid Trash Assessment protocol



RAPID TRASH ASSESSMENT

- Implement SWAMP Rapid Trash Assessment Protocol during each site visit:
 - Level of trash
 - Number of items found
 - Threat to aquatic life
 - Threat to human health
 - Illegal Dumping
 - Accumulation of Trash

RAPID TRASH ASSESSMENT WORKSHEET

Surface Water Ambient Monitoring Program, San Francisco Bay Regional Water Quality Control Board

WATERSHED/STREAM: _____ DATE/TIME: _____
 MONITORING GROUP, STAFF: _____ SAMPLE ID NO. _____
 SITE DESCRIPTION (Station Name, No., etc.): _____

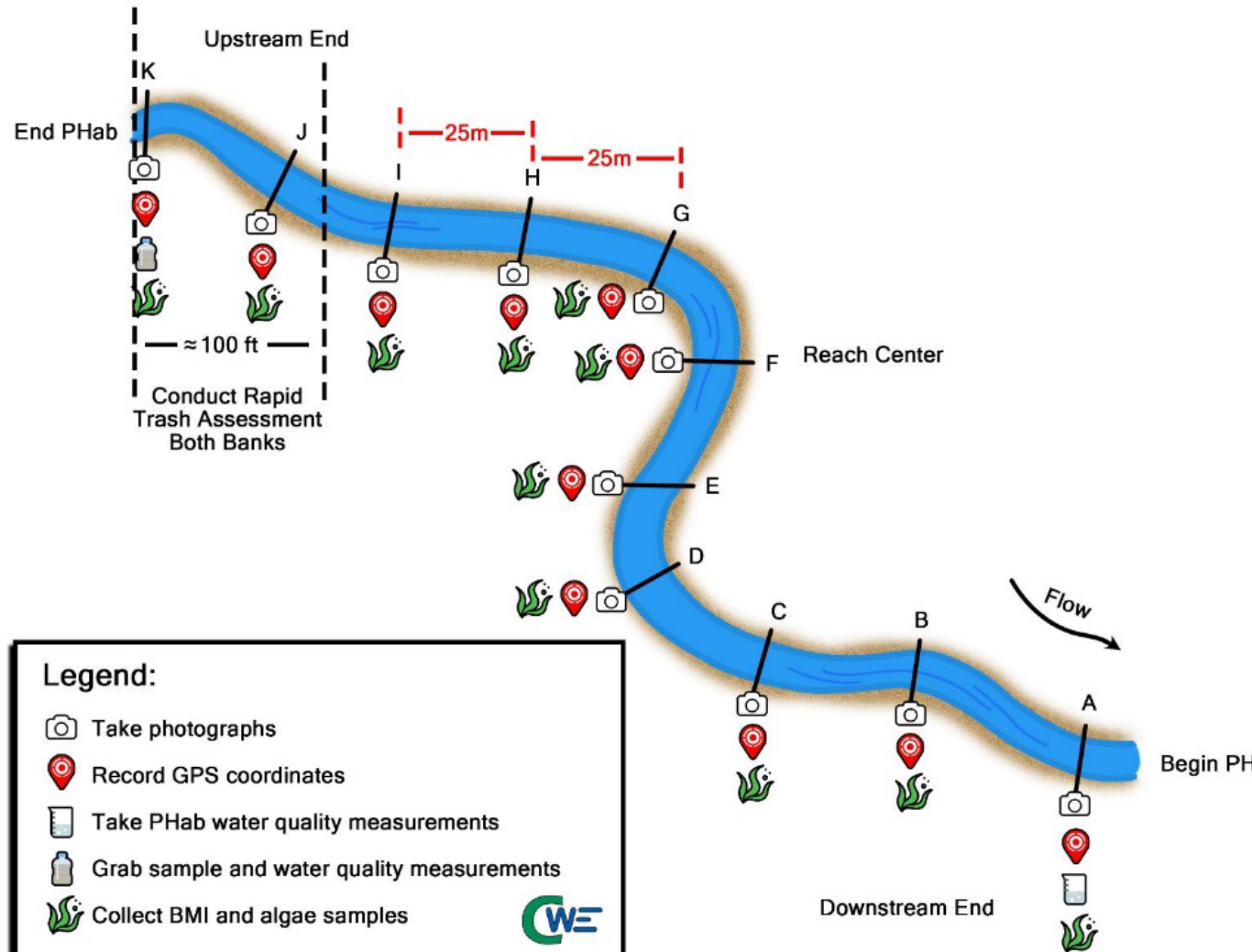
Trash Assessment Parameter	CONDITION CATEGORY																				
	Optimal					Sub optimal					Marginal					Poor					
1. Level of Trash	On first glance, no trash visible; little or no trash evident when streambed and streambanks are closely examined for litter and debris, for instance by looking under leaves.					On first glance, little or no trash visible; after close inspection small levels of trash evident in streambank and streambed.					Trash is evident in low to medium levels on first glance. Streambank surfaces and immediate riparian zone contain litter and debris. Evidence of site being used by people: scattered cans, bottles, blankets, and/or clothing.					Trash distracts the eye on first glance. Streambank surfaces and immediate riparian zone contain substantial levels of litter and debris. Evidence of site being used frequently by people: many cans & bottles, food wrappers, manmade shelters, blankets, and/or piles of clothing.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
2. Actual Number of Trash Items Found	0 to 5 trash items based on a rapid survey of a 100-foot stream reach.					6 to 25 trash items based on a rapid survey of a 100-foot stream reach.					26 to 50 trash items based on a rapid survey of a 100-foot stream reach.					Over 50 trash items based on a rapid survey of a 100-foot stream reach.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
3. Threat to Aquatic Life	Trash, if any, is mostly paper or wood products or other biodegradable materials. Note: A large amount of rapidly biodegradable material like food waste creates high oxygen demand, and should not be scored as optimal.					Little or no persistent, buoyant, and small litter or debris. Presence of settleable, degradable, and non-toxic debris such as wood, glass, metal, and degradable plastics such as foamed plastics.					Medium prevalence of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small litter such as: plastic bags; pellets; cigarette butts; large deposits of settleable debris such as glass or metal; and any evidence of small clumps of deposited yard waste or leaf litter.					Large amount of persistent (plastic, synthetic rubber or cloth), toxic, buoyant, and small (transportable) trash such as: cigarette butts; plastic bags; plastic pellets; batteries or other toxic substances; and large clumps of yard waste or dumped leaf litter.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
4. Threat to Human Health	Observable trash contains no evidence of bacteria or virus hazards such as medical waste, diapers, pet or human waste, no evidence of toxic substances such as pesticides or batteries, no ponded water for mosquito production & no evidence of puncture or laceration hazards associated with the observed litter or debris.					No medical waste or sources of toxic substances, but any presence of puncture or laceration hazards such as broken glass and metal debris. Or presence of ponded water in trash items such as tires or containers that could facilitate mosquito production.					Presence of one of the following: hypodermic needles, pipettes, or other medical waste; any used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substance such as pesticides, batteries, or fluorescent light bulbs (mercury).					Presence of more than one of the following: any hypodermic needles, pipettes, or other medical waste; used diapers or pet waste within the stream channel or where runoff could carry materials to waterbody; any toxic substances such as pesticides, batteries, or fluorescent light bulbs (mercury); ponded water in trash items.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

WET-WEATHER MONITORING EVENTS

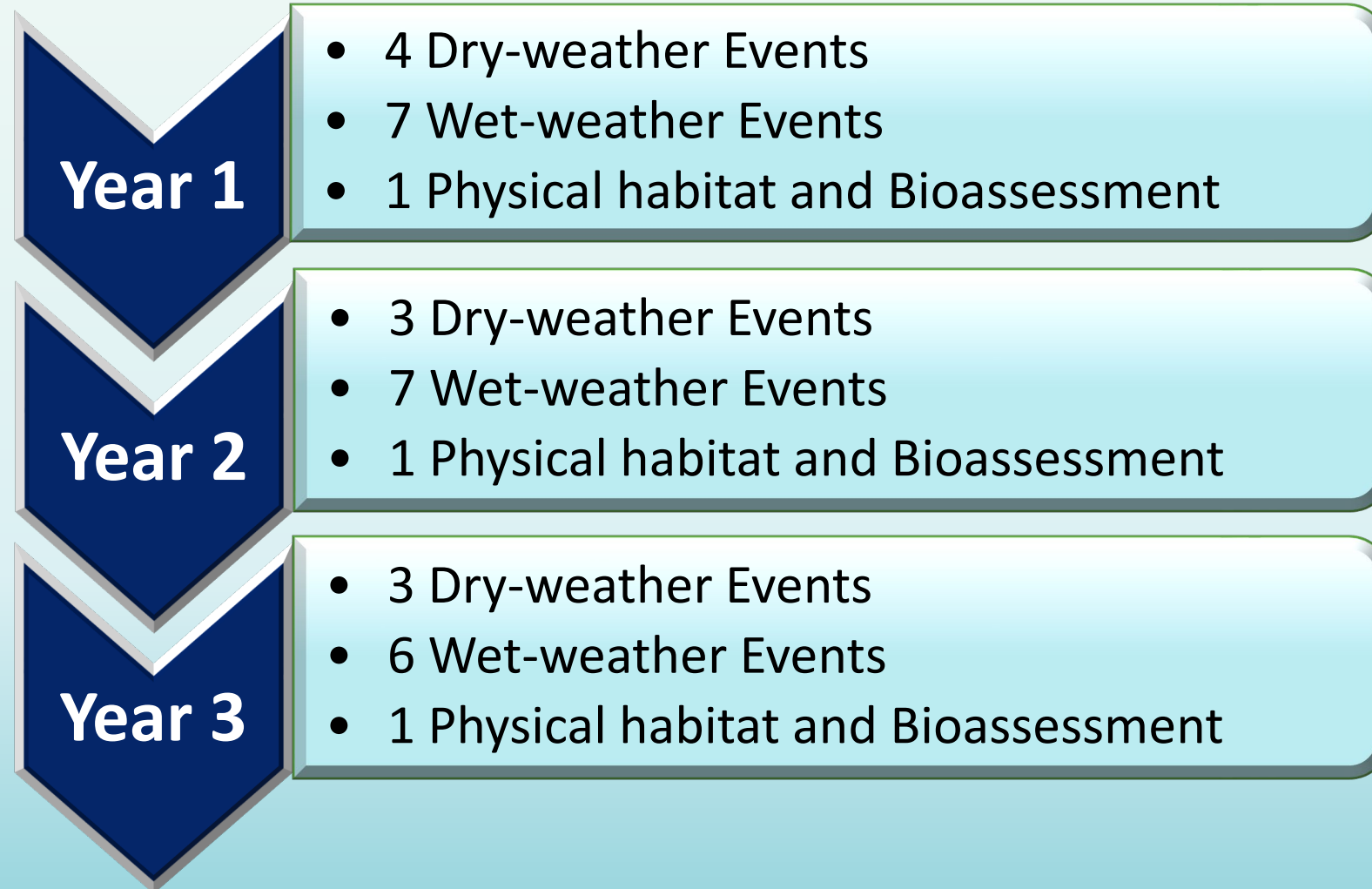
- Complete 20 total monitoring events at each sample site
- More events required for wet vs. dry weather due to increased variability
- Same field and laboratory parameters as dry-weather sample events



PHYSICAL HABITAT (PHAB) AND BIOASSESSMENT



PROPOSED MONITORING PROGRAM – ALL ELEMENTS



PROPOSED PROGRAM BUDGET

Task	Estimated Fee
• Kickoff meeting and project management	\$10,000
• QAPP preparation	\$8,500
• Preliminary field visits	
– Baseline condition assessment	\$8,000
– Population estimate and coordination	\$25,000
• Dry-weather event sampling	\$100,000
• Physical Habitat and bioassessment	\$270,000
• Wet-weather event sampling	\$350,000
• Data management and annual reporting	\$75,000
Total Estimated Cost	\$846,500

ALTERNATIVE PHASED APPROACH – PHASE 1

- Focus on period when recreation most likely occurring – dry weather
- Implement first-year monitoring for dry weather – 4 events
- Conduct rapid trash assessment during each event

Task	Estimated Fee
• Kickoff meeting and project management	\$3,800
• QAPP preparation	\$8,500
• Preliminary field visits	
– Baseline condition assessment	\$8,000
– Population estimate/coordination	\$8,500
• Dry-weather event sampling	\$40,000
• Data management; one annual report	\$20,000
Total Estimated Cost	\$88,800

PHASE 2 – EXPANSION OF PHASE 1

- Expansion of Phase 1 to incorporate other elements, as needed
 - Conduct additional dry-weather event monitoring
 - Incorporate physical habitat/bioassessment sampling
 - Incorporate wet-weather event monitoring
 - Some combination of above

HOMELESS STUDY

Next Steps



NEXT STEPS

- Findings have been presented to:
 - Representatives of the SAWPA member agencies
 - SAWPA Commission
- Recommendation to implement the Phase 1 sampling program under consideration by the Commission
- Finalizing Task 1 and Task 2 Memoranda by combining into a single report – Due September 30



Questions