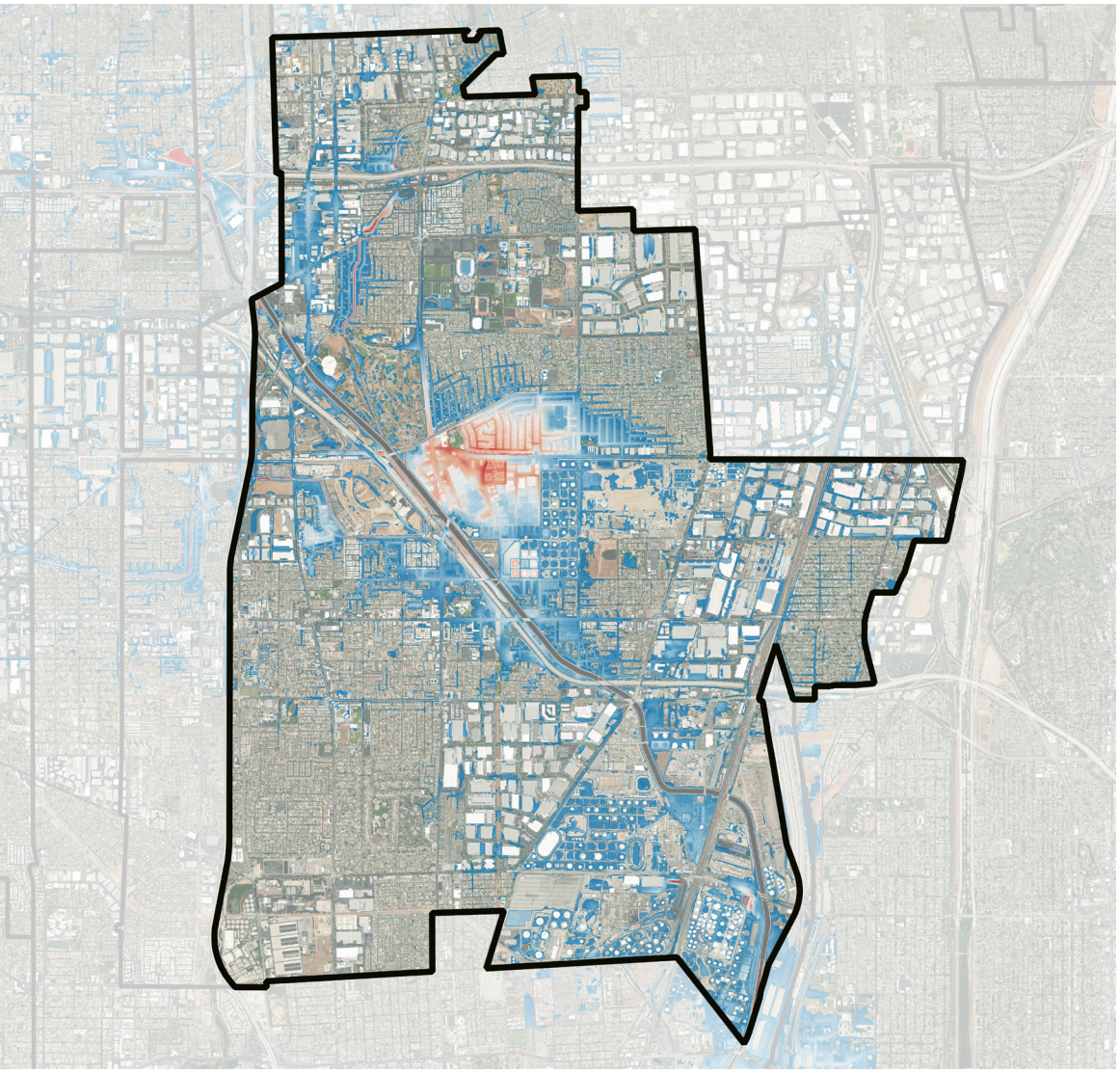
CONNECTING COMMUNITIES THROUGH WATER



PROPOSAL • FEBRUARY 10, 2022

STORMWATER FACILITIES MASTER PLAN

RFP NO. RFP 21-047

SUBMITTED TO
CITY OF CARSON

SUBMITTED BY
MICHAEL BAKER INTERNATIONAL
801 South Grand Avenue, Suite 250
Los Angeles, CA 90017

Michael Baker
INTERNATIONAL

Michael Baker
INTERNATIONAL

1. COVER LETTER

STORMWATER FACILITIES MASTER PLAN

REQUEST FOR PROPOSALS NUMBER: RFP 21-047

FEBRUARY 10, 2022

Shelly Root
City of Carson
701 E. Carson Street 144
Carson, California

RE: Proposal for Stormwater Facilities Master Plan, RFP 21-047

Dear Ms. Root and Members of the Selection Committee:

The City of Carson (City) currently faces a challenging future attempting to meet stormwater quality requirements. To assist with this challenge, the City is seeking a partner to develop a dynamic and comprehensive Stormwater Facilities Master and Implementation Plan (Plan) that will provide a roadmap to compliance with the Los Angeles Municipal Separate Storm Sewer System (MS4) permit, the Dominguez Channel Enhanced Watershed Management Program (DC-EWMP), and ultimately the Total Maximum Daily Load (TMDL) schedules that drive the requirements. Competing with that challenge is the aging stormwater conveyance infrastructure; all on a budget. Michael Baker International (Michael Baker) will be the City's technical advocate and partner to identify the best compliance opportunities in conjunction with critical infrastructure needs and community development opportunities. Fundamentally, our goal is to work with the City's internal and external stakeholders to develop a Plan that will transform opportunities and deficiencies into solutions. The Michael Baker Team offers the City extensive stormwater compliance planning and engineering implementation experience along with state-of-the-art abilities to display and manipulate information through GIS and web-based platforms.

This Plan will not simply be a report to sit on a shelf, but a living tool to inform decision making for the City in the years to come. Michael Baker can provide the following benefits to the City for this project:

MICHAEL BAKER AND OUR TEAM OFFER THE CITY THE FOLLOWING:

Hands-on, Dedicated Project Manager: Your Project Manager, Ghina Yamout, PhD, Env SP, brings 13 years of experience working on a variety of infrastructure programs, including watershed management, stormwater management and water quality, environmental restoration, water resources management and water rights, and environmental sustainability. Ghina will be managing your project with a "One-Infrastructure" or holistic approach. Ghina understands the nexus between water programs, equitable community development, and transportation infrastructure. Over the past five years, she has served as co-chair and council member of the LA Metro Sustainability Council where she has been strongly advocating for partnership between agencies in the implementation of transportation projects to incorporate stormwater management features as part of their sustainable design. Ghina dedicates herself to her clients and can be counted on to be available when called upon.

A Technical Approach that Provides Both Innovative and Practical Solutions: Michael Baker understands the City must consider cost and technical feasibility of any proposed solution to utilize community or grant funds. With this in mind, the Michael Baker Team will work with the City to develop a comprehensive Plan that can be implemented:

- A prioritized project opportunity database that reflects the City's priorities for community investment, considers project partners to decrease cost, and results in improved stormwater infrastructure system and management program.
- A compliance analysis for multiple scenarios – results will ensure that the most cost-effective, impactful, and multi-benefit project opportunities are highlighted while providing support for compliance deadline extensions.
- A dynamic web-based dashboard and mapping tool to manage implementation of the Plan by tracking progress toward compliance and available funding - accessible to the City and stakeholders.
- Feasibility Studies that will be ready to submit for Safe Clean Water infrastructure funding can be used to secure funding partners, community support, and transition the projects seamlessly to the feasibility and design phase.

Team with Meaningful Expertise and Experience: Michael Baker has chosen subject matter experts we like to work with from key firms to supplement experience for this project. The Team consists of subconsultant partners with robust experience in every aspect of the work requested in the RFP, and beyond. From the depth and breadth of a full-service engineering firm specialized in water quality and resources infrastructure master planning, flood control analysis and modeling, multi-modal transportation, and the engineering design of resilient communities (Michael Baker), to specialty firms focused on stormwater infrastructure projects feasibility studies and concept planning (Blue Ocean and Paradigm), community development firms specialized in identifying opportunities for re-development of industrial lands and the environmental compliance and permitting implications associated with them (Catalyst, Group Delta), funding

strategies experts focused on identification of innovative funding sources for disadvantaged communities (Environmental Incentives, Quantified Ventures), and two community outreach and engagement firms who think outside the box beyond gathering and incorporating stakeholder input to creating a brand and riling up community support (MBI Media and Dakota Communications). All of us are working in Los Angeles and are familiar with county and regional agency staff and trends. The Michael Baker Team skill set is unmatched – we are excited for the opportunity to work for the City as extension of your staff and trusted advisors.

Delivery of High-Quality Products While Meeting Time-Sensitive Deadlines: Consistently delivering high-quality services and products, on time, within budget, and in compliance with project requirements is the goal of Michael Baker's Quality Management Plan. Decades of experience meeting the needs of clients has provided the Michael Baker Team with the expertise to implement all appropriate Quality Control procedures to ensure success for the City.

Michael Baker is committed to meeting the City's needs as they relate to this exciting project. We are confident that our team offers the best solutions based on project experience, shared resources, innovative and cost-effective approaches, and a focus on delivering quality.

This letter is signed by Tim Thiele, Vice President, who is authorized to bind the firm. We invite the City's review of the team's professional qualifications and stand ready to answer any questions the City might have.

On behalf of our entire team, thank you for the opportunity to submit this proposal and we look forward to continuing our work with the City.

WE ARE READY AND AVAILABLE TO SERVE YOU.

Please contact me using the information listed below for additional information.

Sincerely,
MICHAEL BAKER INTERNATIONAL,INC.

Ghina Yamout, PhD, Env SP
Project Manager

Tim Thiele, PE, QSD
Vice President, Office Executive
Authorized to Execute a Contract on behalf of the Firm

PRIMARY CONTACT
GHINA YAMOUT, PhD, ENV SP
801 South Grand Avenue
Suite 250
Los Angeles, CA 90017
850-980-2078
Ghina.Yamout@mbakerintl.com

Michael Baker INTERNATIONAL

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Michael Baker INTERNATIONAL

2. COMPANY CERTIFICATION AND PERSONNEL VERIFICATION

Below is an excerpt from Michael Baker's corporate policy regarding approval and signatory authority. It has been condensed to highlight the level of Tim Thiele's authority as a Divisional Vice President to approve the Proposal to provide Consultant Services to the City. General Company information can be found on page 6, and resumes begin on page 63.

MICHAEL BAKER INTERNATIONAL, LLC
APPROVAL and SIGNATORY AUTHORITY POLICY

It is the policy of Michael Baker International, LLC (hereinafter "MICHAEL BAKER") to require pre-established levels of management review and approval to be undertaken by MICHAEL BAKER and/or its affiliates in given circumstances. Such requirements are intended to ensure management oversight when appropriate or desirable prior to committing MICHAEL BAKER and/or its affiliates. These requirements are in addition to requirements under applicable law and any additional procedures established from time to time by MICHAEL BAKER's senior and executive management.

The following actions require the level of management approval indicated. The requirements are intended to be cumulative so any given action may require approval in more than one category or an action may not require approval in one category but may require approval in another. It is the responsibility of all MICHAEL BAKER employees to abide and enforce this Approval and Signatory Authority Policy. When in doubt, approval should be sought. Approvals requiring action by senior and executive managers should have received appropriate operating chain-of-command management confirmation and support prior to submittal for senior and executive management approval.

Certain sections of this policy are bifurcated between the Engineering and Technical and Professional Services business segments to account for, upon other things, Engineering's lower dollar value/ higher project volume, and Technical and Professional Services' higher dollar value/ lower project volume.

The approval levels set forth in this policy are not substitutes for legal authority to sign agreements or make commitments on behalf of the MICHAEL BAKER operational entity in question (i.e. subsidiary, partnership, joint venture, etc.). In all cases, the person actually signing an agreement or making a commitment on behalf of the entity must be legally authorized to take such action.

A. Approving a Proposal or Agreement for Engineering and Technical and Professional Services Project Related Work.

To obtain approval for a proposal or agreement (including any modifications and task orders issued), a completed Proposal or Agreement Checklist must be submitted to the appropriate approver along with a copy of the at-issue proposal or agreement.

Approving a Proposal or Agreement for Technical and Professional Services Project Related Work.

Proposals

Titles	Approval Level
Risk Committee	Over $25M in contract revenue per year
EVP of TPS	Up to $25M in contract revenue per year
Senior Vice Presidents	Up to $10M in contract revenue per year
Divisional Vice Presidents	Up to $5M in contract revenue per year
Program/ Project Managers	Up to $1M in contract revenue per year

AUTHORIZED TO CONTRACT

TIM THIELE, PE, QSD
5050 Avenida Encinas
Suite 260
Carlsbad, CA 92008
760-603-6243
Timthiele@mbakerintl.com

Michael Baker INTERNATIONAL

Below is certification of Michael Baker's good standing status with the California Secretary of State.

Secretary of State
Certificate of Status

I, SHIRLEY N. WEBER, Ph.D., Secretary of State of the State of California, hereby certify:

Entity Name:	MICHAEL BAKER INTERNATIONAL, INC.
File Number:	C1003244
Registration Date:	09/24/1980
Entity Type:	FOREIGN STOCK CORPORATION
Jurisdiction:	PENNSYLVANIA
Status:	ACTIVE (GOOD STANDING)

As of May 5, 2021 (Certification Date), the entity is qualified to transact intrastate business in California.

This certificate relates to the status of the entity on the Secretary of State's records as of the Certification Date and does not reflect documents that are pending review or other events that may affect status.

No information is available from this office regarding the financial condition, status of licenses, if any, business activities or practices of the entity.

IN WITNESS WHEREOF, I execute this certificate and affix the Great Seal of the State of California this day of May 6, 2021.

SHIRLEY N. WEBER, Ph.D.
Secretary of State

Certificate Verification Number: RX3DJDY

To verify the issuance of this Certificate, use the Certificate Verification Number above with the Secretary of State Certification Verification Search available at bebizfile.sos.ca.gov/certification/index.

3. TEAM QUALIFICATIONS AND REFERENCES

Michael Baker is a leading global provider of engineering and consulting services which include environmental, planning, engineering, architectural, construction, program management, sustainability and resiliency planning services as well as information technology, communications services, and outreach solutions. ***Michael Baker is currently working with the City's Planning Department as a on-call Environmental Services consultant, and is familiar with the City's internal stakeholders and procedures.***

2021 ENR TOP 500 DESIGN FIRM RANKINGS

THE TOP **500** DESIGN FIRMS

- **31** Top 500 Design Firms
- **18** Top Pure Designers
- **19** Airports
- **5** Bridges
- **16** Highways
- **12** Transportation
- **10** Water Supply

Headquartered and incorporated in Pittsburgh, Pennsylvania, Michael Baker has more than 3,400 employees in nearly 100 offices across the U.S., including 12 locations in California.

Engineering News-Record (ENR) magazine consistently ranks Michael Baker in the top 10 percent of the 500 largest U.S. engineering design firms. Locally, we provide a staff of nearly 500 engineers and technical staff in our Southern California offices.

Michael Baker has a specialized staff of over 80 local engineers dedicated to flood control engineering, stormwater management, and water quality services providing the team with a tremendous depth of resources and experience. Michael Baker has grown and prospered without losing sight of its primary purpose: ***Creating value for our clients by delivering innovative and sustainable solutions for infrastructure and the environment.***

Stormwater Facilities Master and Implementation Plan Overview

The firm has recently completed multiple municipal and watershed master plan projects in Los Angeles, Orange, and San Diego Counties, including feasibility studies, deficiency studies and drainage infrastructure assessments, flood control analysis, water quality modeling, environmental restoration, green streets and multi-modal transportation projects, and land redevelopment projects, including for the City of Carson CIP projects. Michael Baker brings extensive stormwater facilities master planning and implementation experience along with state-of-the-art abilities to display and manipulate information through web-based platforms. ***Nearly two decades of experience applying GIS and web-based platform development capabilities to stormwater challenges has prepared Michael Baker for this opportunity.***

Michael Baker brings the City the breadth and depth experience necessary for the successful development and implementation of a comprehensive Plan. Michael Baker's experience and understanding of the multi-disciplinary, multi-stakeholder, multi-benefit nature of stormwater programs and infrastructure across the municipal, transportation, industrial, environmental, and construction fields will ensure the City receives the best value services.

Michael Baker is at the forefront of leveraging GIS spatial capabilities web based platform tool development capabilities to address regional stormwater challenges in southern California. The team dedicated to this project has been solving stormwater management problems with the aid of GIS for nearly two decades.

The following section is aimed to give the City an overview of the Michael Baker Team project experience and expertise. Our experience working on projects similar to this will ensure our Team provides the City the best level of service and most successful project.

CORPORATE INFORMATION

Entity: Corporation
Established: 1940
Size of Staff: 3,000+

OFFICES: California: 12; Nationally: ~100

Local Area Offices:
Los Angeles
Long Beach
Santa Ana
Ontario
Thousand Oaks
Temecula
Carlsbad
Palm Desert
San Diego

AREAS OF EXPERTISE:

Design

Stormwater Management
Flood Control Engineering
Civil Engineering
Transportation Engineering
Water Resource Engineering
Structural Engineering
Traffic Engineering
Electrical Engineering
Landscape Architecture

Planning

Watershed Management
Land Planning/Development
Transportation Planning
Environmental Planning
Biological Resources
Cultural Resources
Environmental Technical Studies
Urban Planning and Design
Visual Analysis and Design
GIS and Web-based Platform Tool Development

Construction

Field Surveying
Mapping / Right of Way
Construction Monitoring
Construction Management
Construction Inspection

SIMILAR EXPERIENCE

Culver City Stormwater Quality Master Plan

Culver City, CA

Michael Baker played a key role in the development of Culver City's Stormwater Quality Master Plan (SWQMP). Led by Blue Ocean Civil Consulting and also supported by Paradigm Environmental, the purpose of the SWQMP is to provide direction for the City for capital outlays of funds to address TMDL requirements. The SWQMP provides guidance on the projects necessary to meet compliance deadlines and prioritized projects based on available funding. Culver City faces many challenges in meeting stormwater quality requirements identified in various regulatory programs, including the Los Angeles MS4 permit and the TMDL schedules. This SWQMP provides the information necessary to make decisions regarding which projects to fund and also provides support when engaging with regulators on progress toward goals.

During the initiation of the project Michael Baker performed GIS collection, mapping and analysis, drainage area delineation to the catch basin scale, identification of BMP opportunities, and direction on the project characteristics used for prioritization. A key to this project was Michael Baker's development of automated tools to screen potential BMP locations and identify the ones that met specific criteria for evaluation.

The team generated a plan of BMPs that present the greatest value. Program approaches were developed by evaluating scenarios that achieved compliance most quickly, identified the projects most feasible with the available funding. This approach will prove valuable when engaging regulators to demonstrate the limited ability to construct projects required for compliance. This demonstration is expected to allow for more room to negotiate reasonable implementation timelines. Michael Baker led feasibility studies that resulted in the development of conceptual plan cut sheets used in the public outreach effort and inclusion in grant applications. Feasibility engineering was conducted to evaluate and tune projects to maximize eligibility for grant funding. Information was delivered in a format that is easy to use when submitting a project for grant funding. ***In just a handful of months since project completion, concepts from the SWQMP have been used to secure funding from the SCW Program and Proposition 50.***

In addition, the SWQMP final product is a dynamic dashboard the City will use to manage project development and program tracking. The dashboard provides real time data on the progress toward EWMP goals, available funding, and the prioritized projects from each of the three scenarios.

Client: City of Culver City

Contact: Chanel Kincaid
Senior Management Analyst
chanel.kincaid@culvercity.org
(310) 253-6445

Completion date: 2021

Project costs:
$211,343

Proposed team members:

- Ghina Yamout, PhD
- Dave Mercier, PE, QSD/P
- Mujahid Chandoo, PE
- Leila Talebi, PhD, PE
- Jenna Clark, PE
- Rick Hendrickson, GISP
- Jim McPherson
- Kevin Oliver
- Connie Phan, EIT
- Jessica Cassman, PE
- Chris Carandang, EIT

PROJECT RELEVANCE

Stormwater quality master plan
Feasibility studies
Implementation plans
GIS mapping
Data collection/conversion
Best management practices
Conceptual design plans
Online dashboard
Funding & grant support

City of San Diego As-Needed Municipal Storm Water Program

San Diego, California

Michael Baker is providing as-needed engineering services to support the City of San Diego's (City) municipal stormwater program. Under this five-year contract, Michael Baker is providing strategic planning, design, and engineering services for task orders throughout the City's sphere of influence, including a master plan for one of the City's primary watersheds.

The Michael Baker team has worked with the City on best management practices (BMP), including developing cost-effective BMP strategies to capitalize on existing research, developing innovative approaches for evaluating and tracking BMP performance to support multi-benefit projects.

Additionally, Michael Baker has provided environmental assessment and permitting services for operations, maintenance, and capital projects, framework assistance for the IAM San Diego database and incorporated key projects to support City's decision management goals, and conducted special studies and support for total maximum daily loads, alternative compliance, geospatial information, channel maintenance, storm water fees, and contaminated sediment issues.

Michael Baker has reviewed historic and current data and is designing special studies to better understand current inputs to the San Diego Bay sediment system at trace level protocols. The results are helping to define current and future management strategies for characterizing the risk level and area to be included in the cleanups, as well as cleanup and abatement strategies to be employed to achieve compliance with Regional Board orders.

Relevant task order includes the Los Peñasquitos Watershed Master Plan . The primary goal was to identify and prioritize CIPs required to meet the desired level of service requirements for flood control, water quality, habitat, and water conservation for this watershed.

Since holding this contract in the last 7-years, Michael Baker has successfully completed over 170 Task Order projects. Task orders include:

- TO15 SW Pump Stations
- TO18 Surface Drainage Assessment
- TO28 Alternative Compliance Program Development
- TO40 JRMP Annual Report and WQIP Strategy
- TO47 Stormwater Inspection Fee
- TO57 Stormwater Standards Report
- TO59 Grant Application Support
- TO71 Maple Canyon Watershed Study

Client: City of San Diego

Contact: David Wells
Project Officer II, Stormwater Department
Dwells@sandiego.gov
(619) 980 -2330

Completion date: 2019

Project costs:
$20,643,569

Proposed team members:
- Leila Talebi, PhD, PE
- Michael Trapp, PhD
- Rick Hendrickson, GISP
- Mujahid Chandoo, PE
- Jenna Clark, PE
- Jim McPherson
- Tim Tidwell
- Kevin Oliver
- Dino Serafini, PE

PROJECT RELEVANCE

Strategic planning

Design

GIS dashboard

Meetings facilitation

Alternative credit system and in-lieu fee programs

Case studies

Conceptual graphic user interface

Program assessment

Watershed studies

Environmental monitoring & assessments

Asset management

Environmental permitting

Stormwater BMP capital projects design/ studies

Stakeholder engagement

Dominguez Channel Watershed Study

Los Angeles County, CA

Michael Baker provided engineering services to prepare a comprehensive flood hazard analysis for the Dominguez Channel Watershed. The channel originates near the Los Angeles International Airport (LAX) and extends to the Los Angeles Harbor, running a length of approximately 19.5 miles. The purpose of this study is to evaluate the hydraulic capacity of the existing 19.5 miles of levees along Dominguez channel and to identify freeboard deficiencies to meet the FEMA requirements.

Michael Baker developed an inventory of the existing drainage facilities within the watershed which included approximately 290 miles of drainage network (open channels and storm drains). Existing as-built drawings, 13 surrounding cities and field reconnaissance were used to obtain specific characteristics about facilities, including geometry, vertical and horizontal alignments to update the storm drain database in GIS. One important feature collected for this study was flap gates at the channel outlet. It was apparent that these flap gates were not consistently shown on the as-built drawings when compared to aerial imagery. Field reconnaissance was conducted by walking a majority of the open channel areas and the data was incorporated into the hydraulic model. The study was performed using the detailed1D/2D integrated hydrology and hydraulics using the hydrodynamic state of the art modeling computing software, XPSWMM. The hydrology analysis was performed using the rain-on-grid (Direct Precipitation Method) which is the process of adding rainfall directly to the two-dimensional surface grid. This approach was employed to capture the effects of surface features and characteristics of the land to be reflected in the flow patterns developed in the models. . A spatial variability of the maximum rainfall point value was implemented due to the size of the watershed using the rainfall data from National Oceanic and Atmospheric Administration (NOAA) Atlas 14.

The 1D used the storm drain network to route the flows within the watershed which included modeling over 40 bridges within the watershed. The 2D surface topography routed the overland runoff. The 1D/2D was integrated to dynamically exchange flow between the two interfaces. The impacts of sea-level rise were incorporated at the channel outlet using California Coastal Commission guidelines.

Michael Baker correlated and validated the 100-year flood event using available historical stream and rain gage data and a calibrated HEC-HMS model using Bulletin 17B analysis and best practices using FEMA and industry standard guidelines. Overall, the study results reveal a good correlation to historical storm volume when compared with the available data. The study showed the 100-year 24-hour storm event that the existing levees are deficient and would be overtopped at multiple locations in a 100-yr design storm event. Recommendations were provided for further enhancements of the existing study which included ongoing floodplain management process.

Client: Los Angeles County of Public Works

Contact: Martin Azaria
Senior Civil Engineer
MARAIZA@dpw.lacounty.gov
(626) 458-6152

Completion date: 2021

Project costs:
$925,000

Proposed team members:
- Mujahid Chandoo, PE
- Jenna Clark, PE
- Dave Mercier, PE, QSD/P
- Jim McPherson
- Kevin Oliver

PROJECT RELEVANCE

Hydrology/Hydraulics
Watershed assessments and modeling
ESRI collector app
Levee deficiency evaluation
Field reconnaissance
Flood hazard analysis
Data collection & inventory
Cost engineering
Stakeholder Engagement

Tustin Legacy Redevelopment and Linear Park

Tustin, CA

Michael Baker was contracted by the City of Tustin to prepare a Master Plan of Drainage and comprehensive Runoff Management Plan (RMP) for the redevelopment of the 1,650-acre Tustin Air Base. Existing watershed conditions were documented and a plan was outlined to mitigate development runoff through appropriate backbone infrastructure to afford flood protection and avoid offsite impacts. As a result of difficulties in constructing offsite improvements in the adjacent City, Michael Baker prepared a coupled one-dimensional subsurface and two-dimensional surface flow model using the XPSWMM computer program to identify flood hazards and ponding depths which would occur with the downstream improvements. The results were used to revise grading plans to allow short duration ponding of storm water runoff and eliminated the need for the offsite improvements.

Key to the success of this project was creative application of Low Impact Development design elements and Best Management Practices. A variety of BMPs were used throughout the development. One element the development team truly appreciated was the incorporation of decorative walls in the bioretention areas. This saved valuable space and introduced a decorative feature. Runoff enters the bioretention areas through parkway drains from the street.

Michael Baker was the Civil Engineer and Landscape Architect of Record for the Tustin Legacy Linear Park located at the corner of Barranca Parkway and Redhill Avenue. The park is part of the redevelopment of a former U.S. military base under the Tustin Legacy Master Plan. Project consisted of construction of a 30-acre multi-benefit stormwater basin that also includes a park, amphitheater, and City monument sign. ADA accessible multipurpose trails for walking and biking wind through the parking for pedestrian leisure and enjoyment. Site acts as a regional storm water detention basin during large storm events. Michael Baker also completed the design for the parking lot construction which includes water quality treatment as part of the landscaping.

Michael Baker was also instrumental in overall redevelopment of the base and surrounding roads and drainage systems. We provided land development, civil infrastructure, hydrologic, and hydraulic experts among others.

Client: City of Tustin

Contact: Ken Nishikawa
Deputy Director of Public Works
KNishikawa@tustinca.org
(714) 573-3389

Completion date: 2019

Project costs:
$240,000

Proposed team members:
- David Mercier, PE, QSP/QSD

PROJECT RELEVANCE

Runoff management plan
Hydrology and Hydraulics
WQMP preparation
Existing Field/Utility review
Civil Engineering/Land Development
Storm Drain utility design
Landscape Architecture and Irrigation design
Multi-benefit facility design
Cost estimating
Specification preparation
Construction administration services

Stormwater Master Plan

Rancho Palos Verdes, CA

Michael Baker was selected by the City of Rancho Palos Verdes to provide engineering services to prepare a Citywide master plan of drainage. The City is comprised of approximately 14 square miles on the Palos Verdes Peninsula in the southwest portion of Los Angeles County. Most of the City drains to natural canyon systems with direct discharge to the ocean. Michael Baker worked with the City to envision and outline a program for the development of a comprehensive SWMP. The primary goal of the plan was the integration of existing programs and systems to create a living document, which will allow staff to better identify drainage deficiencies and more effectively utilize their funding for maintenance and capital projects.

The City has maintained an existing GIS database of storm drain structures; however, to produce a high-quality hydraulic model, the data needed to be refined and further verified. Using Esri's Collector App, Michael Baker was able to directly update the database with information from the field. In addition to identifying storm drains from the field, as-builts provided by the City were used to verify and update the database. Michael Baker evaluated the existing drainage facility conditions, hydrologic calculations, hydraulic capacity and proposed infrastructure sizing. Michael Baker developed a Modelbuilder routine to format and aggregate existing GIS data for use in modeling with XPSWMM. Michael Baker created an interactive online GIS browser application in HTML5 to track the status of the project and provide an interactive problem/action form to track and resolve project issues immediately. The project has been completed successfully.

A key component of this master plan was to develop a prioritization scheme that prioritized maintenance issues detected as part of the City's routine CCTV evaluations of the storm drain. Pipe segments that were classified as severe, heavy, or average defect condition were considered Priority 1 projects.

This project was delivered on time and within budget.

Client: City of Rancho Palos Verdes

Contact: Andy Winje
City Engineer (Previously worked at Rancho Palos Verdes)
Andy.Winje@redondo.org
(310) 318-0661

Completion date: 2016

Project costs:
$551,030

Proposed team members:
- Mujahid Chandoo, PE
- Jim McPherson
- Rick Hendrickson, GISP

PROJECT RELEVANCE

As-Built review

GIS Updates, Field Data verification and data collection

ESRI Collector app

Storm Drain Master Plan

Modelbuilder

Hydrologic/Hydraulic Modeling

Interactive Project Browser application

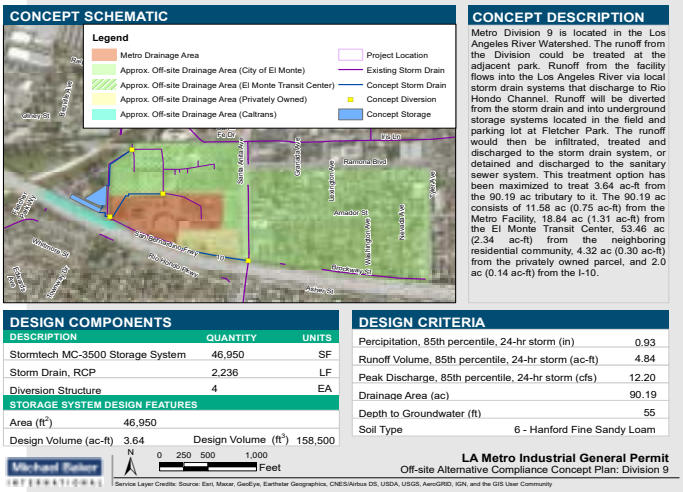
Capital Improvement Plan

Facilities Industrial Stormwater Management Compliance Assistance

Los Angeles County, CA

Michael Baker supported the Los Angeles County Metropolitan Transportation Authority (Metro) with industrial stormwater permit compliance by identifying and implementing innovative approaches, providing field sampling, conducting agency negotiations, developing BMP designs, and providing field training across its 23 Divisions. Michael Baker served as the Compliance Group leader for 23 facilities with Industrial General Permit (IGP) coverage across two reporting years. In that role the Team initially completed the Annual Comprehensive process for those facilities. Michael Baker's IGP Trainer of Record inspected each facility, completed a compliance assessment, and summarized findings in an all-inclusive report. The report was then used to develop program improvements and stormwater studies to be implemented in the next reporting year. Key tasks for program improvement included:

- Michael Baker evaluated alternative compliance approaches using the Compliance Options included in the IGP. Onsite improvement project concepts were developed for each facility based on identified opportunities. Offsite project locations were identified by reviewing publicly owned parcels adjacent to or downstream from each facility drainage path, and concept plans were developed to facilitate coordination with municipalities regarding partnerships on multi-benefit stormwater solutions.
- As the alternative compliance options were evaluated, Metro and Michael Baker began coordination with the Los Angeles RWQCB for Time Schedule Orders (TSOs). A proposed TMDL compliance pathway was identified for each facility and TSO approaches were presented for RWQCB concurrence. Michael Baker prepared TSO templates for each proposed compliance pathway.
- Coordination of monitoring staff during rain events was continually a challenge because Metro facilities operate around the clock. Michael Baker developed a strategy to determine when BMPs would begin discharging during a rain event to better manage the resources required for monitoring and keep costs down. Facilities with green infrastructure and retention devices will not discharge immediately when rain begins. Those facilities were studied to determine the amount of rainfall required to exceed the capacity of BMPs and result in discharge. By monitoring real time rainfall Metro staff is better able to allocate monitoring staff time at facilities.
- The team developed a strategy for monitoring BMPs to determine when maintenance is required. BMPs were prioritized based on key influent and loading characteristics to effectively manage maintenance resources.
- Michael Baker selected facilities and activities for targeted monitoring to complete a pollutant source characterization study. A sampling program was developed to identify pollutant hotspots at select facilities to prioritize facility improvements and BMP selection.



Client: Los Angeles County Metropolitan Transportation Authority

Contact: Erika Wilder
Principal Environmental Specialist
wilderer@metro.net
(213) 922-7305

Completion date: 2021

Project costs:
$500,000

Proposed team members:
- David Mercier, PE, QSP/QSD

PROJECT RELEVANCE

Stormwater technical and compliance services

Site-specific recommendations

Industrial site assessment

Industrial permitting

Program level management

Imperial Beach Boulevard Improvements Project

Imperial Beach, CA

2021 Engineering Excellence Awards, Merit Award, American Council of Engineering Companies of California (ACEC CA)

Transportation Achievement Award, Complete Streets Category, Institute of Transportation Engineers (ITE), San Diego Chapter

Michael Baker is performing complete streets design services to help transform 1.6 miles of Imperial Beach Boulevard into a public space accessible to pedestrians, bicyclists, and transit and motor vehicles alike. As part of its services, Michael Baker conducted a mobility assessment that studied traffic volumes and speeds for each mode of travel, parking assessments along the corridor, utility coordination, topographic mapping, water quality design, and environmental support. Most notably, Michael Baker drew up plans to convert a cross section of roadway by the Tijuana Estuary into a pedestrian and bicycle boardwalk, which would connect to the Eco Bikeway and provide a link to the Bay Shore Bikeway at the San Diego Bay.

Imperial Beach Boulevard runs the length of the city of Imperial Beach, from the San Diego boundary on the east to the Pacific Ocean on the west. Originally, the scope of the project consisted of Michael Baker completing design plans, adding bike lanes, and addressing pedestrian access along the roadway. But after initial concept development and significant outreach among Michael Baker, the city, and project stakeholders, the project evolved into a more substantial conversion of public space.

Michael Baker used mobility assessments of each mode of travel to determine how vehicle lanes could be adjusted to make room for new bike facilities, wider sidewalks, additional parking, and landscaped water quality areas. Most of the four-lane arterial was recast as a three-lane cross section with bikes lane running the length of the corridor. Michael Baker also added ramps and crosswalks that complied with Americans with Disabilities Act (ADA) standards where none had existed before.

Lastly, Michael Baker created plans to transform a cross section of roadway beside the Tijuana Estuary into a 24-foot-wide pedestrian and bicycle boardwalk, from which travelers could view the estuary in its undisturbed state. This boardwalk also linked the Eco Bikeway in Imperial Beach to the Bay Shore Bikeway at the San Diego Bay.

Client: City of Imperial Beach

Contact: Juan Larios
Civil Engineer, Public Works Department
jlarios@imperialbeachca.gov
(619) 423-8311

Completion date: Ongoing

Project costs:
$8,276,400

Proposed team members:
- Dawn Wilson, PE, TE

PROJECT RELEVANCE

Water quality design

Complete streets

Green streets

Mobility assessment

Utility coordination

Pedestrian and bicycle boardwalk

Santa Ana Storm Drain Master Plan

Santa Ana, CA

Michael Baker provided professional engineering services to update the City's Storm Drain Master Plan. Michael Baker provided an ESRI ArcGIS geodatabase of city storm drain facilities, including storm drainpipes, city-owned drainage channels, manholes, catch basins, and culverts. Michael Baker also analyzed the main line drainage system and prepared a hydrology study along with maps for the entire city boundary and for individual sub-areas for 2-, 10-, 25-, and 100-year storm events.

Phase 2 of the project included a high-level approach to identifying the City owned open space and recreational areas. These areas were evaluated for potential to provide multi-benefit use for flood control/stormwater management in conjunction with meeting LID requirements. The project prioritization matrix provides a higher ranking for multibenefit projects.

Client: City of Santa Ana

Contact: Sean Thomas
Senior Civil Engineer
sthomas5@santa-ana.org
(714) 647-6548

Completion date: 2018

Project costs: $630,047

Team Members:

- Mujahid Chandoo, PE
- Dave Mercier, PE, QSD/P
- Jim McPherson
- Connie Phan

PROJECT RELEVANCE

Master plan/CIP

Hydrology and hydrodynamic hydraulic analysis

Geodatabase of City storm drain facilities

Caltrans NPDES Policy and Permitting Portal

Caltrans – District 8, CA

Michael Baker has contracted with Caltrans to formulate statewide storm water solutions in order to integrate appropriate stormwater control into ongoing activities. The work under this contract included the development of a Statewide SWMP and TMDL compliance support.

Michael Baker developed a non-proprietary stormwater tool using a web-based enterprise platform for Caltrans' management of stormwater infrastructure, regulatory requirements, and incidents across the state. Services include stormwater tool application development, new-user orientation and onboarding training for staff, SWDR and BMP tracking, data conversion, GIS mapping, third-party content integration, website security, and guidance manual development. The Portal provides Caltrans with a centralized platform to enter and manage vast amounts of statewide stormwater compliance data accurately and efficiently in real-time.

Client: Caltrans

Contact: William Pan
Senior Transportation Engineer
William.pan@dot.ca.gov
(916) 653-8257

Completion date: Ongoing

Project costs: $1,760,000

Team Members:

- David Mercier, PE, QSP/QSD
- Michael Trapp, PhD
- Jim McPherson
- Rick Hendrickson, GISP
- Kevin Oliver

PROJECT RELEVANCE

Municipal coordination for BMP implementation

Online stormwater dashboard

Belmont Creek Master Plan

Belmont, CA

Michael Baker coordinated with a consortium of stakeholders including the City of Belmont and the District in preparing the watershed management plan for an urban creek in San Mateo County. The funding strategy included a survey and description of state and federal grant programs as well as other financing mechanisms for the improvements recommended in the plan. We were successful in helping the City win a $1 million California Department of Water Resources Proposition 68, Urban Stream Restoration Program grant and another $900,000 in funding from the California Natural Resources Agency for design of the project. The USRP grant was for restoration of stream channel and banks of approximately 1,600 lineal feet through Twins Pines Park.

The project involved reconstruction of the stream bed, excavating and backfilling incised and failed banks, restoring a natural low-flow channel and floodplain that will provide area for habitat and flood control.

Client: San Mateo Flood and Sea Level Rise Resiliency District

Contact: Colin Martorana
City Engineer
cmartorana@smcgov.org
(650) 623-5932

Completion date: 2020

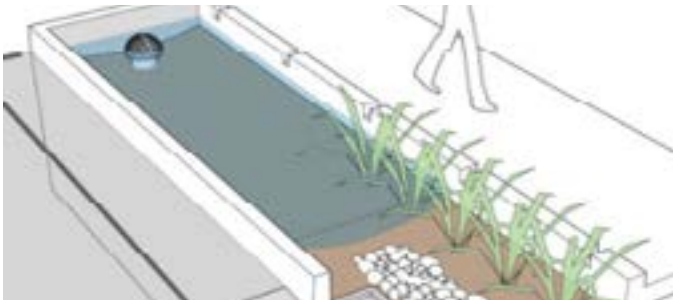
Project cost: $220,344

Team Members:

- Mujahid Chandoo, PE
- Derek Wong, AICP
- Dino Serafini, PE

PROJECT RELEVANCE

Preliminary design
Flood management/ Flood-risk reduction
Funding strategy
Grant funding
Agency coordination



Port of Long Beach Reasonable Assurance Analysis (RAA)

Port of Long Beach, CA

Michael Baker prepared a RAA in accordance with the Long Beach MS4 NPDES Permit. Michael Baker developed new RAA models (LSPC and SUSTAIN) and calibrated them with local Port-specific monitoring data. Michael Baker's experience and knowledge were leveraged, ensuring that the new RAA addresses both specific Port needs and aligns with the City of Long Beach RAA. The new RAA provides baseline pollutant load estimates, calculation of load reduction goals to meet TMDL waste load allocations (WLAs), and prioritization of optimization to determine the most cost-effective BMP implementation strategies.

Michael Baker's approach leverages existing WMMS 2.0 models to reduce review time needed for City, stakeholders, and the RWQCB, ensuring cost efficiency by eliminating redundant investment in model development from scratch, and providing a consistent methodology with other permittees.

Client: Port of Long Beach

Contact: Dylan Porter
Environmental Specialist
Dylan.porter@polb.com
(562) 283-7118

Completion date: 2020

Project cost: $143,512

Team Members:

- Leila Talebi, PhD, PE
- Ali Tasdighi, EIT
- Jim McPherson

PROJECT RELEVANCE

Reasonable assurance analysis
Water quality
Best management practices
Agency coordination

City of Carson Stormwater Project Identification and Concepts

Carson, CA

Firm: Paradigm Environmental Completed: Ongoing

Paradigm supported the City of Carson in the identification of City-wide project retrofit opportunities, modeling, and development of individual project conceptual designs to support their inclusion in the Dominguez Channel EWMP. Paradigm performed a detailed GIS analysis and screening procedure for identifying the most cost-optimal opportunities to retrofit publicly owned parcels and street rights-of-way with stormwater capture projects. This effort was followed by a prioritization that identified the most cost-effective projects to be implemented throughout the 20-year EWMP implementation schedule. Based on the highest prioritized sites, several conceptual designs were prepared to support the City with project planning and exploring funding opportunities. One of the project concepts for Carriage Crest Park served as an essential tool for discussions with Caltrans, leading to the agreement for full funding of the project's design and construction.

Safe Clean Water (SCW) Regional Program Projects Module

Los Angeles County, CA

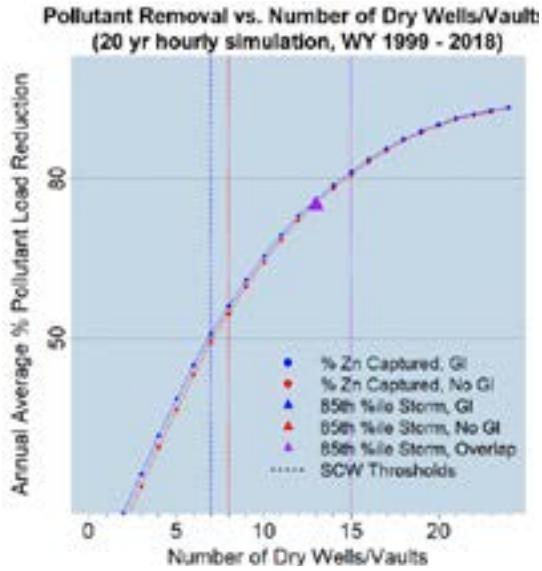
Firm: Paradigm Environmental Completed: Ongoing

The Regional Program under the SCW Program, which was approved through Measure W will annually fund nearly $150M in projects across LA County. Each year, the LA County Flood Control District (LACFCD) issues a Call for Projects to accept applications for projects proposed for funding. Paradigm developed the 'Regional Program Projects Module', the web-based application used for all project application submittals. The Projects Module includes automated scoring calculations to support users with applying the Scoring Criteria, which include metrics for water quality, water supply, and community benefits.

Through development of the Projects Module, Paradigm has coordinated closely with LACFCD to establish methods that will be used for automated scoring calculations. Some of the key scoring calculations incorporated into the Module include: 24-hour capacity, pollutant reduction, annual average water supply benefit, water supply cost-effectiveness, and lifecycle costs.

Additionally, the Module is designed to identify low-scoring elements where the user might benefit from "tips" to improve their project.

The Projects Module includes a server-hosted version of the Watershed Management Modeling System (WMMS) that automates the BMP simulations. The Projects Module streamlines the project submission process for applicants and the review/scoring efforts by LACFCD and the Scoring Committees.



Los Angeles County Green Street Master Plan

Los Angeles, CA

Firm: Paradigm Environmental

The County's Green Street Master Plan establishes the County's approach to MS4 and EWMP compliance in terms of leveraging available rights-of-way to capture stormwater and provide multiple additional benefits. The Master Plan identified over 100 green street sites for conceptual design and detailed design of five (5) signature green street projects. Paradigm led the hydrologic analysis that includes site selection, sizing, and estimates of runoff and pollutant reduction associated with green street opportunities within unincorporated County areas. Additionally, Paradigm developed a ranking scheme that identified the best green street site opportunities by watershed and County supervisorial district. By ranking within each supervisorial district, the analysis will promote political support for implementation of the plan.

Paradigm also led detailed sizing analyses to cost-optimize footprints and capacities of green streets at each of the 100+ sites and create detailed hydrology reports to support final design. Paradigm has developed an innovative optimization approach based on the SCW Program Scoring Criteria to maximize scores in the Water Quality and Water Supply categories, which together account for nearly 70% of the total SCW score, at each of the 100+ sites. Project performance is modeled using WMMS over a range of BMP size and configurations to determine the optimal score that can reasonably be achieved by each project. Automated processes were developed to model thousands of scenarios in order to map the change in a project's SCW score in response to variations in project configuration, which helped inform design decisions.

Water Replenishment District of Southern California (WRD)

Los Angeles County, CA.

Firm: Dakota Communications Completed: Ongoing

As the lead outreach consultant, Dakota Communications assists WRD staff in the overall management and execution of public outreach activities including community outreach efforts, media outreach, quarterly newsletters to the entire service area, education events, and other education and outreach tasks. Dakota Communications has worked with WRD to develop targeted messages on a variety of projects to ensure that the general public clearly understands the benefits of seemingly complicated project initiatives, including projects related to groundwater replenishment, water recycling, regional water independence, advanced water treatment, brackish water treatment, and other water reuse initiatives. Dakota Communications is currently the lead public outreach consultant for the District's new Advanced Water Treatment Facility in Pico Rivera, the Albert Robles Center for Water Recycling & Environmental Learning (ARC). From the beginning of the project to the Grand Opening in 2019, Dakota Communications has developed and implemented a robust outreach program that engaged, educated, and earned the support of local residents, elected officials, opinion leaders, and other key stakeholders. Our multivalent outreach approach included surveys, design charettes, door-to-door outreach, bilingual infographic videos, community events, multi-lingual collateral, construction tours, and other outreach activities.

Culver City Syd Kronenthal Park – Safe Clean Water Technical Feasibility Grant

Culver City, CA

Firm: Blue Ocean Civil Consulting Completed: Ongoing

As a result of the work completed for the Culver City SWQMP, Blue Ocean developed the Syd Kronenthal Park Concept plan and obtained Technical Feasibility Grant funding from the Central Santa Monica Bay Watershed Steering Committee (WASC). The application for these funds included project-specific details, presentation, and close coordination with the City of Culver City. The Concept Plan also included an Institute for Sustainable Infrastructure (ISI) Envision Pre-Assessment to help the future design project team incorporate Envision and sustainability early in project planning.

Watershed Plan Implementation Performance Measures

County of Orange, CA

Firm: Environmental Incentives Completed: 2020

Challenge: The County of Orange leads almost 20 stormwater co-permittees implementing a Water Quality Improvement Plan (WQIP) that targets bacteria, streambank erosion and unnatural water balance to protect its urbanized watershed. Programmatic watershed protection efforts such as maintenance, inspection/detection and education programs were not earning adequate quantitative credit with regulators. Annual reporting was a full-time pursuit more than six months per year for a team of people.

Solution: Environmental Incentives developed a results chain connecting actions taken to intermediate results and desired outcomes. The results chains were socialized with the co-permittees enabling them to agree on a manageable set of metrics that will earn implementation credit from the regulatory authority, the Regional Water Quality Control Board. EI also developed appropriate and pragmatic reporting methods that were developed in a short, user-friendly format to ensure consistent and comparable reporting. EI also facilitated workshops for monitoring teams and municipal managers and supported engagement with regulators to negotiate metric choices.

Outcome: Co-permittees are now consistently reporting progress and receiving credit for effective actions. Their efforts can be rolled up and reported on a programmatic basis to show overall effectiveness. The new metrics have been incorporated into a real-time reporting dashboard, streamlining annual report production relative to previous approaches that had used anecdotal project examples and disparate data.

County of San Diego Rebates & Incentives Program Design and Implementation

County of San Diego, CA

Firm: Environmental Incentives Completed: Ongoing

Challenge: The County of San Diego is facing requirements for dry weather flow elimination in 2021 and wet weather bacteria reductions in 2031. Planned structural projects are proving to be costly, subject to delays, and potentially insufficient to meet compliance goals. The County's Water Quality Improvement Plan (WQIP) commits the County to exploring private property incentive programs that encourage residents and businesses to better manage stormwater on-site as a cost-effective compliance strategy.

Solution: EI and its team analyzed 16 private property best management practices (BMPs) to determine the most viable and impactful BMPs to incentivize. EI facilitated a new partnership between the County of San Diego and the San Diego County Water Authority, resulting in a $4 million investment from the County in existing landscape incentive programs that produce water quality and supply benefits. This is the first Southern California example of a stacked rebate program that brings together water quality and supply funding for multi-benefit landscape projects. Leveraging partner investments, infrastructure, and brand equity helps the County more cost-effectively achieve water quality benefits.

Outcome: In less than a year since launch, the program has engaged 175,000 users on social media, completed or approved 100+ projects that will create sustainable landscapes on 200,000 square feet, treat 2 acres of impervious surface while logging more than 60% of incentive payments to property owners in underserved areas.

Los Angeles State Historic Park

Los Angeles, CA

Firm: Group Delta Completed: 2022

Group Delta managed the regulatory compliance and remediation activities for this $18M redevelopment of the 32-acre Historic Los Angeles "Cornfield" Site in Downtown Los Angeles. Duties included performance of site-wide Phase II Environmental Site Assessment (ESA), remediation of heavy metal impacted soil, and air monitoring during all excavation activities to mitigate active construction worker hazard and risk resulting from heavy metal contamination. To achieve site closure while allowing specific construction activities to continue, a complex coordination effort with the Department of Toxic Substances Control (DTSC) was conducted and included application of a 95% Upper Confidence Level (UCL) analysis to soil analytical data to minimize client remediation costs with acceptable human health risks.

LA County Dept of Public Works Green Alley Master Plan

Los Angeles, CA

Firm: Group Delta Completed: 2021

Group Delta performed feasibility-level investigations and deep infiltration tests for six selected sites as part of the Green Alley Master Plan. Group Delta reviewed available data; performed geotechnical borings; performed field infiltration tests in accordance with LA County guidelines; evaluated geologic and seismic hazards; and provided feasibility-level geotechnical recommendations. Proposed infiltration improvements consisted of dry wells and infiltration testing was performed to assess infiltration rates at target depths varying from 35 to 80 feet below ground surface.

Programmatic EIR for Upper Los Angeles River EWMP

Los Angeles, CA

Firm: Catalyst Environmental Solutions Completed: 2015

Catalyst staff led all aspects of CEQA compliance for enhanced watershed management plan projects conducted by the City of Los Angeles for compliance with the new MS-4 NPDES permit for stormwater management. The City of Los Angeles is participating in the development of Enhanced Watershed Management Programs for the Upper Los Angeles River, Ballona Creek, Dominguez Channel, Marina del Rey, and Santa Monica Bay Jurisdictional Groups 2 and 3 Watershed Management Areas. Catalyst prepared a Programmatic EIR to support the City decision-making process with respect to submitting the Enhanced Watershed Management Programs prepared for these five watersheds. The analysis identifies projects for which no CEQA review is required, projects for which limited CEQA review is required, and projects which require full CEQA review.

San Gabriel Valley Greenway Network

Los Angeles County, CA

Firm: Catalyst Environmental Solutions Completed: 2015

The San Gabriel Valley Greenway Network aims to transform the many flood control channels, utility rows, abandoned rail lines and complete streets corridors in this heavily developed and urban region of Los Angeles County into a world-class network of safe, cohesive, and easily accessible community greenways. Led by the County of Los Angeles, Department of Public Works, this project involves the design and implementation of a network of bicycle paths and pocket parks along the San Gabriel River.

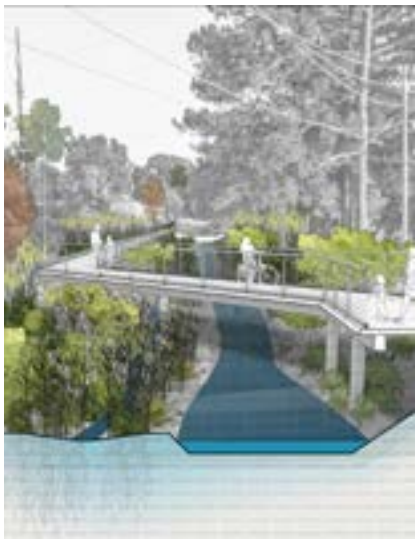
Catalyst is providing regulatory assistance and CEQA compliance for this important multi-modal transportation project. Catalyst is leading the environmental review of this important community project. As the greenway network is currently under design development, Catalyst developed a regulatory constraints analysis for proposed segments, as a GIS layer, to assist the team in identifying the most optimal routes. Key considerations include proposed trails along flood channels, and within the jurisdictional boundaries of waterways, which could trigger Clean Water Act Section 401, 404 and/or 408 permits. Once the final design alternatives are completed, Catalyst will prepare an Environmental Impact Report (EIR) for the proposed project.

Atlanta Watershed Management Environmental Impact Bond

Atlanta, GA

Firm: Quantified Ventures Completed: 2019

Quantified Ventures structured the first-ever publicly offered Environmental Impact Bond (EIB) with Atlanta's Department of Watershed Management (DWM). The $14M bond, which closed on January 31, 2019, financed six green infrastructure projects to manage stormwater in economically and environmentally distressed neighborhoods that previously lacked access to funding. The EIB represents a novel approach to finance resilience projects across the United States, by enabling DWM to link its debt service on the bond to the validated success of the projects' ability to capture stormwater, and therefore mitigate flooding and water quality issues, as well as provide other co-benefits to the marginalized neighborhoods. The outcomes evaluation of the EIB enables DWM to showcase its progress on ensuring more equitable deployment of green infrastructure and stormwater management across the City, gain internal support for projects that were previously un-prioritized, and access new sources of capital from ESG bond investors seeking to align financial returns with environmental returns.



Hampton Environmental Impact Bond

Hampton, VA

Firm: Quantified Ventures Completed: 2019

Quantified Ventures partnered with the Chesapeake Bay Foundation and the City of Hampton to design and issue the first Environmental Impact Bond in the Commonwealth of Virginia. The $12 million bond closed in December 2020, and finances the construction of three nature-based projects designed to slow, store, filter, and redirect stormwater in low- to moderate-income communities. By issuing the bond, the City matched financial innovation with the creativity found in its nature-based projects, which include a drainage ditch turned into a bioswale with native plants, a holding pond revamped for stormwater and water quality, and a major transportation corridor elevated for protection against future flooding. The data gathered through this Environmental Impact Bond will inform future public investments in resilience projects that seek to improve quality of life, economic viability, and environmental health for Hampton residents.

Proposition O: Clean Water Bond Outreach

Los Angeles, CA

Firm: MBI Strategic Solutions Completed: Ongoing

Prop O projects cover a variety of construction projects throughout L.A., with most projects impacting incredibly diverse communities and businesses. Throughout the last 10+ years, MBI staff developed an in-depth and comprehensive outreach program to keep members of L.A. community educated and provided a strong support system to minimize contention between the City and communities during all different types of construction phases of projects. Outreach tasks include setting up and managing the Prop O hotline, designing and facilitating content creation and graphic design materials, website administration of Prop O project websites, and providing construction progress photography for the City. A sample list of different Prop O projects that MBI has worked on includes Albion Riverside Park, Echo Park Rehabilitation, Machado Lake, Temescal Canyon Park and Wilmington Drain.

4. KEY STAFF AND TEAM

PRINCIPAL-IN-CHARGE
Michael Trapp, PhD

PROJECT MANAGER
Ghina Yamout, PhD, Env SP

GIS/DATA COLLECTION
Rick Hendrickson, GISP
Jim McPherson
Kevin Oliver

HYDRAULICS/HYDROLOGY
Mujahid Chandoo, PE
Jenna Clark, PE

FEASIBILITY STUDIES/BMP STORM WATER MASTER PLAN
David Mercier, PE, QSP/QSD
Connie Phan, EIT
Chris Carandang, PE (3)
Jessica Cassman, PE (2)

MODELING/WATER QUALITY
Leila Talebi, PhD, PE
Ali Tasdighi, EIT
Jing Liu,PE

ENVIRONMENTAL /RESTORATION / PERMITTING
Fareeha Kibriya, AICP, LEED AP
Anisha Malik, SITES AP, CERP
Tim Tidwell
Megan Schwartz, MESM (1)

LAND DEVELOPMENT COMPLETE/GREEN STREETS
Dawn Wilson, PE, TE
Sarmad Farjo
Dan Tormey, PhD, PG (1)

GEOTECHNICAL & ENVIRONMENTAL DUE DILIGENCE
Ethan Tsai, PE, GE (4)
Jaime Bueno, PE (4)
Kevin Hall (4)
Laura Botzong, EP (4)

FUNDING/GRANT WRITING
Dino Serafini, PE
Derek Wong, AICP
Ben Cohen (6)
Megan Chery(5)
Chad Praul (5)

REGULATORY COMPLIANCE
Michael Trapp, PhD
David Mercier, PE, QSP/QSD
Leila Talebi, PhD, PE

OUTREACH & ENGAGEMENT
Brad Jensen (7)
Rick Taylor (8)

Bold = Key Personnel

SUBCONSULTANTS
(1) Catalyst Environmental Solutions (SBE)
(2) Blue Ocean Civil Consulting (SBE, DBE)
(3) Paradigm Environmental, Inc.(SBE)
(4) Group Delta
(5) Environmental Incentives (SBE)
(6) Quantified Ventures
(7) MBI Strategic Communications (SBE, DBE)
(8) Dakota Communications (SBE,DBE)

PROJECT MANAGER

Ghina Yamout, PhD, ENV SP

Dr. Yamout is focused on expanding Baker presence in the Los Angeles water market. She is focused on sustainability planning that identifies water quality issues and evaluates opportunities for multi-benefit regional projects to optimize the recharge, capture, and reuse of storm water runoff. Her goal is to meet federal, state, and local regulatory requirements at optimal cost. Dr. Yamout has provided technical and managerial support for the stormwater management and green infrastructure sustainability effort under the Enhanced Watershed Management Program. Her experience also includes working on large scale environmental restoration programs that required extensive internal and external coordination as well as urban water management planning involving demand, supply, and water rights.

RELEVANT EXPERIENCE

Marina Del Rey Enhanced Watershed Management Plan and Coordinated Monitoring Plan. *Los Angeles County, California.*
PROJECT MANAGER

City of Culver City Hazard Mitigation Plan.
Culver City, California. SENIOR PROJECT MANAGER

Countywide Sustainability Annual Report and Performance Metrics. *LA Metro.*
PROJECT MANAGER

Water Resources Sustainability GIS-Based Analysis. *Mesa, Arizona.*
TECHNICAL/REGULATORY SPECIALIST

Everglades Restoration: Hydrology and Hydraulics and Habitat Conservation.
South Florida Water Management District.
ASSISTANT PROJECT MANAGER / WATER RESOURCES SPECIALIST

Years Experience
15

Education
Ph.D., Sustainable Environmental Resources Management, University of Florida

M.S.,Environmental Technology, American University of Beirut

B.S.,Chemistry, American University of Beirut

Michael Baker INTERNATIONAL

PRINCIPAL-IN-CHARGE/REGULATORY COMPLIANCE

Michael Trapp, PhD

Dr. Trapp is a proven industry leader who understands the regulatory drivers that clients face. He has over 20 years of experience and has provided innovative, effective, and practical solutions to academics, and public- and private-sector clients. His keen business sense and ability to lead large, diverse teams has resulted in selections and reselections on multiple on-call contracts. His ability to push the science of stormwater forward and build consensus with diverse stakeholder groups is evident in committee work for professional organizations and leadership in the Southern California Stormwater Monitoring Coalition (SMC).

RELEVANT EXPERIENCE

Southern California Monitoring Coalition LID BMP Effectiveness Study. *San Bernardino County, California.* PROJECT MANAGER

La Pata Water Quality Management Plan.
Orange County, California. PROJECT MANAGER

Cabrillo Heights Rain Garden BMP Effectiveness Assessment. *San Diego, California.*
PROJECT MANAGER

Malibu Creek Watershed Enhanced Watershed Management Program and Coordinated Integrated Monitoring Plan.
Los Angeles County, California. CHIEF SCIENTIST

Edison Company Stormwater and NPDES Program. *Southern and Central California.*
CHIEF SCIENTIST

Years Experience
23

Education
PhD, 2009, Marine and Atmospheric Science, University of Miami

MS, 2003, Chemistry, University of Miami

BS, 2000, Biology and Chemistry, Florida Southern College

Michael Baker INTERNATIONAL

FEASIBILITY STUDIES/BMP/STORM WATER MASTER PLAN/REGULATORY COMPLIANCE

Dave Mercier, PE, QSP/QSD

Mr. Mercier leads the Water Quality Department of over twenty engineers and environmental scientists focused on NPDES and MS4 program support services along with industrial and construction stormwater compliance by developing strategies focused on achieving multi-benefit solutions. His background includes a variety of experience focusing on surface water management and water quality. Mr. Mercier's management process focuses on understanding the client core business and project needs to drive program development and the generation of practical solutions. He writes and reviews post-construction water quality plans, develops and implements stormwater program elements, and conducts facility inspections for compliance with Municipal and Statewide stormwater requirements. He also has experience with hydraulic/hydrologic modeling, writing technical reports, preparing floodplain/floodway analysis, and completing sediment transport and stream stability analyses.

RELEVANT EXPERIENCE

Stormwater Quality Master Plan.
Culver City, California. TASK MANAGER

Storm Drain Master Plan.
Santa Ana, California. TASK MANAGER

Creston Avenue Drywell System.
Signal Hill, California. PROJECT MANAGER

Garfield Avenue Improvements.
Monterey Park, California. TASK MANAGER

Low Impact Development Plans.
Los Angeles County, California. TASK MANAGER

Environmental Compliance Program.
LA Metro, Los Angeles, California. TASK MANAGER

Stormwater Data Reports. *Caltrans Division 7, Los Angeles, California.* WATER QUALITY LEAD

Rancho Mission Viejo Runoff Management Plans. *Rancho Mission Viejo, California.* TECHNICAL SPECIALIST

Years Experience
19

Education
BS, Civil/ Environmental Engineering, University of California, Los Angeles

Licenses/Certifications
Professional Engineer, Civil, CA, 2007, 71531

Qualified Industrial Stormwater Practitioner, CA, 2016, 161

Michael Baker INTERNATIONAL

HYDRAULICS/HYDROLOGY

Mujahid Chandoo, PE

Mr. Chandoo has extensive experience in surface water management. His areas of expertise include hydrology, hydraulics, sediment transport and advanced modeling. He has been involved with a variety of projects including, but not limited to, watershed master plans throughout Southern California, storm drain design, FEMA processing, sediment transport modeling, environmental documentation, and large scale 2-dimensional floodplain studies. Mr. Chandoo has extensive experience in using advanced hydraulic 1D/2D modeling for surface and sub-surface flooding analysis for the Los Angeles County Department of Public Works (LACDPW), City of Rancho Palos Verdes, World Trade Center in New York City, City of San Diego, and City of Santa Ana.

RELEVANT EXPERIENCE

Storm Drain Master Plan.
Santa Ana, California. PROJECT MANAGER

Dominguez Channel Watershed Study.
Los Angeles County, California. PROJECT MANAGER

Rancho Palos Verdes SWMP.
Rancho Palos Verdes, California. PROJECT ENGINEER

Storm Drainage Master Plan.
Buena Park, California. PROJECT ENGINEER

Master Plan of Storm Drainage for North and West Santa Ana River Tributary Areas.
Anaheim, California. PROJECT ENGINEER

Manhattan Beach Pump Stations Hydrology and Hydraulics. *Los Angeles County, California.* PROJECT MANAGER

Years Experience
16

Education
BS, Civil Engineering, California State University, Fullerton

Licenses/Certifications
Professional Engineer, Civil, CA, 2010, 76633

Michael Baker INTERNATIONAL

GIS/DATA COLLECTION

Rick Hendrickson, GISP

Mr. Hendrickson specializes in GIS Web Programming and Project Management. He has experience working with and managing Geographic Information Systems (GIS) projects for the utility industry, municipalities, and governmental agencies. He has designed and developed web-based interactive project viewers. Mr. Hendrickson has experience in creating and representing data for online interactive maps utilizing ArcSDE and ArcGIS server software. Mr. Hendrickson has a wide range of experience utilizing various systems including AutoCAD, ArcGIS, ArcInfo, and Oracle, SQL Server, SDE, Silverlight and other web technologies.

RELEVANT EXPERIENCE

Stormwater Quality Master Plan.
Culver City, California. GIT MANAGER

Rancho Palos Verdes Stormwater Master Plan.
Rancho Palos Verdes, California. GIT MANAGER

MS4 Permit Compliance Tracking Database.
San Bernardino County, California. GIT MANAGER

Stormwater Data Management.
Unified Port of San Diego, California. PROJECT MANAGER

TMDL Tracking Tool Development.
Statewide, California. GIT MANAGER

As-Needed Civil Engineering Services for the Municipal Stormwater Program 2014-2019.
San Diego, California. GIT ANALYST

Hydromodification Map and Documentation for Santa Ana River Watershed.
Unincorporated San Bernardino County, California.
GIT MANAGER

Years Experience
25

Education
BA, Environmental Studies, University of California, Santa Barbara

Licenses/Certifications
Certified GIS Professional, CA, 2007, 52598

Michael Baker INTERNATIONAL

MODELING/WATER QUALITY/REGULATORY COMPLIANCE

Leila Talebi, PhD, PE

Dr. Talebi has a thorough understanding of water and stormwater regulations through her research, engineering and environmental experience at federal, state, and local levels. Dr. Talebi is proficient in hydrologic and hydraulic analysis and design, stormwater management planning, conceptual and final design and modeling of green infrastructure (GI), Best Management Practice (BMP) and Low Impact Development (LID) components to comply with water quality requirements, water quality monitoring plan development, pollutant source characterization and assessment, NPDES permitting, and development of GIS-based tools for BMP implementation and watershed master plans. She has led workshops for municipal clients throughout Southern California.

RELEVANT EXPERIENCE

Stormwater Quality Master Plan.
Culver City, California.
ASSISTANT PROJECT MANAGER AND MODELER

Los Peñasquitos Watershed Master Plan.
San Diego, California. ASSISTANT PROJECT MANAGER AND MODELER

Storm Drain Master Plan. *Santa Ana, California.*
WATER QUALITY MODELER

Municipal Waterways Maintenance Plan Support. *San Diego, California.* PROJECT MANAGER

Rancho Mission Viejo Runoff Management Plans. *Rancho Mission Viejo, California.*
TECHNICAL LEAD

Port of Long Beach Reasonable Assurance Analysis (RAA). *Port of Long Beach, California.*
PROJECT MANAGER

Years Experience
14

Education
Ph.D.,Civil Engineering Water Resources, University of Alabama

M.S.,Water Resources Engineering, Khajeh Nasir Toosi University of Technology

B.S., Civil Engineering, Amirkabir University of Technology

Licenses/Certifications
Professional Engineer - Civil, CA 2016, 86123

Michael Baker INTERNATIONAL

ENVIRONMENTAL/RESTORATION/PERMITTING

Fareeha Kibriya, AICP, LEED AP

Ms. Kibriya is an environmental planner with interests ranging from public and private land planning, environmental compliance, and socioeconomics. Her project experience includes working with public agency clients and consultants to provide environmental clearance support and deliver CEQA/NEPA documents, including environmental impact reports, joint NEPA documents (environmental impact report/environmental impact statement, environmental impact report/environmental assessment, etc.), initial studies, negative declarations, proponent environmental assessments (PEAs), and Mitigation Monitoring Reporting Programs (MMRP). Her project management and work experience includes clients such as the City of Los Angeles Department of Water and Power, City of Los Angeles Department of Public Works Bureau of Engineering, Los Angeles County Metropolitan Transit Authority, California State University, Orange County Transportation Authority, San Diego Gas & Electric and the Port of Los Angeles.

RELEVANT EXPERIENCE

CEQA Documentation for the General Plan Implementation Program. *Pasadena, California.* PROJECT DIRECTOR

Paseo Del Mar Permanent Restoration Project EIR, Los Angeles, California. *Los Angeles Department of Public Works, Bureau of Engineering.* PROJECT DIRECTOR

Clean GridLA Program EIR. *Los Angeles Department of Water and Power.* PROJECT MANAGER

Groundwater Replenishment Project Environmental Impact Report, Los Angeles, California. *Los Angeles Department of Water and Power.* PROJECT MANAGER

Years Experience
16

Education
M.U.P., Urban and Regional Planning, University of California, Irvine

B.A., Economics, B.A.,Sociology, University of California, Irvine

Licenses/Certifications
LEED Accredited Professional, 2008

American Institute of Certified Planners Candidate, 2010

Michael Baker INTERNATIONAL

LAND DEVELOPMENT/COMPLETE STREETS/GREEN STREETS

Dawn Wilson, PE, TE

Ms. Wilson is experienced in preparing transportation planning studies and traffic engineering design plans. She specializes in multimodal studies that focus on balancing transportation modes within the built environment. Ms. Wilson has striven to develop the creative and innovative solutions in mobility planning with the practical, feasible design required in traffic engineering. Ms. Wilson's worked on developing solutions for clients that have integrated trails, bikeways, new sidewalks, traffic calming and innovative signal solutions. With a diverse background in transportation planning projects, Ms. Wilson brings to her clients a holistic understanding of the physical, environmental and mobility needs when initiating a project and carries with her this focus as projects move through the concept development process. Ms. Wilson has worked on a number of transportation impact analysis reports that support CEQA documents for projects large and small.

RELEVANT EXPERIENCE

Highway 74 First-Last Mile Transit Study. *Riverside County, California.* PRINCIPAL IN CHARGE

Camino Del Mar Streetscape Village Specific Plan. *Del Mar, California.* TRANSPORTATION PLANNER

Comprehensive Planning Services. *Eastvale, California.* TRANSPORTATION PLANNER

Long-Range Transportation Plan Project. *Riverside County, California, Cahuilla Band of Indians.* PROJECT MANAGER

North Coast Highway 101 Streetscape, Encinitas, California. *Encinitas, California.* TECHNICAL SPECIALIST

Years Experience
27

Education
M.S., 1995, Civil Engineering, University of California, Irvine

B.S., 1993, Civil Engineering, University of California, Irvine

Licenses/Certifications
Professional Engineer - Civil, California, 2001, C62562

Traffic Engineer, California, 2010, 2548

Michael Baker INTERNATIONAL

5. PROJECT UNDERSTANDING

Michael Baker will work with the City as a technical advocate and partner to bring a holistic view to the Plan, work with internal and external stakeholders, identify the best compliance opportunities and funding resources, while transforming critical infrastructure needs and equitable community development opportunities and deficiencies into integrated resilient solutions. We envision this occurring in a way similar to what we present in the graphic on the following page.

The City requires a robust consultant who will embody the City's needs while remaining focused on their vision to create a comprehensive Plan. The Plan will inform the City's Capital Improvement Plan (CIP) and budget development through the strategic stormwater capital project planning and implementation, operation, maintenance, and program management. Michael Baker understands the Plan must consolidate municipal stormwater quality compliance through project implementation; targeted drainage and flood improvements; operations, maintenance, non-structural program management; and financial strategy (government grants, regional programs and partnerships, City funds, General Fund and Safe, Clean Water Program) into one guiding program. Clear linkages to active/multi-modal transportation and other capital programs shall be included and informed by interdepartmental stakeholder input.

In its ongoing work on the Economic Development Strategic Plan and the Comprehensive Asset Management Program, the City communicated the need to support sustainability and resilience as it extends to surface water management while connecting communities to water, in part through the Plan. One element of this program is to ensure the integration explicitly includes consideration of using stormwater development to enhance livability in the City by growing the non-auto, active/multi-modal transport systems, and to help support overall economic growth through other amenities that can be additional benefits of stormwater development.

This Plan will be built upon our extensive foundational knowledge and will demonstrate our local experience in addressing:

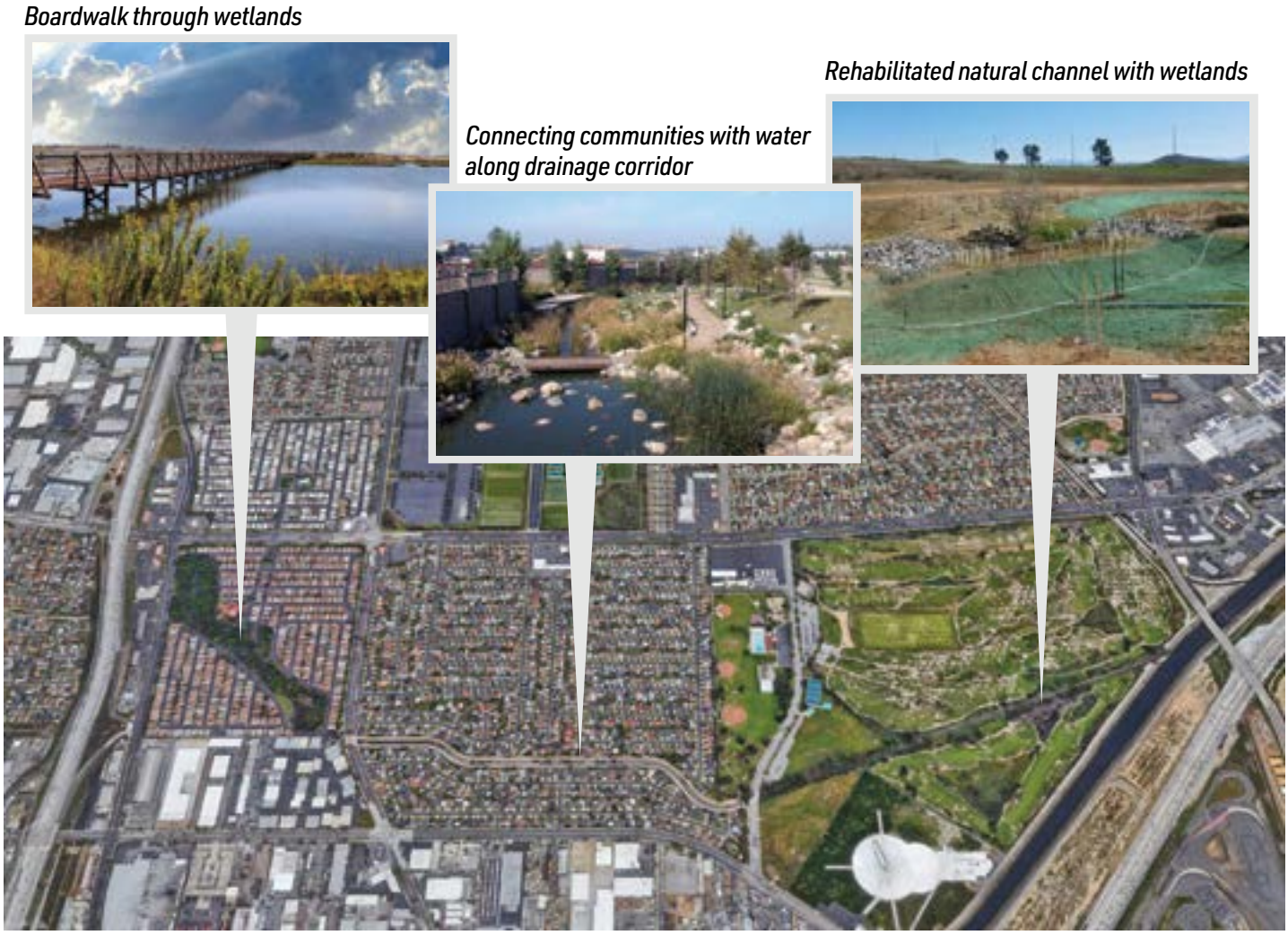
- Building on Existing Efforts from a Well-Studied Watershed
- Target Engagement to Capitalize on Successful Funding Opportunities
- A Partnership-Focused Approach for Optimal Benefit to the City
- Social and Environmental Justice at the Core of Balancing Quality of Life
- Partnering with the City's Industrial Hub Added Benefits

Building on Existing Efforts from a Well-Studied Watershed

The Michael Baker Team understands that a high level of inter-departmental coordination is required and numerous data sources are necessary to ensure the plan is accurate. Our team has first-hand knowledge and familiarity with the City's existing data and documents. Our understanding to successfully manage and complete this study is based on our recent work on the Dominguez Channel Watershed Study for the LA County Department of Public Works. For this study, Michael Baker was able to seamlessly work with the City and County to incorporate drainage data sets, develop in-house Python scripts and routines to calculate and validate the GIS data in a repeatable way. Also, the team gained detailed knowledge of the watershed, storm drain system, area tributary to the drainage systems, and regional and local flooding.

The City is fortunate to be in a watershed that is so well-studied for flood control, drainage, and stormwater management. It is our understanding a great deal of time, effort, and funding has already been spent on water quality modeling in the Dominguez Channel watershed. The City has contributed to these regional efforts and gathered a great deal of information. Key among those studies is Green Street Implementation Plan (GSIP). The GSIP was a comprehensive review of the watershed that modeled potential green street opportunities. Another major modeling effort is from the 2021 Enhanced Watershed Management Program (EWMP), which assessed the watershed water quality hot spots through water quality modeling in the form of an updated RAA. The data prioritized likely locations for Best Management Practices (BMP) like dry wells and regional facilities. Other studies will be explored like the efforts by the US Army Corps of Engineers.

A most important foundational piece of this project is understanding how runoff moves through and around the Dominguez Watershed area within and upstream of the City. Michael Baker is ready to share our unparalleled knowledge about drainage and the potential for flooding in the City following our work on the Dominguez Channel Watershed study. This comprehensive and intensive study saves the City money as the Michael Baker Team already has the project experience and local knowledge; we can deploy our staff quickly with no learning curve. With this level of water quality modeling already completed, with City funds already invested, and more BMP modeling coming in the next RAA, our approach will focus on the most efficient use of available funding and leveraging existing results. Michael Baker proposes to implement our proven process which focuses on the facilities themselves, incorporating work already completed, rather than doing the work again. Section 3 will further explain our process to identify and prioritize the most valuable potential facility locations and maximize their potential.



Stormwater improvement projects can connect the community through water. The upper and lower portions of this concept would rely on natural treatment processes to improve water quality. Active transportation elements could be layered in to provide communities with more direct access from the Channel. A concept like this could tie in with a future Riverwalk element and result in the type of water quality, water supply, and community enhancement project desired by the Safe Clean Water Program.

Target Engagement to Capitalize on Successful Funding Opportunities

The Michael Baker Team includes a group of experts that specialize in identifying key influencers and designing effective outreach programs with innovative branding. We will identify out-of-the-box opportunities and explore available sources of funding that are tailored to the City and its community needs with a message that "Carson connects its communities through water". Our Team will support the City in developing and implementing a shared vision between its various plans, including the Capital Improvement Plan, the Economic Development Strategic Plan, and the Comprehensive Asset Management Plan. A key element to the strategic planning process will be collecting and incorporating the input from the community. The outreach plan will implement a collaborative approach with internal departments and external stakeholders to include City departments, LA County, US Army Corps of Engineers, utility and water agencies, transportation agencies, state and regional regulatory agencies residents, business owners, artists, public officials, and university administrators.

A Partnership-Focused Approach for Optimal Benefit to the City

The Michael Baker Team considers this Plan effort as a vehicle to generate practical, implementable, feasible, fully-vetted, publicly supported improvements to the stormwater management system and infrastructure of the City, while considering the City amenities and other initiatives as part of that effort.

The Plan effort presents many opportunities in identifying a multitude of goals, a process Michael Baker has already begun with the City's Dominguez Channel. With the two major impairments, the Channel has seen in 2021 that made international news: the odor issue of unclear origin and minimal monitoring by LA County (only measuring H2S emissions), and the December spill of raw sewage from an old Los Angeles County Sanitation Districts' pipeline that had been subject to deferred maintenance, the key role the high-profile Channel will play in the Plan cannot be understated. With the Channel operated and maintained in part by two key potential partners, the LA County Public Works and the US Army Corps of Engineers, those issues, combined with the additional funding earmarked towards environmental justice communities (Justice 40) and other resiliency grant programs, there is a clear opportunity to develop a nexus to support the creation of a world-class Dominguez Channel Riverwalk as part of channel upgrades under the Plan.

Social and Environmental Justice at the Core of Balancing Quality of Life

Supported by a robust industrial and logistics economy, the City is looking to enhance the local community through strategic economic development, to which the Michael Baker Team is contributing through a key role in the ongoing development of the City's Economic Development Strategic Plan. Through our experience working with various cities and communities, we see there is a clear need to balance quality of life with the established economy with different types of businesses that provide goods and services to City residents and help attract new residents to the City. The Michael Baker team will consider in the process this very integral aspect of the diverse City communities, with various neighborhood needs, including the opportunities to evaluate environmental and social justice enhancing projects in underserved communities suffering from mobility, connectivity, and air quality issues. The Michael Baker team will focus on potential partnerships with the many large modern industrial facilities and multi-national companies that have their compliance and Environmental, Sustainability, and Governance (ESG) initiatives.

Fairness in this context of this Plan means that the benefits of a healthy environment should be available to everyone, and the burdens of pollution should not be focused on sensitive populations or on communities that already are experiencing its adverse effects. The City bears a burden from its logistical support to the local and state economy, providing a linkage between port and rail transport that leads to local impacts that are not adequately addressed in road funds or sales tax. Fair distribution of federal, state, and local funds (including Safe Clean Water) to enhance waterside and multi-modal transport opportunities in the City is a way to provide some of the benefits to the community that stems from accepting the impacts for the benefit of the region.

Partnering with the City's Industrial Hub Added Benefits

The Michael Baker Team recognizes the important role industries play in the City and the tremendous potential for partnering with those industries to multiply resources and benefits. Industrial lands in the City are primarily used for oil/gas storage, shipping/logistics/warehousing, and manufacturing. A longer-term initiative is the evaluation of industrial lands for potential reuse, including being designated as a brownfield or greyfield. Opening up industrial lands for other economic uses would require a clean bill of health for the subject lands with a de minimus level of contamination/pollution. This may require sharing the environmental liability and potential remediation costs but would provide post-industrial lands for non-industrial businesses or residences. The City is looking to explore ways to manage the environmental liability posed by post-industrial land use by forming partnerships with public funding sources and private enterprises. The City has many resources that can be used to manage stormwater in a manner that ensures regulatory compliance, enhances sustainable supplies, and enhances water quality, including more than 120 acres of park land divided into twelve parks, two mini-parks, and sports/recreational facilities. These must also be considered in the planning and prioritization of projects for the Plan.

6. PROJECT APPROACH AND WORKPLAN

The Michael Baker approach to this project focuses on prioritizing the most valuable locations for stormwater facilities, identifying how investments in stormwater infrastructure can best add value in the day-to-day life of the City's citizens, and gathering a large group of stakeholders throughout the City to help make the investments in these facilities . This Workplan details how we will execute this approach.

TASK 1 PROJECT INITIATION AND RESEARCH

1.1 Project Management

Our management team is led by Project Manager, Dr. Ghina Yamout, who will oversee the day-to-day services provided to the City. Ghina is an experienced water resources practitioner and has served as a project manager and technical specialist on a wide array of public works projects relevant to the scope. Ghina will lead all project tasks coordination as the single point of contact between the Michael Baker Team and the City. Ghina will ensure consistent communication occurs throughout the project duration, with City departments and staff and among team members and various disciplines. Ghina will ensure the right project team members are engaged at the right time and allocate resources accordingly. She will be supported by Dr. Michael Trapp, as Principal-In-Charge, who has served as program manager for major stormwater programs across Southern California. Michael will be available at all times to ensure availability of staff and company resources while at the same time ensuring that analyses and documentation prepared by the Michael Baker Team meet agency standards and are legally compliant.

Ghina will be supported by Technical Leads for the various technical disciplines necessary for the successful completion of the work required under the scope, as shown in the organizational structure. All technical leads were carefully selected to bring the City the best set of skills for the successful and efficient development and implementation of the Plan. Dave Mercier, PE will lead the project prioritization, feasibility studies, and project design. Mujahid Chandoo, PE will lead the hydrology and hydraulics and flood control analysis. Dawn Wilson will lead the transportation planning element. Rick Hendrickson will lead the geospatial analysis and web-based effort. Leila Talebi, PE, PhD will lead the water quality and modeling effort. Fareeha Kibriya will lead the environmental permitting effort. An additional suite of specialized team of subconsultants will also be managed by Ghina under various tasks, including Blue Ocean and Paradigm (feasibility studies), Catalyst (industrial land development), MBI Media (outreach), Group Delta (geotechnical and environmental due diligence), Environmental Incentives (guiding principles and funding), Quantified Ventures (funding), and Dakota Communications (community engagement).

Ghina understands the critical nature of this Program for the City, on all levels, and is committed to the success of the City. The budget and schedule will be closely tracked with a focus on cost-to-complete to ensure the City achieves its objectives within the approved funding and schedule. Ghina will closely manage the daily tasks with the task mangers, including all project communications.

Ghina's project management style is focused on inclusivity, partnership, effective coordination, and continuous communication. Ghina believes and applies a proactive problem solving and a forward-looking approach in assisting all her clients. She will be focused on working with the City to implement and adaptively enhance the City's program when opportunities are identified, while ensuring the project is implemented on schedule and controlling the project budget.

The project management and leadership will focus on the following key tested processes and tools to ensure that deliverables are complete, correct, clear, coordinated, constructible, and consistent with project objectives and goals.

Project Initiation – Project Kickoff Meeting

The Michael Baker Team believes that all members working on the project need to be in full alignment from the onset of the project on the project objectives. Well defined and communicated project objectives, scope, deliverables, and schedule will be the focus of the Project Kick Off Meeting. Michael Baker will present the proposed project schedule and scope to the City and work with the City to refine them as necessary. After receiving input from the City at this meeting, Michael Baker will update the project information to set the project baseline. As work progresses, Ghina will facilitate and coordinate (at least) another thirteen (13), coordination meeting and provide monthly project schedule updates to ensure deliverables are on track or adjusted to account for any project changes.

This first step also includes proactive coordination with our hand-picked subconsultant team. Michael Baker's subconsultants are an extension of our staff to supplement the team with specific areas of expertise. Michael Baker has trusted working relationships with each of our subconsultants included on this proposal, and our team has extensive

experience in coordinating the activities of subconsultants to ensure timely completion of work products. Some specific ways which subconsultants are managed include:

- Detailed scopes of work and budgets for each task item
- Preparation of a Formal Subagreement
- Required progress updates from each subconsultant
- Regularly scheduled meetings via teleconferences or WebEx to discuss progress
- Milestone reviews of all work products prior to submittal

Project Planning – Project Work Breakdown Structure and Schedule

The Michael Baker Team will develop a Project Management Plan (PMP) to ensure and track proper project completion and delivery. In short, it is a collection of all pertinent information required to successfully manage the project. It is a one-stop reference tool for all the project staff which includes:

Project Work Breakdown Structure (WBS): Critical to ensuring that an effective project schedule can be developed and maintained is preparing a comprehensive WBS that clearly identifies the various project tasks and the deliverables expected from those tasks, as well as who is responsible for the deliverable product. Michael Baker will develop a detailed WBS as the first order of work. The PMP will identify the proper task sequence and assumptions that are critical for understanding the intent of the project delivery process. Development of a comprehensive WBS minimizes the chances of miscommunications or misdirection between all Team members, including client/consultant, consultant/subconsultant, and amongst the various functional leaders.

Critical Path Method (CPM) Scheduling: Recognizing the need for the City to effectively schedule reviews and take place in workshops and meetings, Michael Baker understands the importance of a project schedule as a key communication tool in the management of a project. There are several key elements that maximize the effectiveness of a project schedule including:

- Information should be easily communicated and understood;
- Commitment is obtained from each functional design leader and the Team;
- Inter-relationship of tasks is shown including internal QA/QC and review periods;
- Data should be easy and flexible to update; and
- Office-wide correlations of staffing and project commitments are considered.
- Specific critical path items or key critical decisions that affect future development will be identified on a continual basis to ensure the project schedule is met. Blue Ocean will promptly notify the City of any changes in anticipated project progress.

Project Execution – Task Monitoring and Cost Control

Our project monitoring revolves around internal and direct communication with the City. Internally, a project is tracked on a weekly (sometimes daily for fast- burn tasks) basis. Tracking includes not only the percent complete of budget spent, but also physical percent complete of the work effort (down to the task level), project scheduling, and staffing. As each month begins, monthly billing will be initiated and a summary of the work during that billing period prepared.

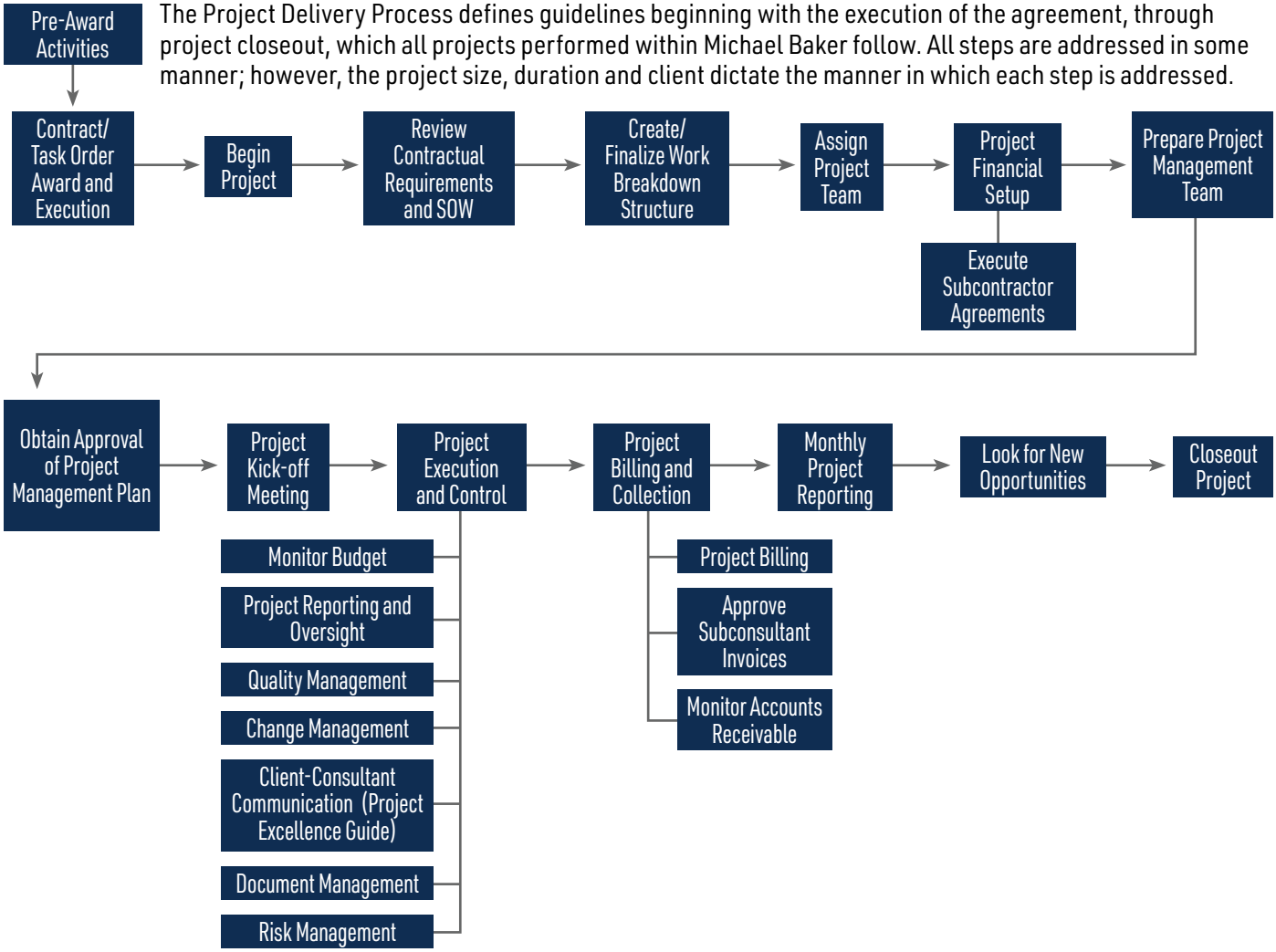
Quality Assurance / Quality Control

Quality control occurs throughout the project, carried out by the Task and Contract managers (review of deliverables, etc.) as well as our Quality Assurance and Quality Control Manager, who conducts monthly audits of the project file(s). The Michael Baker team will operate under a Quality Management system of which a specific Quality Control Plan is only a part of the overall system. The Quality Management program is a continuous process used not just at project milestones but also on a daily basis as work flows from desk to desk, discipline to discipline, and consultant to client. Our standalone Quality Management system is specific to the environmental and regulatory disciplines included in this solicitation.

The Quality Assurance Manager will be responsible for providing an on-going review (quality assurance audit) that the Quality Management system is fully implemented throughout the design process. The program consists of the following key elements:

- Quality Assurance Plans (QAPs) are developed by each office and set the standards for quality per company standards.
- Quality Control Plans (QCPs) are prepared by each discipline, thereby increasing relevancy and maintaining detail.
- Project Specific Quality Management Plans (PSQMPs) are prepared and utilized during deliverable review. Each document is reviewed (and revised where needed) prior to submittal to the client.

Project Delivery Process



Deliverables:

- ***Monthly project schedule and progress reports***
- ***Fourteen (14) coordination meetings, including one kick-off meeting***
- ***Meeting minutes and follow-up communications from kick-off meeting and coordination meetings***

1.2 Data Collection and Inventory

Michael Baker will provide services to research, gather, and review available data, resources, and documentation that is relevant to this effort and will help guide the development and implementation of the Plan. The data collected, developed, processed, and verified will serve as the foundation, which will be used to perform the project opportunity generation, screening, and projects prioritization required for the development of the Guiding Principles, the Plan, and the feasibility studies. The Michael Baker Team has extensive experience preparing the base information for projects like this and appreciates its importance.

It is assumed the City will provide their most recent storm drain and sanitary sewer system data in GIS that will provide complete coverage of the City systems. The City may also make available other relevant data, as required. As noted, Michael Baker already has the storm drain system data collected for the City. We intend

Figure 1: Data Collection and Analysis Efforts will Serve as the Foundation for the Study

to talk with the City about any recent updates to the system that must be updated in our data.

Michael Baker will develop an inventory of the existing data that is researched and collected. The data collected will be reviewed for completeness, gaps, and accuracy. If the data is found to have gaps or is incomplete, Michael Baker will note it in the Summary Report. It is anticipated that some of the relevant data will not be in GIS format and readily digestible to the modeling process. To address this, the Michael Baker Team will convert the source data to a compatible GIS format. The format of the new data will either be georeferenced raster images or vector data (i.e., lines, points, and polygons), depending on the type of data and how it will be used during the next phases of the Project. The Michael Baker Team will then process the GIS data to ensure it is ready for use in later tasks. All data collected, processed, and developed during this task will be loaded and delivered to the City in an ArcGIS Geodatabase.

Michael Baker assumes the data relevant to the City that was used in the analysis for the original and updated Dominguez Channel Enhanced Watershed Management Program and the Dominguez Channel Green Streets Implementation Plan will be available for use as part of this project. This would include the initial data used in the analyses as well as the results of analyses, such as potential BMP locations and their drainage areas. Michael Baker will work with the City to obtain this data from the watershed and EWMP group if it is not presently available.

A web map will be created to host this data as it is collected. The City will have access to the web map and it will be used during progress meetings to share available information and highlight the way data is being processed to create the information desired for upcoming analysis. Table 1 identifies the data sets Michael Baker intends to review and use in the analysis and specifies their importance to the Plan development process. This is in addition to the documents listed in the RFP which consist of:

- City of Carson storm drains
- LACPW storm drains
- City of Carson storm drain maintenance activities
- City of Carson catch basins with map
- City of Carson Inspection activities and relevant industries
- Dominguez Channel Enhanced Watershed Management Program (2012 and updated 2021/22)
- Dominguez Channel Green Street Implementation Plan

Table 1: Data Sets for Analysis

DATA SET	PROJECT IMPORTANCE
Los Angeles Regional Imagery Consortium (LARIAC)	Topography; DEM; imagery and infrared to locate vegetated areas and buildings; define drainage areas; identify surface slope
Drainage System – City, County, USACE	Identify potential tie in locations for regional BMPs
Sanitary Sewer System	Identify potential connection locations for diversion
Roadways (on-street parking, red curb zones, driveway cuts, turn lanes)	Identify constraints for potential green street opportunities
Parcel Ownership	Identify public/school district/Caltrans/privately owned parcels for project and funding opportunities
Zoning	Generate expected pollutant loading
Soil Type	Identify potential infiltration areas
Groundwater Levels	Identify potential areas for deep infiltration or where infiltration is infeasible
Groundwater Contamination	Identify areas where infiltration is infeasible
CalEnviroScreen Data (Household Income, Air Pollution, etc.)	Identify areas where specific grant funding could apply and/or demonstration projects would carry most value to ensure social and environ-mental justice
Utility Company Capital Improvement Program (CIP) Layers	Identify potential co-located projects
Sensitive Environmental Resource Areas/ Sensitive Ecological Areas	Identify areas where projects may not be feasible
Caltrans Layers – ROW	Identify Caltrans-specific funding opportunities
River & Creek Revitalization Plan Areas	Identify potential opportunities/partnerships
Dry weather Flow & Flood Prone Areas	Identify multi-benefit project locations
City Engineering/Public Works CIP Layers	Identify proximity/overlap with planned CIP Projects
Industrial General Permit (IGP) Permittees	Identify project and funding opportunities

Surface elevation information will be of critical importance for the Project. The Michael Baker Team will review the available LARIAC topographic data. If additional detail is required, available InterMap topographic data will be reviewed to determine if it provides greater resolution.

The Michael Baker Team appreciates that the City will use this effort as a way to consolidate a working library of City-managed and privately operated stormwater-related assets and potential projects. If there are any potential data gaps for verification with as-builts or field assessment the Consultant is required to let the City know. Basic information (as available) regarding asset age and condition will be reviewed to determine if any lessons learned regarding local planning, design, construction, and operations should be considered in this process.

Deliverables:

- ***Technical Memo Summary of the Data***
- ***Inventory Log of all data collected in MS Excel***
- ***Comprehensive GIS data in ArcGIS Geodatabase format***
- ***GIS Web Map displaying inventoried data***

TASK 2 ENGAGEMENT AND GOAL SETTING

2.1 Targeted Internal Engagement

The Michael Baker Team brings you more than 30 years of experience communicating with communities and government agencies; we have conducted hundreds of public meetings, workshops, special events, and now Virtual Meeting Rooms.

To bring the City optimal benefit from the development and implementation of the Plan and resulting projects selection and implementation, an integrated continuous targeted engagement and coordination effort between the Michael Baker Team and the various City internal departments, programs, and initiatives is essential. This includes the Public Works Department three interrelated divisions (Engineering, Landscape/Building Maintenance, and Right of Way), as well as other departments, such as the Community Development Department (Planning Division, Recreation Division, etc.). The Michael Baker Team of engineers, scientists, and project managers will build on their experience working with public agency departments including public works, asset management, economic development, and city manager's office to engage their individual input and synthesize it into a unified message that will be incorporated into the Guiding Principles for the prioritization of the stormwater program projects and initiatives and the development and implementation of the Plan.

At the earliest stages in the process, the Michael Baker Team will work with the City's internal project team to clearly articulate engagement and communication objectives to inform development of an Engagement Plan (EP) to ensure all necessary input from all relevant internal stakeholders are included in the process.

The EP will outline the schedule for a minimum of three (3) workshops that will be conducted by the Michael Baker Team to gather feedback from the various City Departments and Divisions. The EP will identify key stakeholders and audiences, opportunities, strategies, and tactics in alignment with technical milestones and key messages and topic-specific messages for inclusion in informational material. Two (2) of the workshops will be administered in the first phase of the planning process to identify potential priority sites and areas throughout the City of interest to other departments, and to understand how departmental goals and existing plans/initiatives might inform the planning process. The third workshop will be held once a plan is drafted to provide an opportunity to comment on the draft Plan and incorporate feedback where feasible.

The Michael Baker Team will work closely with the City to identify planned work that pairs well with nearby project opportunities and/or to identify potential stormwater elements that could be added to already planned work. For example, coordination with the City's Engineering Division and Planning Division (i.e., City staff and consultants) will highlight short-term and long-term project opportunities, including areas that experience persistent dry weather flows and/or regular flooding. This will help target project locations that achieve multiple benefits to the City, including environmental restoration, social equity/justice, public health, and economic development.

Coordination will also include the incorporation of the Dominguez Channel restoration and river/creek/channel revitalization plans, if any, as including stormwater elements in this planning can increase the likelihood of future grant funding. Additionally, coordination will include discussions to understand the potential impacts associated with locating large regional projects throughout the City, including possible uses for the captured stormwater (e.g., golf courses, schools, parks and open spaces, industrial land redevelopment). Active transportation opportunities that improve mobility and connectivity within the City will also be prioritized as key community development projects.

Identifying opportunities to enhance planned construction projects throughout the City will limit disruption to the public and businesses, as well as magnify the impact of valuable funding earmarked for use on stormwater projects. In addition, bundling projects may also create new opportunities by making the combined project eligible for grant funding. Furthermore, future utility projects throughout the City can also provide key opportunities to incorporate green infrastructure. The Michael Baker Team will coordinate with the various districts and companies within the City to gather information about future projects, as they will help the project opportunity prioritization process. Some of these agencies include:

- Southern California Edison
- Southern California Gas Company
- California Water Service Company
- Golden State Water Company
- Sanitation Districts of Los Angeles County
- West Basin Municipal Water District
- Central Municipal Water District

Although green streets and LID projects alone will not likely lead to compliance, strategic use of funds where construction is already occurring is a valuable strategy. This task will ensure the Plan accounts for these opportunities. In addition to using the existing Green Streets Master Plan and existing studies applicable to the City, the Michael Baker Team will also gather information about future green streets and LID projects within the City's sphere of influence boundary from neighboring cities, Los Angeles County, and transportation agencies such as Caltrans and Los Angeles Metro Transportation Authority.

From our experience in stormwater planning, we know that without capturing and ensuring a shared vision and commitment internally, external communication and the implementation of the Plan gets mired in confusion, including disagreement about roles, responsibilities, funding sources, and goals. Our team will facilitate an open and transparent communication process that allows for the sharing of ideas, concerns, opportunities, and challenges to create shared solutions.

The three workshops will be facilitated by Ghina with participation from appropriate members of the project Team based on each set of topics. Michael Baker intends to hold these workshops on dates of typically scheduled meetings for each group to accommodate existing schedules. Should separate meetings being desired, the Michael Baker Team will adjust the schedule.

Drawing from existing resources, the Michael Baker Team will develop a range of informational material that will educate the City's internal stakeholders about the current and future state of the City's stormwater infrastructure and planning efforts, as well as opportunities for internal stakeholder engagement and input. The Michael Baker Team will deliver materials suitable for interchangeable formats and channels, including social media, presentations, e-news, handouts, and website updates.

We will design and deliver workshop session formats that are appropriate for the range of stakeholders involved and develop engaging informational materials to ensure stakeholder input is appropriate, meaningful, and useful. The Michael Baker Team would provide event logistics management. The Michael Baker Team can provide outreach equipment and supplies such as iPads, easels, tables, vote dots, Post-Its, and surveys. If necessary, our team can also obtain audio/visual equipment, including touchscreen monitors, microphones, speakers, and projection equipment.

Following each workshop, the Michael Baker Team will outline all received internal stakeholder comments and questions for each of the workshops in a feedback summary report, that includes attendance, minutes or written transcripts summarizing any written and verbal comments, photos, and videos. This will include analysis of the feedback provided and recommendations on suggested for next steps. The Michael Baker Team proposes two of these workshops early in the project to provide key input and guidance for the Guiding Principles Memo, facility selection and facility prioritization. Input from the City during these workshops is crucial to ensure the work products reflect the desires of the City and the effort is not just an extension of watershed-scale priorities. This will be a City product, not an EWMP add on. The final workshop is proposed following the facility identification and prioritization process and before the draft SWMP is developed. Our Team sees this as a key moment to gather the stakeholders and receive feedback on initial results. If adjustments are desired, this presents the opportunity to make them.

Deliverables:

- ***Targeted Engagement Plan***
- ***Informational materials (i.e., agenda, project fact sheet, and schedule) and key messages***
- ***Design, management, and implementation of at least three (3) interdepartmental City workshops (in-person or virtual facilitation, with working break-out rooms, if applicable)***

- *Workshop summaries capturing coordination with City staff, City consultants, utility districts/companies, neighboring cities, and LA County and providing:*
  - ◊ *GIS database with project pairing opportunities*
  - ◊ *Utility CIP project locations*

Virtual Meeting Rooms (Optional Service)

The Michael Baker Team offers the City the ability to host any of the proposed workshops, as well as any additional public information meetings that may be requested, through our unique Virtual Meeting Room (VMR) platform.

Since the beginning of the COVID-19 pandemic, we have seen an unprecedented rise in the use of virtual meeting technologies compared to before 2020. Now that agencies have begun utilizing tools such as VMRs, we can attest to the following patterns and lessons that we have learned:

1. Participation: Virtual meetings enable more individuals to participate in the outreach process and increase public feedback as well as attendance
2. Costs Effective: The cost is practically the same compared to a traditional in-person public meeting. It is widely misconstrued and assumed that virtual meetings are costly and unaffordable when that is simply not the case
3. Convenience: VMR allows project information and collateral materials to be centralized and provided online for an allotted period, which is important as this allows audiences to access the information and even view project meetings on their own schedule

When planning for a virtual meeting we take into consideration many different factors and scenarios but essentially the VMR's deliverables and specifics are very similar to the items covered when holding an in-person public meeting.

Examples of successful VMRs produced by our Team for several major clients since the pandemic began can be previewed and explored at the below links:

- Metro – Link Union Station:
  https://www.linkunionstation.com/virtual-meeting/index.php
- Metrolink – Central Maintenance Facility (CMF):
  https://www.virtualeventroom.com/metrolink-cmf/virtual-meeting/index.html
- City of Rialto - The State of Women 2021:
  https://www.virtualeventroom.com/city-of-rialto/state-of-women/2021/virtual-meeting/index.html

2.2 Guiding Principles Memo

The Michael Baker Team believes the Plan will benefit from a Systems Approach, starting with Guiding Principles that integrate the needs of City departments and the vision of its communities. Clear articulation of community-centric, technically achievable and reasonably fundable objectives and metrics for the Plan at the onset of the process is key to successful adoption, funding and implementation, with optimal internal and external stakeholder partnership and compounded benefits. This will ensure the developed Plan is technically sound and that there are no unforeseen political blind-spots that will interrupt the process.

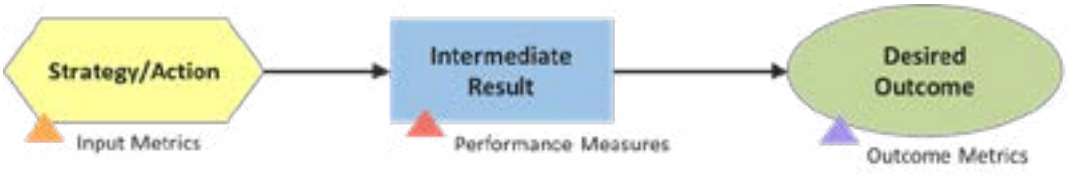
Drawing on the Team's experience working on improving the impact and effectiveness of stormwater programs, Guiding Principles as clear performance-driven quantitative metrics and qualitative principles/values will be developed to ensure regulatory compliance is achieved while promoting the City's overall vision and goals, including enhancing City assets and drainage infrastructure, ensuring social justice and maximizing positive impact to disadvantaged and underserved communities, energizing private sector partnerships, maximizing funding opportunities, rehabilitating Dominguez Channel, maximizing multi-benefit features including capture and infiltration, and integrating City, utilities, and other agencies capital programs including funded multi-modal transportation projects. The proposed approach promotes triple bottom-line benefits, economic-social-environmental, by achieving greater water quality outcomes, reducing compliance costs, generating new sources of funding, and engaging residents and private partners in efforts to reduce stormwater pollution, and enhancing the community as whole.

The engagement and goal setting approach is focused around a widely used tool[1]: a results chain diagram that makes it clear

1 Results chains are one of the many tools used in the *Open Standards for the Practice of Conservation: guidance used across North America that brings together common approaches, tools and terminology for environmental program design, management and monitoring. (Guidance Document Download) Results chain theory is described on pages 33-35.*

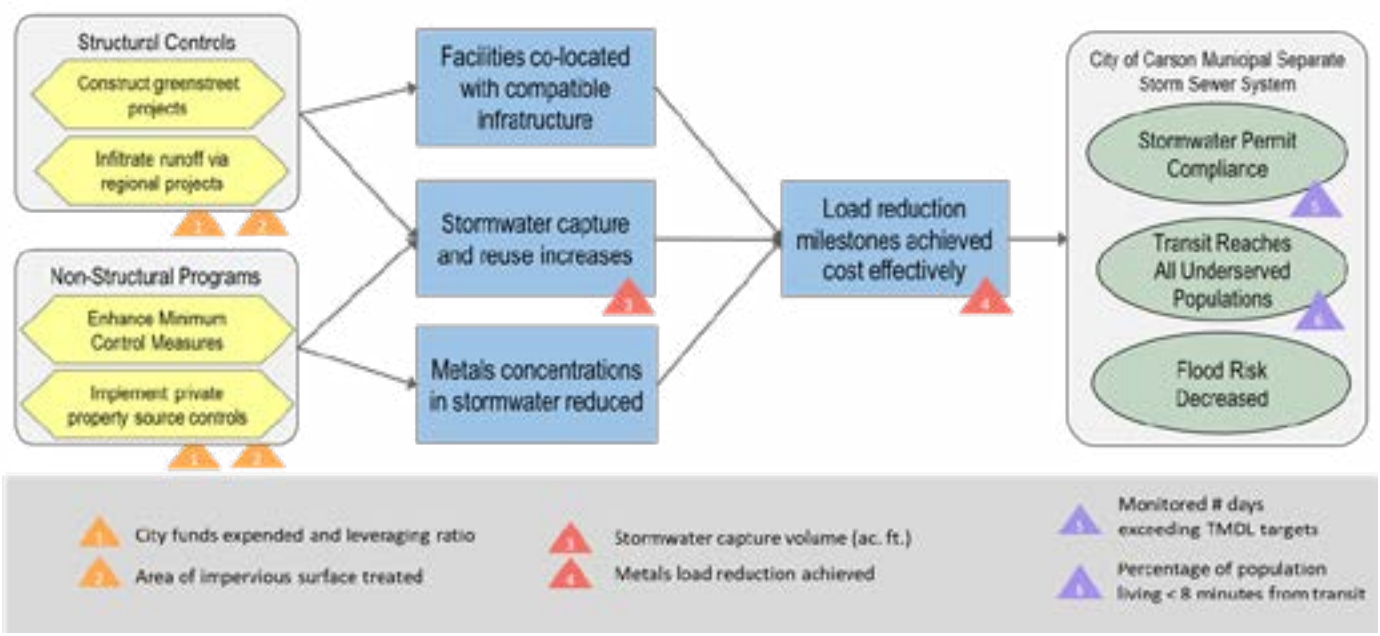
what actions can be taken, how they connect to necessary intermediate results and lead to desired long-term outcomes. Results chains also provide a succinct visual representation of quantitative metrics for the most important relationships between the science, the policies, and the stakeholder needs to guide stormwater plan design and maximize the benefits achieved with available funding.

Results chains have been successful in keeping municipal staff and their consultants focused on achieving measurable improvements to the MS4 and achieving compliance with permit provisions quickly, while recognizing that achieving community goals (like multi-modal transportation) is more motivating to stakeholders than avoiding compliance fines. The metrics within a results chain also provide flexibility for reporting success as projects in the Plan are implemented or found infeasible.



A key to the basic theory of a results chain showing how compliance strategies lead to intermediate results and then to desired outcomes. Metrics and targets can be developed for each stage of the results chain to clearly define expected accomplishments of the Plan.

Results chains can articulate the core of the Plan in a single page diagram (such as the hypothetical version below) that will help City departments communicate clearly with each other, engage essential stakeholders and win the confidence of elected officials. Results chains facilitate "discovery" of the right structural projects, non-structural programs and metrics to communicate performance. They promote discovery by helping stakeholders engage and project teams stay focused on what really matters.



A potential results chain for the City's Plan: including compliance strategies as yellow hexagons, intermediate results as blue rectangles and desired outcomes as green ovals. Reportable metrics are shown as triangles. While the actual results chain is likely to be more detailed, this communication tool quickly conveys essential information and focuses implementers on the actions and metrics that matter the most. A results chain can be the core of the Guiding Principles memo and a solid foundation for prioritization criteria, funding recruitment and program management.

The City must ultimately construct and operate the BMPs identified in the proposed Plan. How quickly that can occur will be a defining legacy of this effort. Therefore, identifying and successfully pooling funding from multiple sources will be addressed as part of the Guiding Principles Memo. Effectively engaging a group of potential project partners who will share interest in the successful implementation of the Plan may be a core method to achieving the objective. Michael Baker sees other entities in the City who are also subject to NPDES permits as untapped potential for project partnership. Our approach will include reaching out to Industrial General Permit (IGP) permittees, Caltrans, and future Commercial, Industrial, Institutional (CII) permittees who all share the common goal of managing stormwater to limit pollutant discharge.

- IGP permittees have the option of using the "Offsite Option" to partner with downstream project owners to meet their permit requirements. Michael Baker has worked with a discharger on this approach and is active in the IGP re-issuance to expand this program to the watershed scale.
- Carson has already benefited from a Caltrans funding partnership. Michael Baker has developed and implemented the Caltrans stormwater program for over 20 years. Our team has strong working relationships with the co-leads of the new Clean California initiative.
- The upcoming CII permit for the Dominguez Watershed will identify an entirely new group of stormwater permittees. The permit will include an option to comply through watershed partnerships and the City should prepare to work with permittees in the City and throughout the watershed.

Identifying potential partners presents an opportunity to support permittees who call Carson home while accelerating the development of stormwater facilities by tapping new funding. Making common investment in stormwater facilities throughout the City may present the most effective use of money for all.

The Michael Baker Team understands that Task 2.2 and its resulting Guiding Principles Memo, are key for the smooth and successful prioritization of watershed opportunities in Task 3 and feasibility studies in Task 4. Specifically, the quantitative and narrative metrics lead to prioritization criteria for structural projects and non-structural programs in Task 3. In addition, linkages to community priorities (for example recreation opportunity, workforce development or alternative funding sources) directly drive the feasibility studies that are planned for Task 4.

The Guiding Principles Memo will be reflective of the broader City goals, ensure that infrastructure and development projects are complimentary and provide multiple benefits, including providing awareness of the ongoing transition of contaminated lands from earlier uses that may lead to brownfield development that must be accounted for in the Stormwater Master Plan. We recognize that the Plan is only a vehicle to drive intelligent implementation. Implementation in a politically viable and technically feasible way is our focus and the focus of this approach.

Deliverables:

- ***Draft Guiding Principles (presentation to City)***
- ***Final Guiding Principles (memorandum)***

TASK 3 WATERSHED OPPORTUNITY SCREENING AND PRIORITIZATION

3.1 Structural Project Identification and Prioritization

Many potential project opportunities have already been identified by previous studies of the Dominguez Watershed. Michael Baker proposes to obtain and reference those locations to supplement a Carson-focused project identification process. Any disparities between the resulting sets of project opportunities will be reviewed. This approach will make use of the substantial investment Carson has already made in regional site identification and modeling efforts while ensuring nothing was missed by deploying our proven approach for site identification.

The existing studies that have the greatest bearing on this project are the Green Street Implementation Plan (GSIP) and the 2021 Enhanced Watershed Management Program (EWMP). The GSIP identified the location and drainage area of green street opportunities throughout the City and then modeled various combinations of them. The 2021 EWMP identified likely locations for dry wells and regional BMP facilities. This combination of green streets, dry wells, and regional facilities will provide a good starting point for evaluation. If the City does not already have the data from the analysis in the GSIP and 2021 EWMP Michael Baker will support efforts to obtain it from the watershed group.

Michael Baker will then use the BMP identification process developed for the City of Culver City's Stormwater Quality Master Plan. We will illustrate the local context to find thoughtful and suitable locations and strategies for creating multi-benefit stormwater projects that may address contamination remediation, recreation, habitat, housing, employment, and the ebbs and flows of water, food, waste, energy, commerce, and people and wildlife through the City along with water quality and

water supply. This process will similarly identify potential green street, drywell, and regional BMP locations using custom scripts that screen the appropriate GIS data. Our approach places particular emphasis on identifying and maximizing the potential or large scale, regional facilities. Successful implementation of those facilities at the most valuable locations will serve two purposes. First, they will provide the most progress to achieving the City's, and therefore the watershed's, pollutant removal targets, making them more attractive for funding. Second, maximizing the drainage area of these facilities will result in less investment in drywells and green streets. These concentrated facilities will result in a greater return on investment and reduce long term O&M costs.

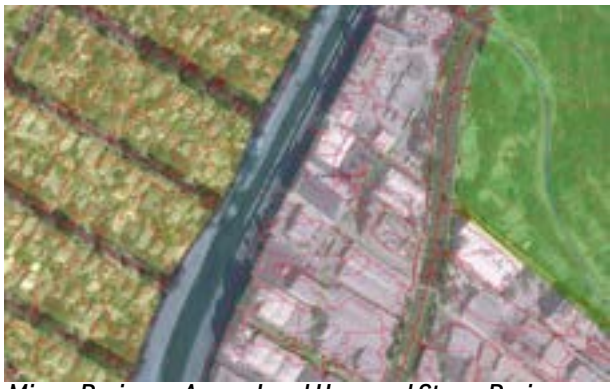
3.1.1 Structural Project Identification

The key element of this subtask is the automated identification of various types of project opportunities based on key characteristics.

The Michael Baker Team will have a head start, and ability to provide cost savings, for this effort. Typically, the first few steps include mapping drainage areas down to the individual catch basin level using GIS to incrementally refine drainage areas. Our work on the Dominguez Channel Watershed Study has already produced this information and connected those drainage areas to the appropriate storm drain system. We will begin with assigning each drainage area an identification (ID) number. Each ID is coordinated with the drainage area upstream of it to associate it with where flow is coming from and allow for analysis of runoff accumulation.

The Michael Baker Team will then use the micro-drainage areas that result from the delineation process, in combination with much of the other information gathered in Task 1.2, to identify project opportunities. The information from Task 1.2 will be entered into GIS and combined to produce polygons with specific attributes throughout the City. This approach will include many characteristics, including:

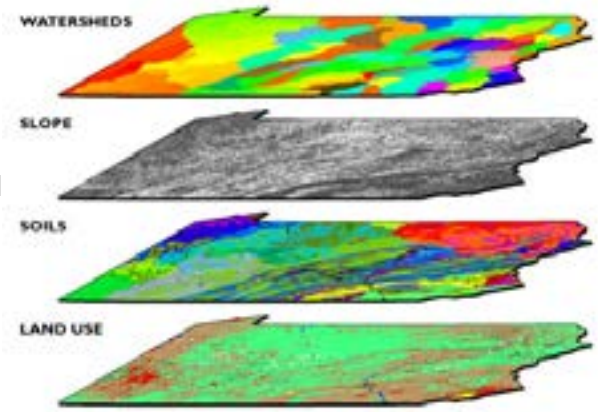
- Parcel Ownership;
- Imperviousness;
- Drainage Infrastructure;
- Soil Types;
- Groundwater Depth;
- Roadway Constraints;
- Potential Soil Contamination;
- Slopes; and
- Flow Accumulation.



Micro-Drainage Areas, Land Uses and Storm Drains

Other factors and information that may be used include SCAG and CalEnviroscreen air quality data and equity considerations such as income.

The Michael Baker Team's skilled GIS technicians will then execute scripts that will screen parcels using "rules" to sort the polygons for specific attributes; either desired or unwanted. Each potential BMP type has its own set of rules identified and GIS will then search for and identify potential locations for placement. A BMP hierarchy will be developed to ensure the most beneficial locations are dedicated to the most effective BMPs and the remaining locations are sorted for lower tier opportunities. The GIS will produce a project footprint and attribute the project opportunity with information about the drainage areas that reach that location.



GIS Data will be Layered, and Attributes will be Assigned to Micro-Drainage Areas

BMPs that retain runoff are the preferred alternative, as it is most effective at removing pollutants from receiving waters and provides the opportunity for multi-benefit projects. Project locations will be reviewed for the potential to infiltrate to an unconfined aquifer or divert runoff to sewer to maximize Water Supply benefits for Safe Clean Water scoring. These BMPs may be defined as large regional projects at parks, golf courses, schools, along streets (e.g., in the form of dry wells), or within private properties. When producing a Water Supply benefit is found to not be feasible, harvest and use opportunities will be sought out, as well as opportunities to capture stormwater and treat it and release it back into the storm drain system. Finally, biofiltration locations will also be identified.

3.1.2 Modeling

The Michael Baker approach to this project does not include the development of yet another water quality model that covers the potential BMP opportunities in Carson. As previously discussed, the City has exhaustive water quality modeling already as part of the GSIP and the 2021 EWMP. Following completion of this project in June 2023 the City will be just two years away from the next update to the RAA beginning. Rather than spend additional funding on more modeling for the entire City, we propose to use that funding on the development of three Feasibility Studies and reserve funding for two additional Feasibility Studies if more than three great locations are identified or the actual implementation of projects identified by this Plan. Beginning to implement projects will provide a greater value to the City.

Targeted modeling efforts can provide value when focused on the highest rated regional BMP opportunities. This targeted modeling will ensue regional BMPs are right sized to maximize their benefits and provide key information about the ability of a facility to treat the entire drainage area. This modeling is proposed and detailed in Task 4 - Feasibility Studies.

3.1.3 Prioritization

Based on the project opportunities identified in Task 3.1.1, the Michael Baker Team will implement our process for project prioritization that considers BMP performance and additional multiple benefits that are critical to project selection and implementation. The goal of this task is to mold a set of tools that are practical, easily understandable, and that can be updated in the future by the City's Engineering and Planning Departments, while utilizing quantitative techniques that are consistent with methodologies used in the Dominguez Channel EWMP and annual reporting to the Regional Water Quality Control Board (RWQCB).

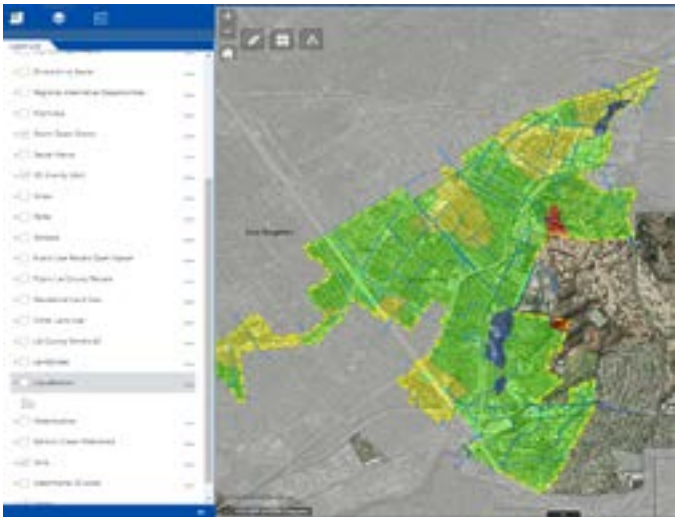
Prioritization will consider multiple benefit potential and associated scoring metrics that can be assigned to each individual project. The Michael Baker Team will meet with City staff to identify project benefits that are important to the City and critical to project selection. For instance, while developing the City of Culver City's Stormwater Quality Master Plan, stormwater capture projects were assigned additional points if they could be co-located with other capital projects currently planned by the City to address flood control. A similar approach would look to prioritize BMP projects in road right-of-way by pairing them with pedestrian, utility, or bicycle improvement projects the City already intends to complete. The combining of stormwater projects with other capital projects provided cost-efficiency and improved the chances for implementation. Additional scoring metrics may consider factors that impact project effectiveness such as:

- Imperviousness,
- Land use
- Treatment mechanism, or
- Soil Type

Rather than a focus on stormwater, other community benefits important to the City can be identified and prioritized, such as:

- Disadvantaged Community benefit
- Enhanced habitat,
- Reduced heat island effect,
- Multi-modal transportation planning, or
- Planned re-development.

For City projects to be eligible for future funding, such as Proposition 1 grants and Safe Clean Water Regional Program funds, projects need to demonstrate that multiple benefits have been evaluated and considered.



Example of Web Viewer to Review Data and BMP Opportunities

Table 2 on the following page provides an example of a prioritization approach our Team developed for the City of Culver City, which assigns scores (i.e., columns: 0 to 5) to various metrics (i.e., each row) associated with project effectiveness and various multiple benefits, which are consistent with common grant requirements. The approach assigns points to each individual project, which results in a database of projects with individual scores that can be used to rank projects. The approach is easily understandable and can be updated in the future by the City's Engineer and Planning Departments as additional project opportunities are identified and added to the database, resulting in tools that can continue to support the City throughout implementation.

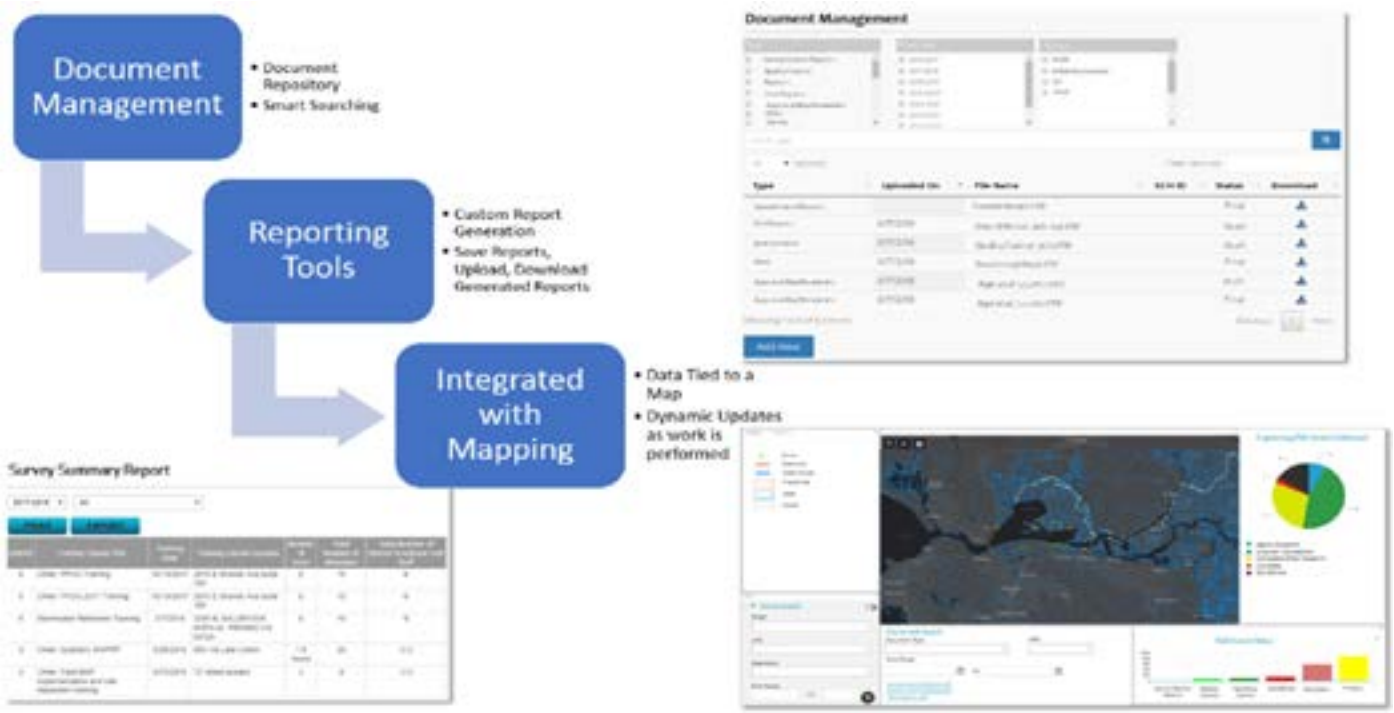
Based on the scores assigned to each project, the Team will rank projects and identify those that can be categorized as high, medium, or low priority for implementation. The Team will prepare a GIS layer in ArcGIS that includes each individual project

type, location, and prioritized score, which will be delivered to the City. The Team will also develop a web-based map viewer that will be shared with the City (via weblink), which will include the above referenced GIS and additional City imagery. It will be accessible to multiple users for review, discussion, and use. The web-based viewer, operating similar to Google Maps, encourages a wide range of City staff and stakeholders with and without GIS capability to be engaged in the process, and allows reviewers to zoom into specific project locations and navigate the GIS in ways that are impossible with static maps. Upon completion of the SWQMP, the City will be able to continue using the web-based viewer to assist with project implementation.

Table 2: Example of a Prioritization Approach

Metric	Points					
	0	1	2	3	4	5
PHYSICAL CHARACTERISTICS						
Regional Stormwater Projects						
Drainage Area (acres)	Less than 10	10 to 20	20 to 50	50 to 100	100 to 200	200 or greater
Site Slope (%)	10 or greater	10 to 5		5 to 2		Less than 2
Proximity to Storm Drain (ft)	Greater than 500	500 to 200		200 to 100		Less than 100
Impervious Area (%)	Less than 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 100
Hydrologic Soil Group	D		C		B	A
Dry Well Projects						
Drainage Area (acres)	Less than 1	1 to 2	2 to 5	5 to 10	10 to 15	15 or greater
Site Slope (%)	10 or greater	10 to 5		5 to 2		Less than 2
Impervious Area (%)	Less than 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 100
Within Drainage Area of Another Proposed Project	Yes					No
Hydrologic Soil Group	D		C		B	A
Green Street Projects						
Site Slope (%)	Greater than 5	5 to 4	4 to 3	3 to 2	2 to 1	1 or less
ROW Width by Street Class		Narrowest 33%		Middle 33%		Widest 33%
Utility Constraints	Multiple high conflict utilities	One high conflict utility				No high conflict utilities
Within Drainage Area of Another Proposed Project	Yes					No
Hydrologic Soil Group	D		C		B	A
MULTI-BENEFITS (All Projects)						
In Neighborhood with Localized Flood Issues	No					Yes
Private Development Project Within Drainage Area	No					Yes
Pollutant Source Areas Drainage area contains at least 10%	Other	Low Density Residential	Transportation	High Density Residential	Commercial	Industrial
Co-located With Another City Project	No					Yes
Groundwater Constraints	In contamination area AND depth to	In contamination area OR depth to		Depth to first groundwater 10 – 20 ft		Depth to first groundwater > 20 ft
Disadvantaged Community (DAC) Benefit	Not a benefit to a DAC or Low Income Community			Within Sphere of Influence of DAC or Low Income Community 500 ft		Within Low Income Neighborhood
Urban Heat Island Index		UHII < 20% of Census Tracts	UHII > 20% of Census Tracts	UHII > 40% of Census Tracts	UHII > 60% of Census Tracts	UHII > 80% of Census Tracts
Ballona Creek Revitalization	No			Within 250 ' of Ballona Creek		Within 50 ' of Ballona Creek
EWMP EQUIVALENT VOLUME						
EWMP Equivalent Volume (AF)	0-0.05	0.05-0.1	0.1-0.2	0.2-0.5	0.5-1.5	>1.5

Information generated to this point in the project will be housed in a single database and shown in the web mapping tool described above. The information in the database will including BMP type, treatment volume, and prioritization scores and all of the foundational data used to generate that information. To better interpret the large amount of data, the Michael Baker Team will develop a web-based dashboard. Tools built into the dashboard will facilitate access to, and use of, the data. The web mapping tool that shows the locations of the BMPs described above will also be accessible through the dashboard. Cut sheets for each project opportunity that identify key project information will be linked to the web map to allow for ease of access from this location.



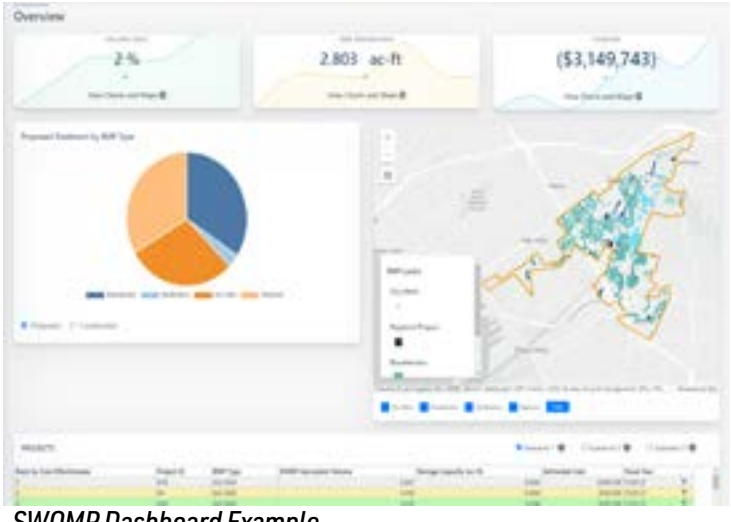
The Dashboard - A Single Location to Manage Implementation of the SWQMP

The dashboard will be accessible to the City to query information about prioritized project opportunities. Figure 6 provides an example of what the dashboard can look like, providing:

- Schedules by fiscal year,
- Display of priority lists for each scenario,
- Available funding, and locations will be easily queried and displayed.
- A dynamic form to add new projects or data to the database; and
- Project completion option that adds project info to compliance total tally.

Additional customized tools, developed in coordination with the City, can also be developed. The dashboard also presents the ability to move many existing planning efforts to the system. Each of the plans has its own "section" and the platform becomes a place to quickly access various City efforts. For example, we added a Hazard Mitigation Plan section for Culver City following updates to that plan. As the City moves forward with Trash Amendments activities, Economic Development Strategic Plan, and Comprehensive Asset Management Plan, the dashboard can be the central hub where the results of these efforts are available to City staff. This would also be a prime location to begin storing information generated about and by the City's non-structural stormwater program activities.

The value of this system is that it allows all users to view and use a vast amount of data efficiently, without any prior training or knowledge of how to use the GIS database software. The website and database application will be based on ESRI ArcGIS Portal or ArcGIS Online, SQL Server database technology, and will be created as an easy-to-use web mapping application. It will also allow the project team and the City to view GIS data gathered throughout the project, see status of potential and planned projects, and view reports, along with the other dashboard data. Designed for non-GIS users, access could even be provided to the public, if desired. The Michael Baker Team's GIS, database, and website developers have access to the components that make this technology not only easy to use, but also provide vital information about the City's MS4 Program at any time, and in a centralized location.



SWQMP Dashboard Example

Deliverables:

- ***GIS Database containing:***
  - ◊ *Micro-scale catchments with attribute IDs;*
  - ◊ *Potential BMP project opportunities with drainage attributes*
- ***Database containing BMP information along with prioritization scores***
- ***Presentation of Draft Project Opportunities***
- ***Technical memorandum describing the project screening and prioritization***
- ***Web-based dashboard displaying prioritized project information***

3.2 Non-Structural Program Assessment and Optimization

The conventional thoughts on the effectiveness of non-structural BMP has been changing particularly related to the EWMP and RAA process. During the original RAA analysis EWMPs were allowed to claim a standard 10% reduction for non-structural BMP implemented across the watershed. This one size fits all rule was applied in a standard way decoupled from the number of non-structural BMPs or the intensity of the any of the identified practices.

The new MS4 permit recognizes that this is not an accurate way to reflect the use of non-structural BMPs, particularly when tying to model activities that produce pollutant targets and projected requirements to implement structural BMPs. Under the new permit stronger justifications are required to claim pollutant load reductions for non-structural BMP implemented. This includes quantifications of the effectiveness of any particular practice as well as the coverage area and intensity of the practice. The result of these justifications could show the effectiveness of some non-structural BMP being more or less effective that the historically used 10%. The claimed credit could also be further confounded by significantly different efficiencies on different categories of pollutants.

Michael Baker has conducted multiple studies on the effectiveness of non-structural BMPs and will bring this experience to the City as we work with City staff to examine the current activities including the Minimum Control Measures that are currently, planned, or potentially could be conducted where credits can be claimed in load reductions. These experiences include the trash generation studies Michael Baker staff conducted for the San Diego regional copermittees, a street sweeping effectiveness study conducted for the City of San Diego, an enhanced maintenance measure study for Caltrans, and aerial deposition white paper written for the Port of Los Angeles (POLA). Not only has our team completed these studies on the effectiveness of MCMs, but we also have direct, local experience incorporating non-structural activities into an RAA. Our recent work developing the Port of Long Beach (POLB) RAA highlighted the challenges and potential solutions to successfully incorporating activities into a modeling effort. Through all of this work, we recognize the importance from hearing from the staff completing the activities. The internal outreach process is something we have extensive experience with and will be a priority item. Our combined experience will guide our efforts for the City and make it likely any enhancements to non-structural activities are completed and tracked in a way that an benefit the program.

Michael Baker will leverage and document existing published data on these practices and the trends in accepted non-structural BMP effectiveness in the region in the MCM assessment and recommendation memo in an easily understood summary to help the City make management decisions. We will also explore possible redevelopment credits that can be claimed as part possible remediation of historical industrial properties as has been implemented in the Bay Area and Seattle for PCBs.

Deliverables:

- ***Questions used during staff interviews***
- ***Notes and summary document from staff interviews***
- ***Draft memo with MCM program assessment***
- ***Final memo with MCM program assessment and recommendations***

3.3 Compliance Pathway Refinement Strategy

The Michael Baker Team will look collectively at the prioritized list of structural project opportunities developed as part of Task 3.1 and the optimized approach to non-structural BMPs developed during Task 3.2 to collaborate with the City on potential paths forward. Our keys to this approach are:

- No additional city-wide water quality modeling at this time
- Maximizing the "best" facility locations
  - » *With an initial focus on regional, public parcels*
  - » *Then targeting the "Additional Regional BMP Capacity (TBD)" with private parcels*

- Implementing non-structural measures in targeted areas
- Producing this information so it is compatible with the next RAA update

No Additional City-wide Water Quality Modeling

As noted previously, the City has results from exhaustive water quality modeling already. The GSIP and 2021 EWMP modeled the City and many potential BMP locations. The watershed will once again be modeled during the next EWMP/RAA update which should begin in 2025 and be complete in 2026. We recommend the City take advantage of modeling efforts it has already paid for and will be paying for again in a few years rather than make additional investment in more city-wide modeling at this time.

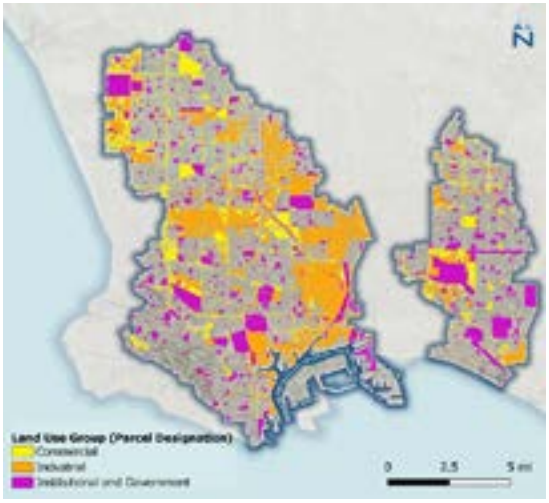
Maximize the "Best" Facility Locations

The structural BMP identification process will collect and identify hundreds, if not thousands, of potential locations for projects. Our prioritization process will then assign values to the various characteristic of each project which will reflect their contribution toward stormwater management as well as value to the community. Utilizing the ranked projects from the multiple-benefit prioritization approach, the Michael Baker Team will present three alternative analytical methods for implementation of potential projects. The word "best" is subjective, for this project spanning ideas like volume of stormwater capture, greatest community contribution, easiest to implement, or likeliest to obtain funding. Our approach looks for multiple ways to interpret the word and will be reflected in three implementation scenarios:

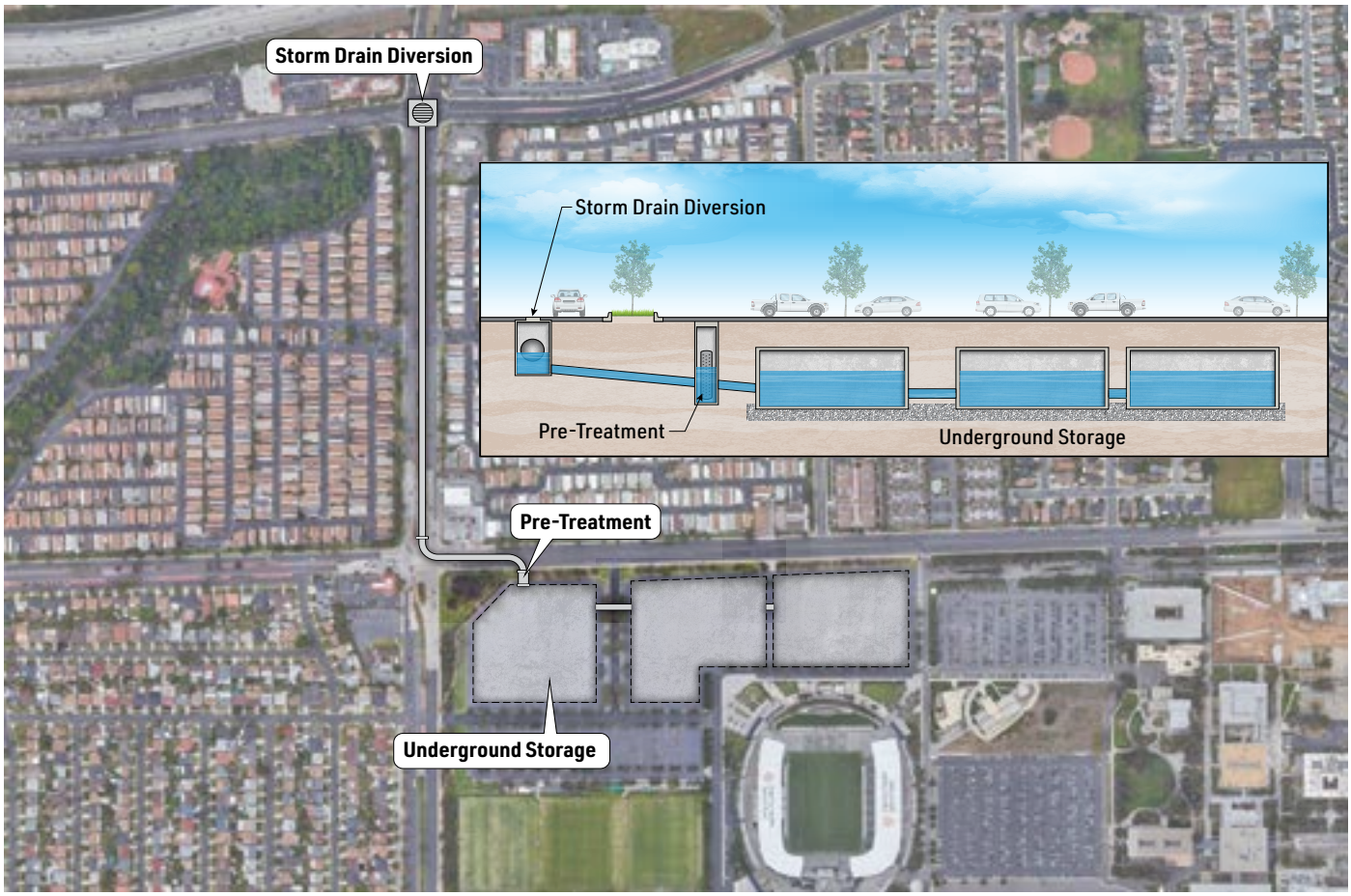
- **Scenario 1** (Funding-Based): Will determine the projects that can be implemented based on available funding. Available funding may consider the City's portion (approximately $2,190,000 per year) of Measure W funds in addition to other funding planned for stormwater management. Results of Scenario 1 can support future coordination with regulators to potentially extend final EWMP milestones, based on feasibility and current funding capability. Future regulations may include mechanisms that extend Total Maximum Daily Load (TMDL) compliance schedules based on outcomes from financial capability analyses or master plans developed by each agency in the County.
- **Scenario 2** (Compliance-Based): Will determine the projects that most quickly make progress toward the water quality goals set by the Dominguez Channel EWMP for the City. The results of this analysis may also be used in potential extension of EWMP milestones.
- **Scenario 3** (Multi-Benefit Opportunities): Will determine the projects with the greatest multi-benefit characteristics. The result of this sorting of potential BMP opportunities will look collectively at the physical and multi-benefit characteristics of each opportunity. The highest scoring projects in this scenario will likely present the best opportunity for grant funding opportunities.

While Scenario 1 will help the City understand which projects might be feasible each fiscal year, Scenarios 2 and 3 will identify which projects can really make a difference on the path to compliance. The potential projects at the top of those lists will create a foundation for compliance efforts throughout the rest of the City by addressing significant drainage areas. We expect the top projects from those scenarios to include the five projects that will move forward for Feasibility Studies in Task 4. High quality locations that can address significant drainage areas will be the constraining factor for the City. The opportunities must be maximized, which may mean incorporating drainage elements that are not initially apparent. The Michael Baker Team encountered a condition like this on a similar project. One of the best regional facility opportunities presented more capacity than the drainage area could use. This prompted our team to identify a storm drain diversion location from an adjacent drainage area for routing to the opportunity. An engineering solution was much more feasible than finding another great project location.

Michael Baker encountered a similarly general and ultimately unhelpful "recipe for compliance" in the City. The approach presented in this proposal was able to reduce the "Additional Regional BMP Capacity (TBD)," or unknown project portion, of the volume target by nearly 30% and increase the potential Regional BMP volume by more than 35% in Culver City. Those changes were driven by maximizing regional opportunities and limiting reliance on distributed facilities. Better yet, those high impact facilities are the types of BMPs that can help the City make obvious strides toward the compliance target and are most likely to gain funding from the WASC through a Feasibility Study. The updated recipe also presents a much clearer view of what is possible using public space.



City of Culver City



Our proposed approach for the City will take an additional step by studying the potential of privately held parcels to close the "Additional Regional BMP Capacity (TBD)" gap. In the past it has taken projects of opportunity, like the Culver City and Costco partnership on Washington Boulevard, to locate large BMPs on private property. We'll look to translate that model to the City for places where redevelopment is going to occur. We'll also focus in on parcels likely to be included in the upcoming Commercial, Industrial, Institutional (CII) permit for the Dominguez Channel. The Michael Baker Team is supporting the Environmental Protection Agency (EPA) in the development of this permit which gives us unique insight to how it may impact future permittees.

Whereas private owners in the past may have been reluctant to host stormwater facilities on their property, their upcoming naming this permit may change the calculus. The permit will require onsite treatment, onsite retention, or coordination with municipalities to partner on projects. The permit is expected to include land areas that include unpermitted portions of IGP facilities, IGP facilities with No Exposure Certification, shopping centers, office complexes, car dealerships, warehouses, parking lots, and private schools. That presents an opportunity for the City. One potential location we identified is the significant paved areas at the Dignity Health Sports Park. Given these upcoming requirements, it may be possible work with them to host a regional facility. This is one of many potential locations throughout the City. We consider this evaluation a significant opportunity to work with external stakeholders and make the cost of compliance more reasonable for the City.

With regional facilities maximized throughout the City, the remaining drainage areas will become clear. It is in those areas we will want to focus on the implementation of distributed green infrastructure. These elements will be primarily drywells and green streets. Limiting the amount of distributed elements will result in a greater return on investment and reduced long term O&M costs.

Integrate Non-Structural Measures

The integration of non-structural control measures will also be most appropriate once the drainage areas for regional facilities have been identified. As discussed, these non-structural methods are more difficult and costly to track and incorporate into future water quality modeling efforts . Therefore, Michael baker proposes to be very deliberate when considering where in the City investment in these non-structural measures will occur to ensure they provide the greatest benefit. Specifically, we see the greatest value in drainage areas where regional BMPs are not feasible. By targeting

non-structural spending in those areas, it may be possible to reduce the number of distributed BMPs necessary in those drainage areas, ultimately saving the City in lifetime BMP O&M costs.

Another element that Michael Baker will consider in project selection and prioritization is the opportunity for habitat restoration and mitigation banking. For example, the approximate 13-acre marsh along Carson Harbor Village provides the potential for wetland restoration to promote water quality improvements and flood control benefits for the local community and overall watershed. Some of the benefits may include, erosion control, moderating groundwater levels, and improving native habitat functions, offering a range of enhancement and restoration approaches to meet requirements of state and federal regulatory agencies. At minimum, portions of the site may be used for mitigation of impacts tied to stormwater projects throughout the area. However, once site reconnaissance is completed, we can determine whether the site can qualify as a conservation bank to be used to offset future, unavoidable impacts from various projects within the watershed. This offers the potential of using the site for compensatory mitigation tied to flood control projects, while also providing the option for selling credits to others. Once the mitigation credits are identified, the parcels would ultimately become conservation easements managed by a third party ensuring the preservation of the site in perpetuity.

Prepare Data for Next RAA Update

After making this significant investment to plan and begin to implement stormwater facilities that will benefit the community it is important the information is reflected in the next EWMP update. With the workplan Michael Baker is proposing, the inputs to that next RAA update will be tuned to the true BMP potential in the City. Moreover, the Michael Bake Team developed Watershed Management Modeling System (WMMS) 2.0 which is the model used to update RAAs in Los Angeles County. That level of understanding of the program means we will identify the format and information need to easily enter the potential projects into the program during the next update. Therefore, the next update will result in "recipe for compliance" that more fully reflects the potential in the City.

Deliverables:

- ***Draft Compliance Strategies Memo***
- ***Presentation of the Strategy to the City***
- ***Final Compliance Strategies Memo***

3.4 Targeted Stormwater Drainage and Hydraulic Analysis

Michael Baker will prepare a drainage analysis for the targeted areas as identified by the City in collaboration with Michael Baker based on known flooding areas or previous work done within the Dominguez Channel Watershed Study. Michael Baker will leverage, or update as needed, our work from the Dominguez Channel Watershed Study. This includes a model of the drainage system, which contains the storm drain information (i.e. pipe sizes, length and inverts), the catch basin inlets (i.e. type and size) and rainfall information. This has all been collected and would require minimal updates and revisions. The team will use this data to perform targeted hydrology and hydraulics to identify the cause of the deficiency within the system and propose mitigation alternatives.

Our approach for this study is to analyze the drainage system in a coupled 1-dimensional and 2-dimensional model that incorporates surface and sub-surface conditions. Our extensive experience with advanced modeling has given us the knowledge and understanding to identify what key elements of a drainage system would benefit from cost-effective improvements. Michael Baker had great success in coupling dynamic and non-dynamic modeling recently for the City of Santa Ana, LACDPW for Manhattan Beach Pump Station and Dominguez Channel Watershed, City of Rancho Palos Verdes, City of Redlands, City of Tustin, City of Yorba Linda, and City of La Quinta.

The hydrology analysis shall quantitatively estimate the watershed condition surface runoff flowrates for the 10-, 25-, and 50-year. The hydrologic analysis will be performed in accordance with Los Angeles County 2006 Hydrology Manual.

The hydraulic modeling will be performed utilizing the unsteady hydraulic computations of the storm drain systems. The hydraulic modeling will incorporate surface street (2D) and sub-surface (storm drain, 1D). The streets will be modeled as 2D surface, with curb heights based on the County LiDAR topography, field survey (if necessary), and curb heights (from GIS Database, if available). The Capital Level of Flood protection, 50-year frequency on a saturated watershed, is required for all facilities draining a sump condition.

All drainage facilities in developed areas not covered under the Capital Flood Protection requirements will meet the Urban Flood level of protection, which is the 25-year frequency design storm falling on a saturated watershed. Street flow due to the Urban Flood may not exceed the private property line elevation. To accomplish this, LACDPW procedures allow flow from the 10-year frequency design storm to be conveyed in a storm drain and the difference between the 10- and 25-year frequency design storms to be carried by the street. The storm drain may carry more flow to lower the water surface on the street to below the private property line.

Michael Baker's institutional knowledge of the watershed will provide substantial benefits to the City that include leveraging existing data, maintaining hydraulic calculations methodology, easy data exchange with GIS database, visually engaging graphics and potential reduction in project and drainage improvement costs.

Proposed Improvements: Michael Baker will develop preliminary alternatives formulation for removal of hydraulic deficiencies for the targeted flooding areas (maximum of 3 locations/segments) within the existing "mainline" storm drain improvements. The conceptual assessment will focus on either: (1) constructing retention and detention facilities for flow reduction and water supply or water quality benefits, (2) constructing a diversion system, and (3) increasing the hydraulic capacity through enlarged drainage facilities or new parallel system adjacent to existing facilities. All "diversions" will be local, not regional. Potential concept alternatives will be proposed, so as not to divert flows from one watershed to another, unless approved by the City and/or County.

Cost Estimate: Preliminary construction quantity estimates will be performed for the recommended drainage improvements. A preliminary estimated cost of construction will be generated from the quantity estimate using approved unit.

Deliverables:
- ***Draft Drainage Analysis Memo for Three Locations***
- ***Final Drainage Analysis Memo***

3.5 Field Inspections (Optional)

The Michael Baker team will conduct visual inspections to verify locations and inventory existing storm drain facilities such as manholes, catch basins, culvert inlets/outlets and other structures if there are data gaps identified in previous tasks. Potential data gaps may include a lack of clarity on the direction of flow, size of conveyance facilities, and the condition of a facility. Michael Baker specializes in field collection and site evaluations. Our team of experts utilize cost effective solutions such as the Esri's Collector app which easily integrates into existing GIS systems while collecting accurate data location. Michael Baker will create an application to conduct these inspections utilizing a data schema discussed with the City to accurately verify and collect data points, attributes, location information as well as linking field photos to the appropriate feature.

Deliverables:
- ***Inspection Reports (if necessary)***

TASK 4 PROJECT FEASIBILITY STUDIES

4.1 Project Feasibility Studies

Michael Baker proposes to complete to complete three Feasibility Studies as part of this project. Our recommendation to focus on three takes into account the likelihood of the WASC selecting more than three Carson proposed projects during the next five to ten years. With that consideration, focusing on the best three is the most effective use of funds. Our approach has reserved enough of the budget such that we could complete two more Feasibility Studies within the proposed budget if exceptional opportunities are identified. However, the funds saved by moving forward with three rather than five may be best used to start designing and implementing projects. Our team will work with the City to identify which three projects to move forward. This coordination will be focused on the three scenarios developed in Task 3.3 and will weigh which projects are most likely to receive outside funding, find a contributing project partner in the City, and provide value to the community.

The Michael Baker Team has a complete understanding of the Safe Clean Water Program scoring criteria and Feasibility Study process. The Team has worked as an instrumental partner with the County on the development of the Safe Clean Water program, most importantly on the project scoring module and submission forms. This unparalleled understanding of

the program and what helps projects differentiate from others will serve the City well during development of the Feasibility Studies. In addition, the Team has prepared Feasibility Studies under the Safe Clean Water Program, multiple projects that evaluated potential opportunities using criteria identified in the program and is currently kicking off another Feasibility Study for a project identified in the Culver City Stormwater Master Plan.

Our approach to Feasibility Studies is to prepare projects for submittal to the Safe Clean Water Program for Infrastructure Funding that not only check each box but highlight the unique value each project presents. The Michael Baker Team understands that it will be important to not only demonstrate the value of each project for the City but also the watershed, in order to gain WASC support. Our team has experience coordinating with WASCs and presenting projects to gain approval for funding. Each of the projects evaluated under this task will follow the requirements of the Feasibility Study Guidelines, including the elements identified in the RFP. Detailed portions of our approach are provided in this section.

Project Concepts

For each project selected for a Feasibility Study, the Michael Baker Team will create a project concept that pulls together information produced during the project identification and prioritization process in Task 3.1. Those concepts will confirm initial constructability, identify locations for stormwater diversion or sewer tie in, and note the need for any pumps or control systems. Potential treatment approaches will also be identified at this step to determine if diversion to sewer or stormwater use are feasible. A determination about infiltration will be made following geotechnical and environmental review. A project description will be created that captures the concept.

Geotechnical and Environmental

Geotechnical investigations will be required for each project location will be consistent with the Safe, Clean Water Program guidelines. Each investigation will include a combination of review of available data, site reconnaissance, subsurface explorations, laboratory testing, and field infiltration testing, depending on the characteristics and requirements of the selected projects. The objective of the geotechnical investigations will be to identify primary geotechnical issues affecting the project design and construction, and to provide feasibility-level geotechnical design and construction recommendations.

Issues to be addressed may include local geologic conditions, groundwater conditions, geologic hazards, seismic ground shaking and other seismic hazards, foundations for proposed structures, underground pipe trench excavation and backfill, infiltration characteristics of subsurface soils, site grading, excavations, retaining structures, and other relevant geotechnical issues.

This effort will also include the identification of any potential environmental impacts or environmental considerations, which will be addressed with Phase I and Phase II environmental site assessments. Subsurface field investigation scopes will be developed based on specific characteristics of each potential project and to the site conditions, including soil conditions, groundwater conditions, and accessibility.

The evaluations described in this proposal assume:

- The locations being investigated have no overhead obstructions,
- Infiltration will occur between 10 to 15 feet below ground surface,
- Access will be provided to each location,
- Each location is accessible by a standard truck-mounted drilling rig during typical weekday working hours, and
- A source of water is available onsite.

Design Options Workshop

The project team will meet with the project stakeholders to discuss potential design options that may be included. Key elements are likely to include the overall scale and scope of each project, the location of project elements, the drainage area(s) addressed, the methods of treatment, opportunities to include green infrastructure or recreational enhancements, and the potential for phasing these elements. The purpose of the workshop will be to educate the stakeholders on the potential options, explain the implications of each, and receive direction on the desire to pursue each option. The workshop will include staff identified by the City and any appropriate external stakeholders.

Project Modeling

The project team will then utilize the County's WMMS 2.0, the same model used by the Safe Clean Water (SCW) Program, to estimate inflows to each project. Using WMMS 2.0 ensures that the meteorological data, land use, and modeling methodologies used for project sizing are consistent with the SCW Projects Module that is used for submitting SCW funding applications.

Initial project sizing, layout, and design will be based upon modeled inflows from the 85th percentile, 24-hour storm. Once the initial layout for each project is developed, WMMS 2.0 will also be used to simulate the expected average annual capture or treatment volumes. At this point it will be possible to identify the potential water quality and water supply benefits, which are then used to calculate SCW scores. If needed, the project layout will be adjusted based on model results to maximize SCW scores.

Draft Drawings and Preferred Alternative Memo

Using the input received during the Design Options Workshop and results of Project Modeling a draft set of drawings for the proposed project will be developed. These drawings will be for an approximate 10% level of design to demonstrate the feasibility of the project. Drawings will show the project in plan view and include profiles where needed. Detail drawings of specific design elements will be included when they add value. Key elements of the drawings, should they be requested as part of the Design Options Workshop, will include locations of stormwater diversions, stormwater capture vault, areas for stormwater use, pumps, inflatable dam, sewer tie in, conveyance system, and existing utilities. The locations and initial sizing of these elements will be provided on the drawings.

A Draft Preferred Alternative Memo will be prepared summarizing the important design elements, the alternatives considered, why they are included in the project, and the initial design and sizing process.

Final Drawings and Preferred Alternative Memo

Final Drawings of the proposed project will be completed by addressing the comments from the Draft Drawings developed previously. These Final Drawings will move the concept to a 10% level of design.

The Preferred Alternative Memo will be finalized based on comments received from the Draft Preferred Alternative Memo.

Permitting Summary and Matrix

The project team will prepare a "regulatory roadmap" by identifying the regulatory and local agency notifications or approvals and environmental review that will be required for the construction of the proposed project. Depending on the extent of the project, key regulatory stakeholders may include the Regional Water Quality Control Board, the Army Corps of Engineers, Los Angeles County Flood Control District, and the California Department of Fish and Wildlife. A summary matrix will include a list of the information required for each permit or approval, the triggers for the permits and approvals, the applicable regulatory agencies, the anticipated timeline for each approval, and the level of difficulty based on timing, cost, and level of interaction with the agency.

Life-Cycle Cost Summary

The project team will complete an exhaustive life-cycle cost estimate for the preferred alternative of the project. The life-cycle cost estimate will span the design, permitting, environmental review, construction, operation, and maintenance of the proposed project. Elements of the estimate will capture the engineering design, CEQA compliance activities, agency permitting, construction, monitoring, operations, and maintenance.

Feasibility Report, Applications, and Meetings

The project team will compile all site information, survey reports, constraints, engineering details, alternatives, life-cycle costs, project schedules, and plans developed during the feasibility analysis into one comprehensive feasibility study report for each project. The feasibility studies will be organized and formatted to facilitate production of the application to the SCW Program. The team will also develop an executive summary and PowerPoint presentation that succinctly illustrate the primary project components, layout, benefits, performance, and SCW scores.

The project team will support the City with estimates of SCW scoring metrics. The team will assist the City in producing an application for the SCW Regional Program for five projects. The team will also develop presentation materials for the Watershed Area Steering Committee (WASC) and will provide technical support at up to three WASC meetings where the prospective projects are discussed.

Deliverables:

- ***Three Feasibility Studies***
- ***Development and submittal of three SCW Program Regional Program Applications***
- ***Support with three WASC Meetings***

TASK 5 DEVELOP STORMWATER MASTER AND IMPLEMENTATION PLAN AND PROGRAM MANAGEMENT SUPPORT

5.1 Stormwater Master Plan

The comprehensive Stormwater Master Plan (SMP) Report will integrate the results of earlier tasks into a easily understandable framework to inform the City's stormwater management decisions on capital and operations investment strategies. Michael Baker will formulate recommendations and alternatives for the implementation of the water quality improvements that will satisfy the established objectives from the Guiding Principles Memo created in Task 2. Michael Baker will then use our understanding of the broader goals of the City to guide the prioritization process balancing the City of Carson's Economic Development Strategic Plan, Comprehensive Asset Management Plan, and other City capital infrastructure development initiatives to provide the best value and provide multiple beneficial uses. This analysis will include the use of Triple Bottom Line, social equity, and desires to grow a resilient city with the hard science and engineering based data that drives the City's obligations in the MS4 Permit, Trash Amendments, and the Dominguez Channel EWMP requirements.

The SMP Report will serve as a "User's Guide" for City staff to implement the SMP and understand how to modify it throughout implementation as lessons are learned, as well as opportunities arise for additional funding and/or project partnerships. It will outline a cost-optimal implementation strategy that weighs benefits versus costs and identifies the projects to be implemented based scenarios formulated during task 3. Full documentation of the project prioritization process will be included, allowing this to serve as an important reference for reporting project benefits, costs, and other information needed for future strategies that leverages the County's Measure W funding, project partnerships (e.g., Caltrans, CII permittees), and/or grant funding opportunities.

Key to the success of this SMP is the accessibility and ability to incorporate adaptive management as the results of this plan will provide long term guidance to meet obligations on different time horizons stretching over decades, multiple permit cycles, and potentially turn over in City staff. The Michael Baker Team's experience in communicating these types of technical information and incorporating it into the companion web-based platform will ensure the greatest utilization and communication of the SMP allowing for dynamic visualization of changes. It is important to make sure that the SMP is a living document to meet the needs of the City and not just a report that sits on a shelf and is quickly outdated.

Building from the Guiding Principles Memo the SMP will further develop and present the results of the earlier task as a compliance strategy so that the City can achieve their objectives in a timely manner and secure funding to implement. Key components of the SMP include a timeline, presentation of recommended concept projects including structural and nonstructural BMPs, a funding analysis, and recommendations on how to administer the SMP program.

THE SAME TEAM THAT BROUGHT FUNDING SUCCESS IN CULVER CITY

Water Quality Master Planning Success in first 6 months since adoption:

- Top rated regional project funded by WASC for a Technical Resources Project
- Proposition 50 funding obtained with a package of Green Street projects
- Successful attachment of master plan projects to proposed development within the City

Timeline

A schedule will be developed that outlines the recommended implementation of project opportunities, based on projected funding availability. The recommended improvements will also incorporate a phased approach, that considers risk characterization, potential impacts, and prioritization. Available funding will drive the proposed implementation schedule, while the compliance goals will help identify key projects to target for grant funding.

The timeline will serve as a keystone to the SMP anchoring compliance date to implementation. Long term plans like the SMP must be elastic and will be subject to adaptive management and thus feedback to the dashboard will provide the City the ability to see progress in real time or with projected scenarios in real time with dashboard metrics.

Financial Analysis and Strategy Development

Critical to the City's success in implementing its Plan will be a financing strategy that is cost-efficient, fosters intra- and inter-agency collaboration, and leverages existing grants and other resources at the local, state, and/or federal level. The development this strategy must be an integral part of and occur concurrently with the development of the SMP. Constraints and opportunities with financing considerations can help inform project design, scale, and optimization, and likewise, project design and stakeholders required for implementation can reveal new financing and funding approaches. The Michael

Baker team and sub consultants Quantified Ventures and Environmental Incentives have expertise in performing cost-benefit analyses of structural and non-structural stormwater management projects to help inform the overall value and prioritization of these project in the SMP. This analysis is also used to evaluate the potential for collaboration with additional project beneficiaries and stakeholders to commit funding or financing resources for projects, and supporting partners in identifying and accessing local, state, and government grant and other programs for their projects.

In developing a financing strategy as part of the Stormwater Master Plan, the Team's approach will be to:

1. Review and evaluate any existing cost-benefit analyses on structural and non-structural stormwater management projects in Carson
2. Identify and account for existing sources of and gaps for funding and financing to support implementation of the Stormwater Master Plan, to establish expected costs of the program
3. Consider the scale of stormwater management benefits related to reduced flooding, improved water quality, and potential for stormwater capture and reuse
4. Combine stormwater management considerations with identification of co-benefits, for example through health outcomes from reduced heat stress and improved air quality from nature-based infrastructure, carbon benefits, and improved connectivity or transportation infrastructure, among others
5. Leverage benefits assessment and cost-benefit modeling to engage with key project beneficiaries and other stakeholders both within and outside of the City of Carson to identify constraints and opportunities for financing, and establish willingness to participate in a collaborative financing strategy
6. Inventory programs and resources at the local, state, and federal level to provide grants, low-interest loans, credit enhancement, or other funding or financing resources that may be leveraged to support financing strategies.
7. Apply insights from financial stakeholder conversations and review of government programs and resources to shape and enhance attractiveness of the SMP to key financial stakeholders and grant opportunities
8. Develop several options of proposed financial structures and strategies for implementation of the SMP
9. Through continued stakeholder consultation and engagement, prioritize options based on interest and viability, generating final recommendations for financing strategy

To drive the implementation of the plan, City and outside funding will need to be expertly leveraged. Our Team will use the process detailed above and seek funding partners to speed the implementation. Michael Baker sees other entities in the City who are also subject to NPDES permits as untapped potential for project partnership. Our approach will include reaching out to Industrial General Permit (IGP) permittees, Caltrans, and future Commercial, Industrial, Institutional (CII) permittees who all share the common goal of managing stormwater to limit pollutant discharge. IN addition, ongoing City efforts have been identified to maximize the value of investments and initiatives.

- Coordination with the City's Economic Development Strategic Plan will be a primary source of intra-agency collaboration. As the EDSP comes together it may identify prime opportunities to incorporate signification stormwater improvements. The Michael Baker Team includes members of the EDSP consultant team which will result in a smooth flow of information between the efforts.
- IGP permittees have the option of using the "Offsite Option" to partner with downstream project owners to meet their permit requirements. Michael Baker has worked with a discharger on this approach and is active in the IGP re-issuance to expand this program to the watershed scale.
- Carson has already benefited from a Caltrans funding partnership. Michael Baker has developed and implemented the Caltrans stormwater program for over 20 years. Our team has strong working relationships with the co-leads of the new Clean California initiative.
- The upcoming CII permit for the Dominguez Watershed will identify an entirely new group of stormwater permittees. The permit will include an option to comply through watershed partnerships and the City should prepare to work with permittees in the City and throughout the watershed.

Identifying potential partners presents an opportunity to support permittees who call Carson home while accelerating the development of stormwater facilities by tapping new funding. At the same time, ensuring that the multiple significant efforts Carson is undertaking to chart its future are communicating with each other will enhance the value of money spent. Making common investment in stormwater facilities and infrastructure improvement throughout the City presents the most effective use of money for all.

Stormwater Program

Michael Baker is a long-term partner with its clients and provides turnkey services in all facets of developing and implementing a stormwater program. Our approach to this work begins with a clear understanding of the regulatory requirements that are meant to be achieved and reflects our knowledge of a client and their desires. This is evident in the wide range of task delivery for clients like Caltrans, California State Parks, Southern California Edison, and City of San Diego. Our decades of work with these partners, which include similar project needs as requested in this RFP, include regulatory understanding and negotiation, large planning efforts with tracking tools, but also the actual day to day implementation of these plans. Our efforts develop a course of action and also turn those works into reality; i.e. project design and delivery, inspections and O&M activities, asset assessment and management, and program administration and reporting.

Along with the administrative elements of a this program it will be necessary to implement projects. The Michael baker Team has a long history of getting things built and the Program will reflect that knowledge. Beyond the traditional approach to building infrastructure, alternative procurement via Pay-for-Performance contracts and Community-Based Public-Private Partnerships (and green bonds) can be discussed. Alternative approaches can align the incentives of the City with its contractors in the private sector. These funding and finance mechanisms result in greater implementation of projects and more environmental benefit for a given level of funding. Skill with these procurements (and solid traditional procurement) leads to additional funding from grants and loans from federal sources such as Water Infrastructure Finance Innovation Act (aka WIFIA), American Rescue Plan Act and California's State Revolving Fund.

Michael Baker will leverage this various experience to work with the City to document how to establish the necessary programmatic elements and structure to implement the SMP in a way that fits the City of Carson. The resulting product will empower the City to confidently take ownership of implementing the SMP developed as part of this project. We recognize the Program will need to allow for the city team involved in developing this SMP to be successful, but also for staff in the future to have a functional framework to act within.

Deliverables:

- ***Draft Stormwater Master Plan and Program Report***
- ***Final Stormwater Master Plan and Program Report***
- ***Stormwater CIP Finalized on Web Dashboard***

5.2 As-Needed Stormwater Program Management Support

Michael Baker prides itself in the philosophy of acting as an extension of staff to our clients which makes our team truly vested in the success of a project. This is particularly relevant to a long-term planning project such at the Carson SMP. Our team's full-service offerings will be available to the City as needed and requested to make the implementation of the plan successful. As discussed in Section 5.1, the Michael Baker Team has demonstrated success launching stormwater programs for our clients. We will work with the City to build momentum and skills during the 12 month support period so staff are ready to own the program in the future.

One key component where Baker can support the City is with critical outreach, engagement and education to build support and buy in to internal and external stakeholders. Water education programs, projects, and initiatives are vital to the public in each Southern California community and have especially been magnified in recent years due to the longstanding drought conditions. The Michael Baker team is prepared to spread awareness and help ensure that Carson residents, businesses, and local stakeholders are educated regarding the upcoming Carson Stormwater Implementation Plan update. MBI will support the Michal Baker Team and City staff with effective communications strategies and tactics by putting together a straightforward and proactive outreach program that will help educate Carson residents, business owners and other affected stakeholder about the purpose and overall benefits of the Plan.

Because the COVID-19 pandemic has significantly altered the planning and implementation that normally goes into putting together a public outreach campaign, Our team has strong experience utilizing digital-based media and virtual platforms as much as possible to communicate with internal and external audiences.

Our team will work hand and hand with the City staff to make sure they can fully take ownership of the SMP by helping to set up the program administration recommendations identified in Task 5.1. The City can leverage Michael Baker's broader experience in all phases of stormwater management from the design and review of projects and creative ways to fund them to the construction support and management of delivering those projects. Baker also stands ready with our institutional knowledge to train and support the city on how to operate and maintain constructed BMP as well as how to optimize implemented nonstructural BMPs.

TASK 6 OPTIONAL TASKS

6.1 Optional Tasks

6.1.1 Additional Feasibility Studies

Our proposal recommends development of three Feasibility Studies as part of the workplan. This recommendation considers the likelihood of more than three projects being selected by the WASC during the next five to ten years. While we anticipate compelling projects to come from this project, selection of those three projects by the WASC during this period would be an exceptional success.

However, the attractive opportunities developed as part of this work may require a reconsideration of this approach. As such, The Michael Baker Team has reserved enough funding to complete two additional Feasibility Studies which would bring the total up to five. Should the City determine there is desire to add more Feasibility Studies they would do so using this optional task. The approach to those Feasibility Studies would follow the methodology identified in Task 4.

6.1.2 Internal/External Stakeholders and Community Outreach and Engagement

The Michael Baker Team has extensive experience building community support for a variety of initiatives and programs advanced by corporate, business, political, governmental, non-profit and community-based organizations alike. The foundation of our successful outreach campaigns is rooted in our extensive knowledge of the region's political landscape, as well as our priority to research the diverse and unique communities whom they serve. Our understanding and appreciation of public diversity, along with the ability to accurately assess a situation and pinpoint problems, enables Dakota Communications to develop and implement successful outreach campaigns.

Our main objective for public outreach and community relations activities will be to educate, inform, and garner community support the City of Carson's Stormwater Facilities project. Our team understands the unique challenges and methods to reach the diverse stakeholders of the region, and is prepared to help manage expectations and foster trusted relationships on behalf of the City. Most importantly, we understand the concerns that residents may have about stormwater, an issue that we believe is best tackled through a comprehensive, easy-to-understand education and awareness campaign.

Our Team excels in the field of outreach and community relations, and is prepared to provide the City with effective strategic communication and outreach programs built to create and change a narrative, educate the public, counter misinformation, and ultimately encourage stakeholders to support the City's initiatives.

One of our strengths in developing effective community-based communications strategies is to think "outside of the box" to engage traditionally hard-to-reach communities. Our outreach strategies have included reaching out to faith-based communities, multi-ethnic outreach strategies, and grassroots outreach efforts.

Outreach to key community leaders and organizations to increase awareness of the City's Stormwater Master and Implementation Plan and building a clear dialogue within the surrounding community is vital. Community groups such as Neighborhood Councils and Homeowners Associations have been established to represent the community and serve as a valuable resource to reach out to residents across the City. Through these organizations, we can schedule meetings and public presentations where project representatives provide information about initiatives particular to each community.

We recommend identifying these groups, organizations, and stakeholders with the goal of creating a "Blue Ribbon Committee" to provide input and help guide the project forward. This committee, comprised of a variety of stakeholders including Chambers of Commerce, community organizations, environmental groups, and key community leaders will serve as an effective, authentic voice of the community.

After we discuss and evaluate previous communications and existing knowledge of the Plan with City staff and Public Works, we can then develop an outreach plan that incorporates any of the following facets:

- Public Noticing and Promotion: Develop a strategy aimed at generating widespread awareness and understanding of the Plan, taking into consideration socially conscious communications with disadvantaged communities and audiences within the City of Carson. This would take place across multiple platforms and include tactics such as canvassing businesses, mass mailings, social media posts for the City to communicate, and email blast campaigns to all interested stakeholders
- Stakeholder Database: Populated with any pre-existing stakeholder lists and databases, the database would include area businesses, stakeholder groups, community groups, and other organizations
- Collateral Materials: High-quality written, audio, and visual communications that provide an overview of the Stormwater Implementation Plan's purpose, process, and anticipated timeline in a manner that can be easily digested and understood

by members of the public. Visually friendly materials that are easy to share and clearly explain concepts incorporated into the Stormwater Implementation Plan such as infographics would also be produced by MBI's design team.

- Designated Project Website: This would serve as the official webpage for the Plan with the link distributed throughout the entire outreach cycle. This website can be elaborate and interactive or serve as a simple summary page and reference point for the Project. Virtual Meetings/Events, collateral materials, project messaging, media toolkits, and many other useful facets of outreach can be shown and stored on the website for stakeholders to access at any point in time
- In-House Production: Any selected facets of the outreach plan will be supported by MBI's industry-leading, in-house design studios, which specialize in graphic design, digital photography, web design, video production, and 3-D animation, along with technical writing, copy editing and copywriting.

6.1.3 Private Property Partnership Program (P4)

As the City strategizes to enhancing the sustainability and resiliency of its communities and assets, actively involving the private sector can be key in accelerating the transformation. One way to achieve that is by establishing and running a private property partnership program (P4) that offers payments to landowners and business owners for installing wet weather BMPs that reduce stormwater runoff and provide source water for outdoor uses. Cases for optimal partnership benefits, like large industrial facilities, will be considered for collaboration on larger multi-benefit projects and cost-sharing.

This project can focus on delivering technical assistance to landowners and direct outreach to underserved populations. This project may also introduce new policies that reduce participation barriers such as upfront rebate payments for materials or streamlining the application process. This project could also enhance the types of BMPs to better serve the needs of City residents- perhaps offering incentives for property owners who install permeable paver driveways to reduce the impervious area connected to the MS4. Other innovative BMPs may also be more desired by underserved populations.

This will allow the City to quantify the wet and dry weather benefits and take credit for those benefits, including water supply augmentation and pollution reduction. The program may potentially support workforce development associated with the business potential of installing dry- and wet-weather BMPs.

7. SUBCONTRACTOR LIST

1 | Catalyst Environmental Solutions (SBE)

Role: Environmental/Restoration/Permitting/Outreach & Engagement, Catalyst will bring their experience in redevelopment of industrial contaminated land as it will be needed in the project site selection and prioritization as well as costing and implementation. Their current experience in structural project identification, modeling, and prioritization will identify stormwater projects that would provide multiple benefits, particularly in supporting multi model transport and other amenities, as was done with Dominguez Channel beautification.

2 | Blue Ocean Civil Consulting (SBE/DBE)

Role: Feasibility Studies/BMP/ Storm Water Master Plan, Michael Baker has partnered with Blue Ocean on recent, similar projects such as the Culver City Stormwater Quality Master Plan. They will bring their specific experience in the Los Angeles County's Safe Clean Water program, and have worked closely with the implementation teams within the Tax Credit Program, Watershed Steering Committee, and Regional Program to leverage stormwater into beneficial uses.

3 | Paradigm Environmental Inc (SBE)

Role: Feasibility Studies/BMP/ Storm Water Master Plan, Paradigm is a CA-certified small business and a partner on the Culver City Stormwater Quality Master Plan and has been a key partner for the County during development of the Safe Clean Water program project scoring module, providing unmatched insight to how the program work.

4 | GROUP DELTA

Role: Geotechnical & Environmental Due Diligence, Group Delta understands the local geotechnical and environmental issues, and with a local office in Torrance, they are close to the City and can provide timely and responsive services for the project.

5 | ENVIRONMENTAL INCENTIVES (SBE)

Role: Funding/Grant Writing, Environmental Incentives will bring alternative procurement via Pay-for-Performance contracts and Community-Based Public-Private Partnerships (and green bonds) which aligns the incentives of the City with contractors in the private sector. These funding and finance mechanisms will result in greater implementation of the project and more environmental benefit for a given level of funding.

6 | QUANTIFIED VENTURES

Role: Funding/Grant Writing, Quantified Ventures bring to light constraints and opportunities with financing considerations to help inform project design, scale, and optimization, and likewise, project design and stakeholders required for implementation to reveal new financing and funding approaches.

7 | MBI STRATEGIC COMMUNICATIONS (SBE, DBE)

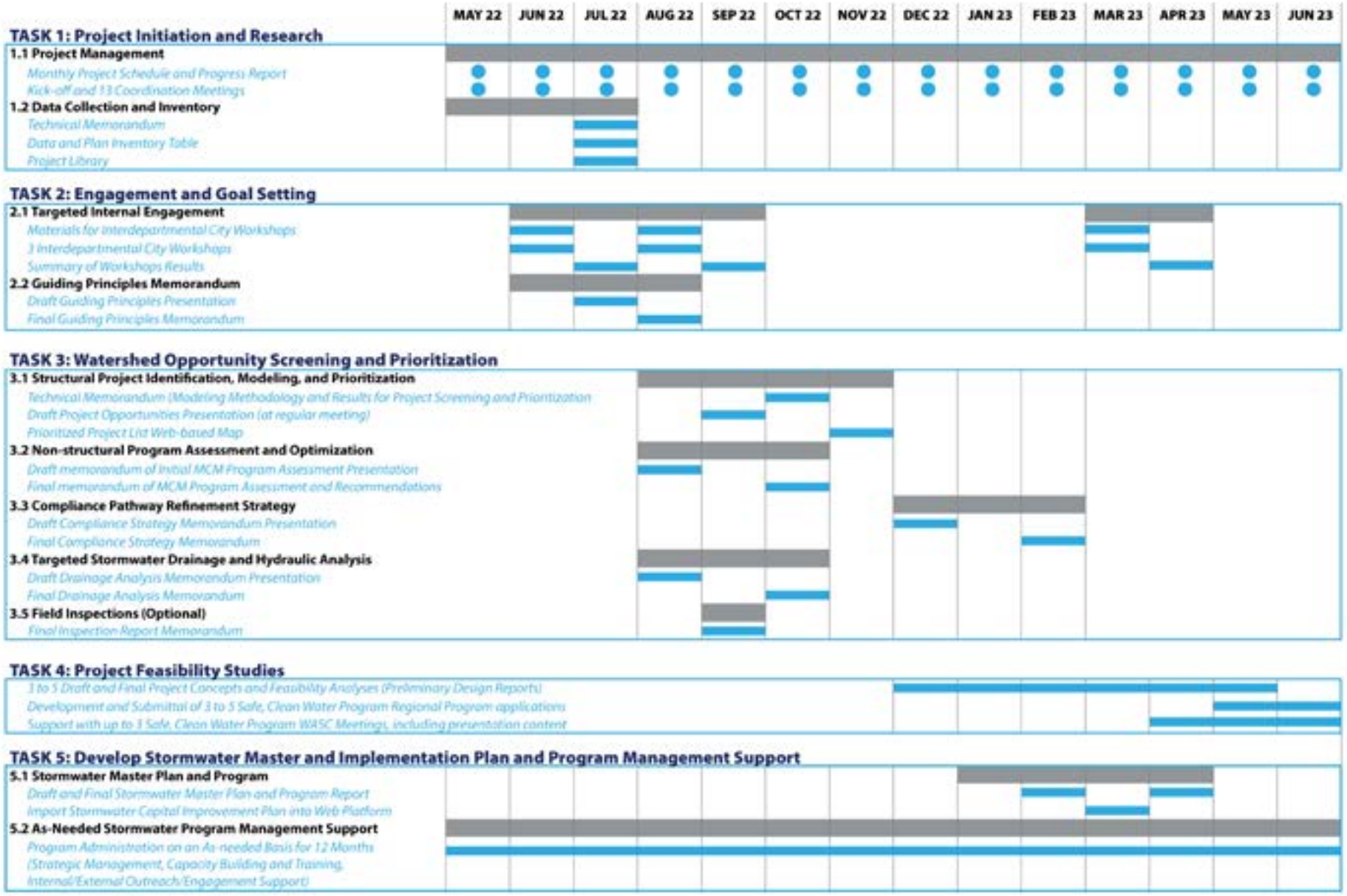
Role: Outreach & Engagement, MBI has led public outreach for the Carson-based West Basin Municipal Water District and enjoys a positive relationship with staff and the West Basin Board of Directors. They have assisted with a comprehensive public outreach campaign for their Ocean Water Desalination Project's Environmental Impact Report.

8 | DAKOTA COMMUNICATIONS (SBE, DBE)

Role: Outreach & Engagement, Dakota will identify groups, organizations, and stakeholders with the goal of creating a "Blue Ribbon Committee" to provide input and help guide the project forward.

Key personnel, telephone number, email address and contact person for all subcontractors can be found in Section 10.

8. SCHEDULE


MAY 22
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DEC 22
JAN 23
FEB 23
MAR 23
APR 23
MAY 23
JUN 23
TASK 1: Project Initiation and Research
1.1 Project Management
Monthly Project Schedule and Progress Report
Kick-off and 13 Coordination Meetings
1.2 Data Collection and Inventory
Technical Memorandum
Data and Plan Inventory Table
Project Library
TASK 2: Engagement and Goal Setting
2.1 Targeted Internal Engagement
Materials for Interdepartmental City Workshops
3 Interdepartmental City Workshops
Summary of Workshops Results
2.2 Guiding Principles Memorandum
Draft Guiding Principles Presentation
Final Guiding Principles Memorandum
TASK 3: Watershed Opportunity Screening and Prioritization
3.1 Structural Project Identification, Modeling, and Prioritization
Technical Memorandum (Modeling Methodology and Results for Project Screening and Prioritization
Draft Project Opportunities Presentation (at regular meeting)
Prioritized Project List Web-based Map
3.2 Non-structural Program Assessment and Optimization
Draft memorandum of Initial MCM Program Assessment Presentation
Final memorandum of MCM Program Assessment and Recommendations
3.3 Compliance Pathway Refinement Strategy
Draft Compliance Strategy Memorandum Presentation
Final Compliance Strategy Memorandum
3.4 Targeted Stormwater Drainage and Hydraulic Analysis
Draft Drainage Analysis Memorandum Presentation
Final Drainage Analysis Memorandum
3.5 Field Inspections (Optional)
Final Inspection Report Memorandum
TASK 4: Project Feasibility Studies
3 to 5 Draft and Final Project Concepts and Feasibility Analyses (Preliminary Design Reports)
Development and Submittal of 3 to 5 Safe, Clean Water Program Regional Program applications
Support with up to 3 Safe, Clean Water Program WASC Meetings, including presentation content
TASK 5: Develop Stormwater Master and Implementation Plan and Program Management Support
5.1 Stormwater Master Plan and Program
Draft and Final Stormwater Master Plan and Program Report
Import Stormwater Capital Improvement Plan into Web Platform
5.2 As-Needed Stormwater Program Management Support
Program Administration on an As-needed Basis for 12 Months
(Strategic Management, Capacity Building and Training,
Internal/External Outreach/Engagement Support)

9. COST PROPOSAL (PAGE 1 OF 3)

	Michael Baker												Paradigm					
TASK	Project Manager $211.75	Sr. Technical Manager $265.00	Technical Manager $220.00	Sr. Engineer $192.50	Project Engineer $165.00	Design Engineer $137.50	Assistant Engineer $110.00	Web Developer $187.00	GIS Project Manager $176.00	Sr. GIS Specialist $143.00	GIS Analyst $88.00	Graphics $82.50	Principal Engineer $235.00	Senior Engineer $215.00	Staff Engineer $180.00	Assistant Engineer $150.00	Senior Technician $130.00	Administrative Support $100.00
1. Project Initiation and Research																		
1.1 Project Management																		
Monthly Project Schedule and Progress Report	24	0	0	0	0	0	0	0	0	0	0	0	4	6				
Kick-Off and Thirteen (13) Coordination Meetings	30	20	0	0	0	0	6	0	0	0	0	0						
Total for Subtask 1.1	54	20	0	0	0	0	6	0	0	0	0	0	4	6	0	0	0	0
1.2 Data Collection and Inventory																		
Technical Memorandum	4	0	8	0	0	0	24	0	0	12	40	0						
Data and Plan Inventory Table	2	0	0	0	0	0	0	0	0	4	8	0						
Project Library - Web Map	1	0	0	0	0	0	0	0	0	2	4	40	0					
Total for Subtask 1.2	7	0	8	0	0	0	24	0	2	20	88	0	0	0	0	0	0	0
Total for Task 1	**61**	**20**	**8**	**0**	**0**	**0**	**30**	**0**	**2**	**20**	**88**	**0**	**4**	**6**	**0**	**0**	**0**	**0**
2. Engagement and Goal Setting																		
2.1 Targeted Internal Engagement																		
Materials for Interdepartmental City Workshops	12	0	0	0	0	12	0	0	0	0	0	0						
Three (3) Interdepartmental City Workshops	12	12	0	0	0	12	0	0	0	0	0	0						
Summary of Workshops Results	4	0	0	0	0	8	0	0	0	0	0	0						
Total for Subtask 2.1	28	12	0	0	0	32	0	0	0	0	0	0	0	0	0	0	0	0
2.2 Guiding Principles Memo																		
Draft Guiding Principles Presentation	16	0	0	0	0	0	8	0	0	0	0	0						
Final Guiding Principles Memo	8	0	0	0	0	0	0	0	0	0	0	0						
Total for Subask 2.2	24	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0
Total for Task 2	**52**	**12**	**0**	**0**	**0**	**32**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
3. Watershed Opportunity Screening and Prioritization																		
3.1 Structural Project Identification, Modeling, and Prioritization																		
Technical Memorandum and Results of Project Screening and Prioritization)	6	28	16	0	0	80	40	0	56	114	226	0						
Draft Project Opportunities Presentation (at regular meeting)	2	4	0	0	0	8	0	0	0	0	0	0						
Prioritized Project List on Web-based Dashboard	2	4	0	0	0	0	0	80	8	0	0	0						
Total for Subtask 3.1	10	36	16	0	0	88	40	80	64	114	226	0	0	0	0	0	0	0
3.2 Non-Structural Program Assessment and Optimization																		
Draft memorandum of Initial MCM Program Assessment Presentation	4	18	0	0	0	60	0	0	0	0	0	0						
Final memo of MCM Program Assessment and Recommendations	2	6	0	0	0	20	0	0	0	0	0	0						
Total for Subtask 3.2	6	24	0	0	0	80	0	0	0	0	0	0	0	0	0	0	0	0
3.3 Compliance Pathway Refinement Strategy																		
Draft Compliance Strategy Memo Presentation	6	24	0	0	0	60	40	0	0	0	0	0						
Final Compliane Strategy Memo	4	8	0	0	0	16	0	0	0	0	0	0						
Total for Subask 3.3	10	32	0	0	0	76	40	0	0	0	0	0	0	0	0	0	0	0
3.4 Targeted Stormwater Drainage and Hydraulic Analysis																		
Draft Drainage Analysis Memo Presentation	4	14	0	0	0	56	188	0	0	0	8	0						
Final Drainage Analysis Memo	2	4	0	0	0	20	52	0	0	0	0	0						
Total for Subask 3.4	6	18	0	0	0	76	240	0	0	0	8	0	0	0	0	0	0	0
3.5 Field Inpections (Optional)																		
Field Inspection Report Memo	0	0	0	0	0	0	0	0	0	0	0	0						
Total for Subtask 3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total for Task 3	**32**	**110**	**16**	**0**	**0**	**320**	**320**	**80**	**64**	**114**	**234**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4. Project Feasibility Studies																		
Three draft and final project concepts and Feasibility Studies	10	90	140	81	221	84	426	0	0	0	0	0	12	54	68	150	130	40
Development & submittal of three SCWP Regional Program applications	5	9	15	0	0	0	15	0	0	0	0	0	3		24	24		
Support with WASC meetings, including presentation content	6	12	0	0	0	12	0	0	0	0	0	0	3		22			40
Total for Task 4	**21**	**111**	**155**	**81**	**221**	**96**	**441**	**0**	**0**	**0**	**0**	**0**	**18**	**54**	**114**	**174**	**130**	**80**
5. Develop Stormwater Master and Implemenation Plan and Program Management Support																		
5.1 Stormwater Master Plan and Program																		
Draft and final Stormwater Master Plan and Program report	40	0	24	0	0	80	0	0	0	0	0	40						
Import stormwater capital improvement plan into web platform	2	4	0	0	0	0	0	40	0	24	0	0						
Total for Subtask 5.1	42	4	24	0	0	80	0	40	0	24	0	40	0	0	0	0	0	0
5.2 As-Needed Stormwater Program Management Support																		
Program administration on an as-needed basis for twelve months	48	0	0	0	0	120	0	0	0	0	0	0						
Total for Subtask 5.2	48	0	0	0	0	120	0	0	0	0	0	0	0	0	0	0	0	0
Total for Task 5	**90**	**4**	**24**	**0**	**0**	**200**	**0**	**40**	**0**	**24**	**0**	**40**	**0**	**0**	**0**	**0**	**0**	**0**
6. Optional Tasks - As Requested																		
6.1 Additional Feasibility Studies	8	24	32	24	40	26	120	0	0	0	0	0	6	30	48	96	86	28
6.2 Stakeholders and Community Outreach and Engagement	32	20	16	0	0	40	20	0	0	0	0	0						
6.3 Private Property Partnership Program (P4)	16	0	12	0	20	0	40	0	0	0	0	0	0	0	0	0	0	0
Other Direct Costs																		
Includes travel, reproduction, drilling, reports and other direct costs												$ 3,000.00						
TOTAL	256	257	203	81	221	648	799	120	66	158	322	40	22	60	114	174	130	80

9. COST PROPOSAL (PAGE 2 OF 3)

	Blue Ocean	Catalyst Environmental				Environmental Incentives			Group Delta			
	Project Engineer	Senior Principal	Principal	Staff Scientist	Project Coordinator	Senior Program Design Specialist VI	Senior Program Design Specialist III	Program Design Specialist III	Associate Engineer	Project Engineer	Staff Engineer	Designer/ AutoCAD
TASK	$160.00	$286.00	$270.00	$175.00	$93.00	242	178	120	$230.00	$190.00	$165.00	$105.00
1. Project Initiation and Research												
1.1 Project Management												
Monthly Project Schedule and Progress Report												
Kick-Off and Thirteen (13) Coordination Meetings												
Total for Subtask 1.1	0	0	0	0	0	0	0	0	0	0	0	0
1.2 Data Collection and Inventory												
Technical Memorandum			2	8					15		20	
Data and Plan Inventory Table												
Project Library - Web Map												
Total for Subtask 1.2	0	0	2	8	0	0	0	0	15	0	20	0
Total for Task 1	**0**	**0**	**2**	**8**	**0**	**0**	**0**	**0**	**15**	**0**	**20**	**0**
2. Engagement and Goal Setting												
2.1 Targeted Internal Engagement												
Materials for Interdepartmental City Workshops		3				40		40				
Three (3) Interdepartmental City Workshops		12				40						
Summary of Workshops Results		3					20	4				
Total for Subtask 2.1	0	18	0	0	0	80	20	44	0	0	0	0
2.2 Guiding Principles Memo												
Draft Guiding Principles Presentation						40	20	18				
Final Guiding Principles Memo						20	40					
Total for Subask 2.2	0	0	0	0	0	60	60	18	0	0	0	0
Total for Task 2	**0**	**18**	**0**	**0**	**0**	**140**	**80**	**62**	**0**	**0**	**0**	**0**
3. Watershed Opportunity Screening and Prioritization												
3.1 Structural Project Identification, Modeling, and Prioritization												
Technical Memorandum and Results of Project Screening and Prioritization)	24		4	12								
Draft Project Opportunities Presentation (at regular meeting)												
Prioritized Project List on Web-based Dashboard												
Total for Subtask 3.1	24	0	4	12	0	0	0	0	0	0	0	0
3.2 Non-Structural Program Assessment and Optimization												
Draft memorandum of Initial MCM Program Assessment Presentation												
Final memo of MCM Program Assessment and Recommendations												
Total for Subtask 3.2	0	0	0	0	0	0	0	0	0	0	0	0
3.3 Compliance Pathway Refinement Strategy												
Draft Compliance Strategy Memo Presentation		4	8	8								
Final Compliane Strategy Memo												
Total for Subask 3.3	0	4	8	8	0	0	0	0	0	0	0	0
3.4 Targeted Stormwater Drainage and Hydraulic Analysis												
Draft Drainage Analysis Memo Presentation												
Final Drainage Analysis Memo												
Total for Subask 3.4	0	0	0	0	0	0	0	0	0	0	0	0
3.5 Field Inpections (Optional)												
Field Inspection Report Memo												
Total for Subtask 3.5	0	0	0	0	0	0	0	0	0	0	0	0
Total for Task 3	**24**	**4**	**12**	**20**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4. Project Feasibility Studies												
Three draft and final project concepts and Feasibility Studies	96		8	8					41	39	184	42
Development & submittal of three SCWP Regional Program applications	9											
Support with WASC meetings, including presentation content	15											
Total for Task 4	**120**	**0**	**8**	**8**	**0**	**0**	**0**	**0**	**41**	**39**	**184**	**42**
5. Develop Stormwater Master and Implemenation Plan and Program Management Support												
5.1 Stormwater Master Plan and Program												
Draft and final Stormwater Master Plan and Program report		4	8	4		12						
Import stormwater capital improvement plan into web platform												
Total for Subtask 5.1	0	4	8	4	0	12	0	0	0	0	0	0
5.2 As-Needed Stormwater Program Management Support												
Program administration on an as-needed basis for twelve months												
Total for Subtask 5.2	0	0	0	0	0	0	0	0	0	0	0	0
Total for Task 5	**0**	**4**	**8**	**4**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**0**
6. Optional Tasks - As Requested												
6.1 Additional Feasibility Studies	67	0	0	0	0	0	0	0	40	48	160	45
6.2 Stakeholders and Community Outreach and Engagement												
6.3 Private Property Partnership Program (P4)	0	0	0	0	0	28	144	82	0	0	0	0
Other Direct Costs												
Includes travel, reproduction, drilling, reports and other direct costs										$ 20,400.00	$ 1,500.00	
TOTAL	144	26	30	40	0	152	80	62	56	39	204	42

9. COST PROPOSAL (PAGE 3 OF 3)

	Quantified Ventures			MBI Media				Dakota				
TASK	Team Lead and Project Executive $281	Subject Matter Expert and Project Manager $281	Relationship Manager and Project Manager $220	Sr. Project Manager $124.51	Project Manager $109.13	Account Coordinator $62.79	Graphic Design $98.00	Technical Advisor $295.00	Project Manager/ Creative Director $175.00	Graphic Design $100.00	Hours	Cost
1. Project Initiation and Research												
1.1 Project Management												
Monthly Project Schedule and Progress Report											34	$7,312
Kick-Off and Thirteen (13) Coordination Meetings	6										62	$13,999
Total for Subtask 1.1	6	0	0	0	0	0	0	0	0	0	96	$ 21,311
1.2 Data Collection and Inventory												
Technical Memorandum											133	$19,173
Data and Plan Inventory Table											14	$1,700
Project Library - Web Map											47	$4,656
Total for Subtask 1.2	0	0	0	0	0	0	0	0	0	0	194	$ 25,528
Total for Task 1	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**$ 290**	**$ 46,839**
2. Engagement and Goal Setting												
2.1 Targeted Internal Engagement												
Materials for Interdepartmental City Workshops											107	$19,519
Three (3) Interdepartmental City Workshops											88	$20,491
Summary of Workshops Results											39	$6,849
Total for Subtask 2.1	0	0	0	0	0	0	0	0	0	0	234	$ 46,860
2.2 Guiding Principles Memo												
Draft Guiding Principles Presentation											102	$19,674
Final Guiding Principles Memo											68	$13,670
Total for Subask 2.2	0	0	0	0	0	0	0	0	0	0	170	$ 33,344
Total for Task 2	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**404**	**$ 80,204**
3. Watershed Opportunity Screening and Prioritization												
3.1 Structural Project Identification, Modeling, and Prioritization												
Technical Memorandum and Results of Project Screening and Prioritization)											606	$80,677
Draft Project Opportunities Presentation (at regular meeting)											14	$2,584
Prioritized Project List on Web-based Dashboard											94	$17,852
Total for Subtask 3.1	0	0	0	0	0	0	0	0	0	0	714	$ 101,112
3.2 Non-Structural Program Assessment and Optimization												
Draft memorandum of Initial MCM Program Assessment Presentation											82	$13,867
Final memo of MCM Program Assessment and Recommendations											28	$4,764
Total for Subtask 3.2	0	0	0	0	0	0	0	0	0	0	110	$ 18,631
3.3 Compliance Pathway Refinement Strategy												
Draft Compliance Strategy Memo Presentation								8		8	166	$28,145
Final Compliane Strategy Memo											28	$5,167
Total for Subask 3.3	0	0	0	0	0	0	0	8	0	8	194	$ 33,312
3.4 Targeted Stormwater Drainage and Hydraulic Analysis												
Draft Drainage Analysis Memo Presentation											270	$33,641
Final Drainage Analysis Memo											78	$9,954
Total for Subask 3.4	0	0	0	0	0	0	0	0	0	0	348	$ 43,595
3.5 Field Inpections (Optional)												
Field Inspection Report Memo											0	$0
Total for Subtask 3.5	0	0	0	0	0	0	0	0	0	0	0	$ -
Total for Task 3	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**8**	**1366**	**$ 196,648**
4. Project Feasibility Studies												
Three draft and final project concepts and Feasibility Studies				32	40	104	50				2150	$327,615
Development & submittal of three SCWP Regional Program applications											104	$18,459
Support with WASC meetings, including presentation content											110	$17,166
Total for Task 4	**0**	**0**	**0**	**32**	**40**	**104**	**50**	**0**	**0**	**0**	**2364**	**$ 363,239**
5. Develop Stormwater Master and Implemenation Plan and Program Management Support												
5.1 Stormwater Master Plan and Program												
Draft and final Stormwater Master Plan and Program report	42	44	58								356	$71,887
Import stormwater capital improvement plan into web platform											70	$12,396
Total for Subtask 5.1	42	44	58	0	0	0	0	0	0	0	426	$ 84,282
5.2 As-Needed Stormwater Program Management Support												
Program administration on an as-needed basis for twelve months											168	$26,664
Total for Subtask 5.2	0	0	0	0	0	0	0	0	0	0	168	$ 26,664
Total for Task 5	**42**	**44**	**58**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**594**	**$ 110,946**
6. Optional Tasks - As Requested												
6.1 Additional Feasibility Studies	0	0	0	4	4	12	24	0	0	0	972	$152,174
6.2 Stakeholders and Community Outreach and Engagement								60	120	140	448	$75,996
6.3 Private Property Partnership Program (P4)	0	0	0	0	0	0	0	0	0	0	342	$55,987
Other Direct Costs												
Includes travel, reproduction, drilling, reports and other direct costs												$ 24,900.00
TOTAL	**48**	**44**	**58**	**32**	**40**	**104**	**50**	**8**	**0**	**8**	**5018**	**$ 822,775**

10.SMALL AND DISADVANTAGED BUSINESS ENTERPRISES (SBE/DBE)

Michael Baker is proud to support the City's SBE/DBE program by using the Good Faith Efforts (GFE) and including SBE/DBE firms in meaningful roles. We have committed to exceeding your goals for this project by allocating over 15% workshare to these firms. GFEs included emails and follow-up phone calls to each firm.

SUBCONSULTANT FIRM/ CONTACT	DBE/SBE (YES/NO)	BRIEF QUALIFICATIONS
Catalyst Environmental Solutions Daniel Tormey, Ph.D., P.G. President (818) 317-7716 dtormey@ce.solutions	YES	Catalyst is a registered small business incorporated in the State of California and has three offices across Southern California. Their team is comprised of environmental planners, scientists, engineers, and regulatory compliance/permitting specialists who utilize an interdisciplinary approach to problem-solving that synthesizes the work of their experts to create practical solutions for environmental and natural resource management issues. Their understanding of complex scientific linkages and regulatory/policy requirements associated with environmental compliance and planning, contributes to our success in framing critical issues and delivering meaningful recommendations. As respected problem-solvers, they maintain excellent relationships with key decision-makers in regulatory agencies and either participate in or stay well-informed on developing policy trends.
Blue Ocean Civil Consulting Jessica Cassman, PE, CFM, ENV SP, QISP, QSD/P, CPESC, LEED AP Principal (949) 698.1680 jcassman@blueoceancivil.com	YES	Blue Ocean is a small firm contributing big value to Southern California water quality improvement efforts. With specific experience in the Los Angeles County's Safe Clean Water program, Blue Ocean has worked closely with the implementation teams within the Tax Credit Program, Watershed Steering Committee, and Regional Program to leverage stormwater into beneficial uses. Their dedicated professionals maintain comprehensive technical and regulatory expertise in civil, environmental, and water resources engineering that they apply to projects from the planning stages, through design, and ongoing monitoring, operation and maintenance of stormwater master plans, site-specific BMPs, and flood management projects. Blue Ocean's inspiration is taken from coral colonies, which can only thrive in synergy with community, environment, and resources. Blue Ocean is committed a more "coralized" approach to civil engineering.
Paradigm Environmental Inc Chris Carangdang, PE Water Resources Engineer (858) 250-0551 chris.carandang@paradigmh2o.com	YES	Paradigm is a CA-certified small business formed in 2014 with a mission to provide new and innovative techniques to successfully plan for and address water quality regulations through the implementation of sustainable stormwater practices. Paradigm was formed by a team of nationally recognized leaders who have devoted their careers to providing guidance and technical support for emerging stormwater and green infrastructure planning needs associated with MS4 Permits, climate change adaptation, flood resiliency planning, and compliance with water quality regulations. Our services have been highly sought after to provide modeling and stormwater project planning support to leading-edge clients throughout CA, including City and County of LA, San Diego, Orange County, San Mateo County, San Jose, and Santa Clara County.
Group Delta Mike Cassidy, PG, CHG Principal Geologist (949) 606-4304 mikec@groupdelta.com	NO	With more than 35 years of experience, Group Delta has five offices in southern California, as well as accredited laboratories in Anaheim and San Diego. Group Delta's experience includes numerous stormwater and water projects, including improvements such as shallow and deep infiltration, permeable pavements, biofiltration, water storage reservoirs, water treatment facilities, pump stations, and water distribution/ conveyance systems. They understand the logistics of working in urban environments and sensitive areas to perform field investigations to assess site geotechnical and environmental conditions as they relate to these improvements, including infiltration feasibility and measurement of infiltration rates. Group Delta understands the local geotechnical and environmental issues, and with a local office in Torrance, we are close to the City of Carson and can provide timely and responsive services for the project.
Environmental Incentives Chad Praul Director (530) 541-2980 cpraul@enviroincentives.com	YES	Environmental Incentives (EI) is a mission-driven small business that empowers people and strengthens systems to improve the impact and effectiveness of environmental programs. EI has supported stormwater managers in meeting regulatory requirements through performance-driven stormwater programs since 2006. These programs promote triple bottom-line benefits by achieving greater water quality outcomes, reducing compliance costs, generating new sources of revenue, and engaging residents and private partners in efforts to reduce stormwater pollution. EI partners with our clients to build the capacity of individuals, teams, and organizations to make evidence-driven decisions, enhance performance, and learn continuously. Our policy analysts, engineers, and scientists develop performance-driven watershed protection programs to support municipal water managers in meeting their regulatory requirements, analyzing funding sources and maximizing the multiple benefits of their existing watershed programs.

SUBCONSULTANT FIRM/ CONTACT	DBE/SBE (YES/NO)	BRIEF QUALIFICATIONS
Quantified Ventures Benjamin Cohen Director (516) 633-1585 cohen@quantifiedventures.com	NO	Quantified Ventures (QV) is a financial advisory and project development firm that specializes in green finance. Founded in 2015, QV is a certified B Corporation based in Washington, D.C., with staff in multiple other locations. Our staff have expertise in market and economic cost-benefit analysis, public finance, transaction structuring, investor due diligence, capital raising, environmental markets, law, and project development. Our approach in helping our partners develop and execute financing and funding strategies for stormwater management and other programs focuses on evaluating the full range of benefits and co-benefits of these programs to incentivize collaboration and sharing of resources among agencies and stakeholders that benefit. Our staff also have previous experience in the management of State SRF programs, and the ability to successfully leverage these and other state, federal, and local grants, loans, and credit enhancement to ensure a cost-efficient financing strategy.
MBI Strategic Communications Dean R. Owens Development and Client Services (626) 221-0085 dowens@mbimedia.com	YES	Founded in 1989, McCormick-Busse, Inc., dba MBI Media (MBI), is a strategic communications and media firm that designs and implements engagement campaigns along with a broad cache of other specialized services for both public and private sector clients across various industries. With more than 33 years of expertise, MBI has taken part in some of California's most high-profile public works and infrastructure projects, facilitating community dialogue about complex and sensitive issues throughout the planning, environmental and construction phases. MBI's services range from public outreach, community and stakeholder engagement, Virtual Meeting Rooms (VMRs), public noticing and neighborhood canvassing, campaign development, and branding that are supported by our industry-leading, in-house design studios, which specialize in graphic design, digital photography, web design, video production, and 3-D animation, along with technical writing, copy editing and copywriting. We are always proud to bridge the gap in communications for our clients and engage with Southern California's diverse communities
Dakota Communications Rick Taylor Partner (310) 815-8444 rick@dakcomm.com	YES	Dakota Communications is a minority-owned public relations consulting firm with expertise in the areas of communications, media relations, strategic planning, political guidance, and community relations. Established in 1997, Dakota Communications is dedicated to the task of educating and shaping policies and programs to meet its clients' objectives as well as developing strategies to effectively communicate them. Utilizing aggressive marketing, advertising, and outreach efforts over the years has enabled Dakota Communications to shape public opinion and at times change behavior. Dakota Communications has extensive experience building community support for projects and programs advanced by public and private organizations. The firm's understanding and appreciation of public diversity, along with their ability to accurately assess a situation and pinpoint problems, enable them to work together with clients toward achieving their goals. A diverse staff allows Dakota Communications to provide their clients with a unique perspective and strong expertise in developing multi-ethnic communications programs for multi-faceted communities.

12. CHANGES TO THE SAMPLE CITY CONTRACT SERVICE AGREEMENT

EXHIBIT "B"
SPECIAL REQUIREMENTS
(Superseding Contract Boilerplate)

ARTICLE 5. INSURANCE AND INDEMNIFICATION

5.1 Insurance Coverages.

(b) Worker's Compensation Insurance. A policy of worker's compensation insurance in such amount as will fully comply with the laws of the State of California and which shall ~~indemnify, insure and provide legal defense for the Consultant against any loss~~ provide coverage for a, claim or damage arising from any injuries or occupational diseases occurring to any worker employed by or any persons retained by the Consultant in the course of carrying out the work or services contemplated in this Agreement.

5.2 General Insurance Requirements.

All of the above policies of insurance shall be primary insurance and~~, with the exception of Workers' Compensation and Professional Liability ,~~ shall name the City, its elected and appointed officers, employees and agents as additional insureds and any insurance maintained by City or its officers, employees or agents may apply in excess of, and not contribute with Consultant's insurance. The insurer is deemed hereof to waive all rights of subrogation and contribution it may have against the City, its officers, employees and agents and their respective insurers. Moreover, the insurance policy must specify that where the primary insured does not satisfy the self-insured retention, any additional insured may satisfy the self- insured retention.

No work or services under this Agreement shall commence until the Consultant has provided the City with Certificates of Insurance, additional insured endorsement forms or appropriate insurance binders evidencing the above insurance coverages and said Certificates of Insurance or binders are approved by the City. ~~City reserves the right to inspect complete, certified copies of and endorsements to all required insurance policies at any time.~~ Any failure to comply with the reporting or other provisions of the policies including breaches or warranties shall not affect coverage provided to City.

All certificates shall name the City as additional insured ~~with the exception of Workers' Compensation and Professional Liability ,~~ (providing the appropriate endorsement) and shall conform to the following "cancellation" notice:

> CANCELLATION:
>
> SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATED THEREOF, THE ISSUING COMPANY SHALL MAIL THIRTY (30)-DAY ADVANCE WRITTEN NOTICE TO CERTIFICATE HOLDER NAMED HEREIN.
>
> [to be initialed]
> Consultant Initials

~~With the exception of Workers' Compensation and Professional Liability policies~~ City, its respective elected and appointed officers, directors, officials, employees, agents and volunteers are to be covered as additional insureds as respects: liability arising out of activities Consultant performs; products and completed operations of Consultant; premises owned, occupied or used by Consultant; or any automobiles owned, leased, hired or borrowed by Consultant. The coverage shall contain no special limitations on the scope of protection afforded to City, and their respective elected and appointed officers, officials, employees or volunteers. Consultant's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liabil-

ity.

Any deductibles or self-insured retentions must be declared to ~~and approved by~~ City. ~~At the option of City, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects City or its respective elected or appointed officers, officials, employees and volunteers or the Consultant shall procure a bond guaranteeing payment of losses and related investigations, claim administration, defense expenses and claims~~ . The Consultant agrees that the requirement to provide insurance shall not be construed as limiting in any way the extent to which the Consultant may be held responsible for the payment of damages to any persons or property resulting from the Consultant's activities or the activities of any person or persons for which the Consultant is otherwise responsible nor shall it limit the Consultant's indemnification

Liabilities as provided in Section 5.3.

6.3 Ownership of Documents.

All drawings, specifications, maps, designs, photographs, studies, surveys, data, notes, computer files, reports, records, documents and other materials (the "documents and materials") prepared by Consultant, its employees, subcontractors and agents exclusively in the performance of this Agreement shall be the property of City upon final payment and shall be delivered to City upon request of the Contract Officer or upon the termination of this Agreement following final payment, and Consultant shall have no claim for further employment or additional compensation as a result of the exercise by City of its full rights of ownership use, reuse, or assignment of the documents and materials hereunder. Any use, reuse or assignment of such completed documents for other projects and/or use of uncompleted documents without specific written authorization by the Consultant will be at the City's sole risk and without liability to Consultant ~~and City shall indemnify and hold harmless Consultant from all claims, damages, losses, and expenses, including reasonable attorney's fees, arising out of or resulting therefrom ,~~ and Consultant's guarantee and warranties shall not extend to such use, reuse or assignment. Consultant may retain copies of such documents for its own use. Consultant shall have the right to use the concepts embodied therein. All subcontractors shall provide for assignment to City of any documents or materials prepared by them , and in the event Consultant fails to secure such assignment, Consultant shall indemnify City for all damages resulting therefrom. Moreover, Consultant with respect to any documents and materials that may qualify as "works made for hire" as defined in 17 U.S.C. § 101, such documents and materials are hereby deemed "works made for hire" for the City. ~~Nothing herein shall be construed to grant ownership or any other rights to City of any of Consultant's pre-existing and/or background Intellectual Property.~~

7.2 Disputes; Default.

In the event that Consultant is in ~~material~~ default under the terms of this Agreement, the City shall not have any obligation or duty to continue compensating Consultant for any work performed after the date of ~~notice of such~~ default. ~~until such default is cured. Instead, the City may give notice to Consultant of the default and the reasons for the default.~~ The notice shall include the timeframe in which Consultant may cure the default. This timeframe is presumptively thirty (30) days, but may be extended, though not reduced, if circumstances warrant. During the period of time that Consultant is in default, the City shall hold all invoices and shall, when the default is cured, proceed with payment on the invoices. In the alternative, the City may, in its sole discretion, elect to pay some or all of the outstanding invoices during the period of default. If Consultant does not cure the default, the City may take necessary steps to terminate this Agreement under this Article. Any failure on the part of the City to give notice of the Consultant's default shall not be deemed to result in a waiver of the City's legal rights or any rights arising out of any provision of this Agreement.

8.2 Conflict of Interest.

Consultant covenants that neither it, nor any officer or principal of its firm, has or shall acquire any interest, directly or indirectly, which would conflict in any manner with the interests of City or which would in any way hinder Consul-

tant's performance of services under this Agreement. Consultant further covenants that in the performance of this Agreement, no person having any such interest shall be employed by it as an officer, employee, agent or subcontractor without the express written consent of the Contract Officer. Consultant agrees to at all times avoid conflicts of interest or the appearance of any conflicts of interest with the ~~interests of City~~ services and obligations required in the performance of this Agreement.

9.7 Corporate Authority.

Addition to Contract

LIMITATION OF LIABILITY. To the fullest extent permitted by law, the City agrees to limit Consultant's liability to the City and to all other contractors or subcontractors on the project for any and all injuries, claims, losses, expenses or damages whatsoever arising out of or in any way related to the project or this Agreement from any cause or causes including but not limited to Consultant's negligent acts, errors, omissions, strict liability, breach of contract, or breach of warranty, such that the total aggregate of liability of Consultant to all those named shall not exceed $50,000 or the total fee for Consultant's services rendered in the project, whichever is greater. To the extent that this limitation of liability conflicts with any other provision(s) of this Agreement or any Task Orders associated therewith, said provision(s) shall be considered amended to whatever extent required to make such provision(s) consistent with this provision.

RESUMES

PROJECT MANAGER

Ghina Yamout, PHD, ENV-SP

Dr. Yamout is focused on sustainability planning that identifies water quality issues and evaluates opportunities for multi-benefit regional projects to optimize the recharge, capture, and reuse of storm water runoff, to meet federal, state, and local regulatory requirements at optimal cost. Ghina has provided technical and managerial support for the stormwater management and green infrastructure sustainability effort under the Enhanced Watershed Management Program. Her experience also includes working on large scale environmental restoration programs that required extensive internal and external coordination as well as urban water management planning involving demand, supply, and water rights.

RELEVANT EXPERIENCE

Marina Del Rey Enhanced Watershed Management Plan and Coordinated Monitoring Plan. *Los Angeles County, California.* PROJECT MANAGER. Provided technical and managerial support for the stormwater management and green infrastructure countywide sustainability effort under the Enhanced Watershed Management Program for the Marina Del Rey Watershed, County of LA. The program effort included to comprehensively identify water quality issues and evaluate opportunities for multi-benefit regional projects to optimize the recharge, capture, and reuse of storm water runoff, to meet federal, state, and local regulatory requirements at optimal cost. As part of a team, identified of the first Public-Private-Partnership in LA County, between the City of Culver City and a private entity, Costco, for a multi-benefit project. Took part of an extensive stakeholder process coordinating with key public agencies and non-profit organizations in LA County. Managed development of the monitoring and assessment program.

City of Culver City Hazard Mitigation Plan. *City of Culver City, CA.* SENIOR PROJECT MANAGER. Worked on the development of hazard mitigation concept plans taking into consideration innovative sustainable natural solutions as a way to address critical infrastructure in the update of the hazard mitigation plan for the City of Culver City. This included benefits to underserved communities, water quality and water supply benefits, community education benefits, air quality benefits, among others.

Countywide Sustainability Annual Report and Performance Metrics for LA Metro. *Los Angeles County, CA.* PROJECT MANAGER. Brought together a winning team to assist LA Metro in the selection, evaluation, and reporting of sustainability metrics for countywide planning, introducing social equity as key factor in assessing mobility, socioeconomic, environmental, and safety metrics. The effort included identification of partnerships opportunities, tools, databases, and data gaps, to ensure reliable continuous tracking of performance trends for assessing efficiency and effectiveness of LA Metro's sustainability and resiliency initiatives. Coordinated an extensive stakeholder involvement process, with dynamic presentations and working groups.

Water Resources Sustainability. *City of Mesa, AZ.* TECHNICAL/REGULATORY SPECIALIST. Managed the GIS effort and demand projections within the City in order to keep the project in order. Represented the City in the extensive statewide ADD Water effort (Acquire, Develop, and Deliver) and took part of the white paper committee to research alternative acquisition approaches nationwide. Represented the City in the East Valley Water Forum, a partnership of tribal, public agencies, and private water companies, to develop a regional groundwater management plan focused on climate change drought scenarios and increasing resiliency though regional recharge. Represented the City in public relations and maintained active liaisons with state, federal, and local regulatory agencies, municipalities, and private industry. Monitored legislative and regulatory activities; prepared policy recommendations to ensure activities have a positive impact on the City's water resources and represented the City's position at meeting with water resources agencies.

Everglades Restoration: Hydrology and Hydraulics and Habitat Conservation. *South Florida Water Management District.* ASSISTANT PROJECT MANAGER / WATER RESOURCES SPECIALIST. Coordinated programmatic tasks and environmental and engineering teams, in an integrated multidisciplinary setting for the federally and State funded US largest environmental restoration project at the time in the Florida Everglades. Assisted very actively, technically and magisterially in scope preparation, subconsultants' coordination, document control, project management, budget and schedule. This project also included H&H modeling for restoring 55,000 acres of development tracts

Michael Baker INTERNATIONAL

Years with Michael Baker
1

Years Experience
16

Education
PhD, Sustainable Environmental Resources Management, University of Florida

MS, Environmental Technology, American University of Beirut

BS, Chemistry, American University of Beirut

Licenses/Certifications
Envision Sustainability Professional, CA

Professional Affiliations
California Stormwater Quality Association

City of Los Angeles Office of Economic Development

American Society of Civil Engineers

Los Angeles Metro Transportation Business Advisory Board

Los Angeles Metro Sustainability Council

Arab American Association of Engineers and Architects

land to wetland conditions. Supported the review of MIKE SHE/MIKE 11 modeling, assessment and communication of design. Additional project scope include:

- **Manatee Habitat Impact Evaluation:** Led the assessment of impact of increased freshwater input on endangered manatee population, field surveys and analysis of vertical and lateral salinity profiles in receiving estuary, project controls, ensured data integrity or QA/QC impairment.
- **Environmental Permitting:** Supported permitting process (NEPA, dredge/fill), researching requirements, establishing communication with client ensuring team's timely/targeted permit applications, an inordinately complex aspect of PSRP because of its size and nature.
- **US 41 seepage analysis:** Applied Seep 2D, with flood frequency analysis of MIKE SHE surface inundation model results to evaluate capability of highway to meet FDOT access and road bed stability requirements under extreme flood conditions.
- **Value Engineering:** Supported evaluation of alternative strategies through formal Value Engineering system's modeling assessment.

PRINCIPAL-IN-CHARGE AND REGULATORY COMPLIANCE

Michael Trapp, PHD

Dr. Trapp is a proven industry leader who understands the regulatory drivers that clients face. He has over 20 years of experience and has provided innovative, effective, and practical solutions to academics, and public- and private-sector clients. His keen business sense and ability to lead large, diverse teams has resulted in selections and reselections on multiple on-call contracts. His ability to push the science of stormwater forward and build consensus with diverse stakeholder groups is evident in committee work for professional organizations and leadership in the Southern California Stormwater Monitoring Coalition (SMC).

RELEVANT EXPERIENCE

Southern California Monitoring Coalition LID BMP Effectiveness Study. *San Bernardino County, California.* PROJECT MANAGER. Michael Baker provided low-impact development (LID) best management practices (BMP) from 2015 to 2019 to the Monitoring/Effectiveness Study, which was initiated and funded Southern California Stormwater Monitoring Coalition. The purpose was to better understand the performance of LID BMPs and the factors that contribute to variations in performance. The project goal was a report to help guide future design, implementation, and monitoring of LID, including the adequate collection of data to have a more comprehensive understanding of LID in California and its true benefits. Michael Baker, as prime consultant, was responsible for forming and coordinating the Project Technical Advisory Committee (TAC) for the study, developing the work plan and schedule, creating a project website with public and private accessible pages, and providing notes and updates at regular SMC meetings.

La Pata Avenue Water Quality BMP Project, Orange County, CA. *County of Orange.* PROJECT MANAGER. Prepared the BMP Effectiveness Monitoring Plan and Quality Assurance Quality Plan (QAPP) and provided detailed monitoring and analysis for six infiltration basins in the project area. The goal of the project was to determine the effectiveness of structural best management practices (BMPs) by evaluating pre- and post-project water quality and runoff volumes against the post-construction requirements of the San Diego Regional MS4 permit and receive Project 401 Water Quality Certification.

Cabrillo Heights Rain Garden BMP Effectiveness Assessment. *San Diego, California.* PROJECT MANAGER. Michael Baker performed a best management practices (BMP) effectiveness assessment of the Cabrillo Heights rain gardens. The rain gardens consist of a west and east rain garden, one with a single outlet and two inlets. The project is a pilot study to help determine if rain garden BMPs can effectively reduce stormwater runoff pollutant contributions and volume of runoff entering the storm drain system in the San Diego River watershed. Advanced automated flow weighted sampling techniques were employed to create detailed pollutographs to examine the pollution loads over the entire hydrograph of the system's influent and effluent.

Malibu Creek Watershed Enhanced Watershed Management Program and Coordinated Integrated Monitoring Plan. *Los Angeles County, California.* CHIEF SCIENTIST. The goals of the project are to prioritize water quality issues; identify implementation strategies, control measures, and Best Management Practices (BMPs) to meet water quality standards; develop a coordinated and integrated water quality monitoring plan, and provide opportunities for stakeholder input and collaboration. Malibu Creek and its tributaries have various water quality impairments, including bacteria, trash, nutrients, metals, low dissolved oxygen, and sedimentation/siltation. The EWMP will evaluate and prioritize implementation of multi-benefit regional projects that retain all stormwater runoff from the 85th percentile, 24-hour storm event for the drainage area tributary to those projects. The multi benefits achieved by the projects may include flood protection, water conservation and water supply enhancement, recreational opportunities, and wildlife habitat enhancement.

Edison Company Stormwater and NPDES Program. *Southern and Central California.* CHIEF SCIENTIST. Michael Baker has developed and coordinated the Southern California Edison (SCE) Stormwater and National Pollutant Discharge Elimination Program for more than 15 years. SCE territory included over 50,000 square miles across Southern California. Michael Baker began working with SCE in 2005 to develop its standards and manuals describing the regulatory requirements that guide its operations, with the accompanying documents providing the detail and explanation to put those requirements into operation based on The Edison Way manual.

Michael Baker INTERNATIONAL

Years with Michael Baker
8

Years Experience
23

Education
PhD, Marine Science and Water Quality, University of Miami

MS, Chemistry, University of Miami

BS, Biology and Chemistry, Florida Southern College

Professional Affiliations
California Stormwater Quality Association

Water Environment Federation

American Geophysical Union

American Chemical Society

FEASIBILITY STUDIES/BMP STORM WATER MASTER PLAN

David Mercier, PE, CPESC, QSD/QSP, QISP, LEED AP

Mr. Mercier leads the Water Quality Department of over twenty engineers and environmental scientists focused on NPDES and MS4 program support services along with industrial and construction stormwater compliance by developing strategies focused on achieving multi-benefit solutions. His background includes a variety of experience focusing on surface water management and water quality. Mr. Mercier's management process focuses on understanding the client core business and project needs to drive program development and the generation of practical solutions. He writes and reviews post-construction water quality plans, develops and implements stormwater program elements, and conducts facility inspections for compliance with Municipal and Statewide stormwater requirements. He also has experience with hydraulic/hydrologic modeling, writing technical reports, preparing floodplain/floodway analysis, and completing sediment transport and stream stability analyses.

RELEVANT EXPERIENCE

Culver City Stormwater Quality Master Plan, Culver City, CA. *City of Culver City.* TASK MANAGER. Responsible for the project approach and project identification strategy. Responsible for leading the Michael Baker team that is performing geographic information systems mapping and analysis, data collection and processing, and drainage area delineation, and identifying best management practice opportunities at regional and local scales. Potential BMP locations are then scored for prioritization and captured in a CIP to guide construction and identify projects for grant funding.

Environmental Compliance Program, Los Angeles, CA. *Los Angeles Metropolitan Transportation Authority.* TASK MANAGER. Led an effort to provide alternative compliance approaches using the Compliance Options included in the Industrial General Permit. Onsite stormwater management solutions included infiltration, harvest and use, evapotranspiration and discharge to sewer. Improvement project concepts were developed for each facility based on identified opportunities. Offsite project locations were identified by reviewing publicly owned parcels adjacent to or downstream from each facility drainage path. Once locations were identified concept plans were developed to facilitate coordination with municipalities regarding partnerships on multi-benefit stormwater solutions. These alternative solutions were then incorporated into Time Schedule Orders for each facility and negotiated with the Regional Board. In addition, Mr. Mercier served as the Compliance Group Leader for the Metro facilities covered by the IGP. In this role he oversees the annual compliance activities by providing training, review of results, updates to required reports, and completing the Annual Evaluation. The findings of each Annual Evaluation are captured in a report which is used to guide subsequent updates to the facility SWPPPs.

Creston Avenue Drywell System, Signal Hill, CA. *City of Signal Hill.* PROJECT MANAGER. Oversaw the design a drywell system to address the water quality runoff from a 24-acre portion of the City. The BMP system included a diversion system from an existing Los Angeles County storm drain, a storage system with incorporated pre-treatment, and a series of drywells for infiltration. Diversion of runoff to the system is hydraulically controlled to reduce project materials and a secondary connection back to the storm drain. Michael Baker worked with multiple vendors to optimize the storage and drywell configurations which resulted in a system capable of capturing the entire water quality volume. The project will be constructed using funding received as part of a grant and required an expedited design schedule. Michael Baker delivered the plans on budget and within the design schedule.

Garfield Avenue Improvements, Monterey Park, CA. *City of Monterey Park.* TASK MANAGER. Led the design and plan production of the Green Infrastructure elements included in the street improvement plan for Garfield Avenue. The plan included bioretention bulb outs to improve the safety of the new pedestrian crossing location as well as a location for water quality improvement. The project did not require the inclusion of a water quality element. However, the Michael Baker team proposed these enhancements to complement the traffic calming elements. The team coordinated the geotechnical investigation at multiple potential BMP locations. Ultimately, one bulb out was designed as a bioretention planter due to soils with high infiltration rates while the other was designed as a biofiltration planter due to clay soils. Michael Baker optimized the design, including protective curbing and grade control, to maximize the captured runoff from the surrounding drainage area.

Michael Baker INTERNATIONAL

Years with Michael Baker
19

Years Experience
19

Education
BS, Civil/Environmental Engineering, University of California, Los Angeles

Licenses/Certifications
Professional Engineer (Civil), CA #71531

Qualified SWPPP Developer/Practitioner, CA #00396

Certified Professional in Erosion and Sediment Control, CA #5703

Construction General Permit Trainer of Record (CGP ToR)

Industrial General Permit Trainer of Record (IGP ToR)

Qualified Industrial Stormwater Practitioner, CA #161

LEED Accredited Professional

HYDRAULICS/HYDROLOGY

Mujahid Chandoo, PE

Mujahid has been involved with complex watershed and drainage master planning, storm drain and channel design, bridge hydraulic studies, and commercial and residential site improvements, Floodplain Management and FEMA Mapping, dam inundation studies, sediment transport modeling, environmental documentation, and large-scale two-dimensional floodplain studies. He has performed work, led, and managed projects for public and private sector clients ranging from small scale technical drainage studies to large public works projects, including planning, permitting, and coordination with federal, state, and local entities.

RELEVANT EXPERIENCE

Dominguez Channel Watershed Study, Los Angeles County, CA. *Los Angeles County Department of Public Works.* PROJECT MANAGER. Provided project oversight for engineering services to prepare a comprehensive flood hazard analysis for the Dominguez Channel Watershed. The watershed is approximately 75 square miles and drains the southwest portion of Los Angeles County and extends to the Los Angeles Harbor, running a length of approximately 19.5 miles. The purpose of this study is to evaluate the hydraulic capacity of the existing levees along the channel and to identify deficiencies in FEMA requirements. This study includes collecting data using as-built drawings and field reconnaissance, updating drainage information using GIS, performing hydrology and hydraulic analysis, and developing a technical report and presentation.

Los Peñasquitos Watershed Master Plan, San Diego, California. *City of San Diego Economic Development.* CA ENGINEER. Responsible for development of the 94-square miles H&H model using PCSWMM software. The task included watershed delineation, subcatchment parameter estimation and 1D hydraulic modeling for the storm drain system. 2D modeling was provided for focused known flooding areas. The master plan's primary goal was to identify and prioritize capital improvement plans required to meet the desired level of service requirements for flood control, water quality, habitat, and water conservation for this watershed. The project was integrated with the water quality modeling and lagoon modeling. The project identified stream rehabilitation, lagoon restoration and habitat mitigation opportunities. Michael Baker developed a master plan for the City of San Diego's jurisdiction area of the Los Peñasquitos watershed. The master plan's primary goal was to identify and prioritize capital improvement plans required to meet the desired level of service requirements for flood control, water quality, habitat, and water conservation for this watershed.

Rancho Palos Verdes Storm Water Master Plan, Rancho Palos Verdes, California. *City of Rancho Palos Verdes.* PROJECT ENGINEER. Used ArcGIS and model builder to delineate watershed boundaries and obtain parameters according to LA County hydrology criteria. XP-SWMM was used to perform the hydrology and hydraulics for the existing condition. A recommended storm drain analysis was analyzed and a priority storm drain list was created. Michael Baker developed a GIS database and facility mapping tool as part of the City's Stormwater Master Plan. The mapping tool was utilized to gather field data and keep the City informed of Michael Baker's field work schedule and finding. Data gathering for the project included filling in missing as-built data, such as inverts and facility naming. The hydrology and hydraulics modeling was completed using GIS, XPSWMM, and XPWSPGW.

Storm Drain Master Plan, Santa Ana, CA. *City of Santa Ana.* ENGINEER. Responsible for hydrology and hydraulics analysis. Michael Baker provided professional engineering services to update the city's storm drain master plan. The city has an established drainage system with some segments over 50 years old and other segments recently constructed. Michael Baker analyzed the main line drainage system and prepared a hydrology study along with maps for the entire city boundary and for individual sub-areas for 2-, 10-, 25-, and 100-year storm events. The capacity of the existing storm drainage was evaluated to determine system capacity sufficiency using a hydrodynamic hydraulic model. A comprehensive list of needed storm drainage improvements was then generated. Michael Baker performed a hydraulic analysis to size sufficient storm drain lines and provided an Esri ARCGIS geodatabase of city storm drain facilities, including storm drain pipes, city-owned drainage channels, manholes, catch basins, and culverts. Michael Baker used the Bentley software hydrodynamic hydraulic model CivilStorm, which uses hydrographs with in the hydraulic model to determine adequate pipe sizing.

Michael Baker INTERNATIONAL

Years with Michael Baker
16

Years Experience
16

Education
BS, Civil Engineering, California State University, Fullerton

AS, Mathematics, Fullerton College

Licenses/Certifications
Professional Engineer (Civil), CA #76633

Professional Affiliations
Environmental & Water Resources Institute

Engineers Without Borders

American Society of Civil Engineers

MODELING/WATER QUALITY

Leila Talebi, PHD, PE, QSD/QSP

Dr. Talebi has a thorough understanding of water and stormwater regulations through her research, engineering and environmental experience at federal, state, and local levels. Dr. Talebi is proficient in hydrologic and hydraulic analysis and design, stormwater management planning, conceptual and final design and modeling of green infrastructure (GI), BMP and Low Impact Development (LID) components to comply with water quality requirements, water quality monitoring plan development, pollutant source characterization and assessment, NPDES permitting, and development of GIS-based tools for BMP implementation and watershed master plans. She has led workshops for municipal clients throughout Southern California.

RELEVANT EXPERIENCE

Stormwater Quality Master Plan, Culver City, CA. *City of Culver City.* TECHNICAL SPECIALIST. Michael Baker is part of a team developing Culver City's Stormwater Master Plan. Initial steps include the collection of city, county, and other data sets along with subarea delineation to the catch basin scale for use in identifying potential BMP locations. Potential BMP locations are then generated and sized in geographic information systems for prioritization. Michael Baker will also produce five- and ten-year CIPs for scenarios to meet compliance goals and to represent capabilities with existing funding. It will develop conceptual project cut sheets to support public outreach forums and for use with grant funding applications. The final product is a master plan and dynamic web-based dashboard for the city to manage as projects are constructed.

Los Peñasquitos Watershed Master Plan, San Diego, CA. *City of San Diego.* PROJECT MANAGER. Led the development of a master plan for the City of San Diego's jurisdiction area of the Los Peñasquitos watershed. The master plan's primary goal was to identify and prioritize capital improvement plans required to meet the desired level of service requirements for flood control, water quality, habitat, and water conservation for this watershed.

Municipal Waterways Maintenance Plan Support. *City of San Diego.* PROJECT MANAGER. Lead for hydrologic and hydraulic (H&H) efforts. Michael Baker provides engineering support for development and implementation of the City Municipal Waterways Maintenance Plan (MWMP). This plan and associated California Environmental Quality Act (CEQA) environmental document is intended to replace the City's Master Storm Water System Maintenance Program (MMP) and Program Environmental Impact Report (PEIR).

Sustainable Streets Master Plan, San Mateo, CA. *County of San Mateo.* TASK LEAD. Oversaw the development of a master plan for sustainable streets throughout San Mateo County. The project included coordination with the County and 21 cities to develop a detailed analysis of stormwater runoff and opportunities for GI to capture and street runoff within street rights-of-way and coupling GI designs with other sustainable design elements and bicycle/pedestrian master plans. The project included a prioritization of sustainable streets and a comprehensive plan to continue to coordinate implementation efforts and the collaboration of transportation and stormwater management staff in all 22 agencies in the County.

Reasonable Assurance Analysis (RAA), Long Beach, CA. *Port of Long Beach.* PROJECT MANAGER. Oversaw the preparation of an RAA in accordance with the Long Beach MS4 NPDES Permit. The initial RAA was conducted in 2015 for the Long Beach Nearshore Watershed, including City nearshore areas and the Port area discharging to San Pedro Bay, Los Angeles Estuary, Dominguez Channel, and Long Beach Harbor. Michael Baker developed new RAA models (LSPC and SUSTAIN) and calibrated them with local Port-specific monitoring data.

North Coast Highway 101 Streetscape, Carlsbad, CA. *City of Carlsbad.* TECHNICAL LEAD. The City sought to alleviate historically known deficiencies in drainage and resulting inundation in the northwest quadrant. Six separate sites were selected, each of which had experienced flooding conditions. Michael Baker provided topographic survey, analysis of area hydrology and stormwater hydraulics, utility research, and storm drain potholing and created final plans and estimates for inclusion within the City's bid package.

Michael Baker INTERNATIONAL

Years with Michael Baker
2

Years Experience
14

Education
PhD, Civil Engineering (Water Resources), University of Alabama

MS, Water Resources Engineering, Khajeh Nasir Toosi University

BS, Civil Engineering, Amirkabir University of Technology

Licenses/Certifications
Professional Engineer (Civil), CA #86123

Qualified SWPPP Developer, CA #27642

Qualified SWPPP Practitioner, CA #27642

GIS/DATA COLLECTION

Rick Hendrickson, GISP

Mr. Hendrickson specializes in GIS Web Programming and Project Management. He has experience working with and managing Geographic Information Systems (GIS) projects for the utility industry, municipalities, and governmental agencies. He has designed and developed web-based interactive project viewers. Mr. Hendrickson has experience in creating and representing data for online interactive maps utilizing ArcSDE and ArcGIS server software. Mr. Hendrickson has a wide range of experience utilizing various systems including AutoCAD, ArcGIS, ArcInfo, and Oracle, SQL Server, SDE, Silverlight and other web technologies.

RELEVANT EXPERIENCE

Culver City Stormwater Quality Master Plan, Culver City, California. *City of Culver City.* GIS MANAGER. Responsible for image classification to determine potential BMP locations, GIS model development for building out BMP scenarios, and design and management of a BMP CIP dashboard. Initial steps include the collection of city, county, and other data sets along with subarea delineation to the catch basin scale for use in identifying potential BMP locations. Potential BMP locations are then generated and sized in geographic information systems for prioritization. The final product is a master plan and dynamic web-based dashboard for the city to manage as projects are constructed.

Los Peñasquitos Watershed Master Plan, San Diego, California. *City of San Diego Economic Development.* GIS ANALYST. Responsible for development of a GIS-based storm drain inventory for the master plan for the City of San Diego's jurisdiction area of the Los Peñasquitos watershed. The master plan's primary goal was to identify and prioritize capital improvement plans required to meet the desired level of service requirements for flood control, water quality, habitat, and water conservation for this watershed.

Dominguez Channel Watershed Study, Los Angeles, CA. *Los Angeles County Department of Public Works.* GIS MANAGER. Providing GIS services to prepare a comprehensive flood hazard analysis for the watershed. The watershed is approximately 75 square miles and drains the southwest portion of Los Angeles County. Dominguez Channel originates near the Los Angeles International Airport (LAX) and extends to the Los Angeles Harbor, running a length of approximately 19.5 miles. The purpose of this study is to evaluate the hydraulic capacity of the existing levees along the channel and to identify deficiencies in FEMA requirements. This watershed study includes collecting data using as-built drawings and field reconnaissance, updating drainage information using GIS, performing hydrology and hydraulic analysis, and developing a technical report and presentation.

Rancho Palos Verdes Storm Water Master Plan, Rancho Palos Verdes, CA. *City of Rancho Palos Verdes.* GIS MANAGER. Responsible for developing a GIS database and facility mapping tool that was utilized to gather field data and keep the City informed of Michael Baker's field work schedule and finding. Data gathering for the project included filling in missing as-built data, such as inverts and facility naming. The hydrology and hydraulics modeling was completed using GIS, XPSWMM, and XPWSPGW.

Maple Canyon Watershed Master Plan, San Diego, California. *City of San Diego Economic Development.* GIS ANALYST. Responsible for development a GIS-based storm drain inventory for this comprehensive master plan for a portion of the Pueblo Canyon Watershed (area tributary to the existing 54-inch storm drain in Laurel Street, termed the Maple Canyon Watershed). The master plan included development of a geospatial dataset for the storm drain system and drainage characteristics for the Maple Canyon Watershed study area necessary to complete the H&H modeling, water quality modeling, and environmental mitigation analysis. A web mapping application was also developed to display the storm drain inventory and the results of the master plan study and allow city staff to easily find and navigate the numerous recommendations to improve the system.

Stormwater Policy and Permit Support Services, Statewide, California. *Caltrans.* GIS MANAGER. Responsible for portal maintenance as part of statewide on-call stormwater services related to policy development, strategic planning, permit implementation, total maximum daily load implementation, and continued development and refinement of Caltrans' statewide stormwater management program. It also assisted the Department of Transportation on reviews of proposed stormwater permits and permit renewals.

Michael Baker INTERNATIONAL

Years with Michael Baker
1

Years Experience
25

Education
BA, Environmental Studies, University of California, Santa Barbara

Licenses/Certifications
Certified GIS Professional #52598

ENVIRONMENTAL/RESTORATION/PERMITTING

Fareeha Kibriya, AICP, LEED AP

Ms. Kibriya leads the environmental planning department at Michael Baker's downtown Los Angeles Office and is an experienced CEQA/NEPA practitioner. Fareeha has managed a number of on-call contracts for the City and County of Los Angeles, including two Environmental Services on-call contracts for the County with her previous employer, as well as Environmental Services On-Call contracts with LADWP, LAWA, and LAUSD. Her project experience includes working with public agency clients and consultants to provide environmental clearance support and deliver CEQA/NEPA documents, including environmental impact reports, joint NEPA documents (environmental impact report/environmental impact statement, environmental impact report/environmental assessment, etc.), initial studies, negative declarations, proponent environmental assessments (PEAs), and Mitigation Monitoring Reporting Programs (MMRP).

RELEVANT EXPERIENCE

Old Road Over Santa Clara River Improvements Project, Los Angeles, CA*. *Los Angeles County Public Works.* TECHNICAL SPECIALIST. Managed preparation of technical studies for the Old Road Project in the unincorporated Castaic Junction area west of Santa Clarita and in the City of Santa Clarita. This project is being proposed to improve existing traffic operations and accommodate future traffic. Projections along The Old Road through the reconstruction and widening of The Old Road, replacement of two bridges, and reconstruction and widening Skyview Lane, including reconfiguration of their intersections at The Old Road. Technical studies and surveys prepared in support of a joint CEQA/NEPA document, and included Air Quality, Noise, Traffic, Biological Resources, Water Quality, Scour Analysis, etc.

Clean GridLA Program CEQA Approach. *LADWP.* PROJECT MANAGER. Assisted with overall CEQA approach and strategy for environmental clearance for the program to support. The CGLA program is a major action intended to reduce LADWP's dependence on fossil-fuel power generation, thereby reducing the production of air pollutant and GHG emissions and increasing the sustainability of electrical power production through expanded utilization of renewable energy.

Avenue K Transmission Water Main Project Phase IIIA, Phase IIIB, and Phase IIIC, Addendum to the Negative Declaration, Lancaster, CA*. *Los Angeles County Public Works.* PROJECT DIRECTOR. Oversaw the preparation of an addendum to the Avenue K Transmission Water Main Project Negative Declaration analyzing minor modifications to Phase III of the project. The new transmission water main would be installed to meet the current domestic and fire protection water demand and improve the water service system in the 2555 pressure zone of the Lancaster water distribution system.

General Hospital Feasibility Study, Los Angeles, CA*. *County of Los Angeles CEO's Office.* TASK LEAD. Aligned with the board motion by L A County Supervisor, commissioned by the LA County CEO to conduct a yearlong feasibility study to assess the re-use opportunities for the General Hospital, a County of LA iconic asset. To support the Feasibility Study, AECOM is preparing a Preliminary Environmental Memo that reviews the environmental existing conditions and provides a constraints analysis on potential environmental issue areas. In addition, we prepared a Jurisdictional Matrix to assist the County with understanding the entitlement/land use issues associated with the project site.

Groundwater Replenishment Project Environmental Impact Report, Los Angeles, CA*. *Los Angeles Department of Water and Power.* PROJECT MANAGER. Managed the preparation of an EIR and technical studies for the proposed Los Angeles Groundwater Replenishment Project. The project proposed up to 30,000 acre-feet per year of recycled water from the Donald C. Tillman water reclamation plant be further treated and used for groundwater replenishment into the San Fernando Groundwater Basin, including the construction of a new advanced water purification facility and improvements to the Pacoima Spreading Grounds and Hansen Spreading Grounds.

Paseo Del Mar Permanent Restoration Project EIR, Los Angeles, CA*. *Los Angeles County Public Works.* PROJECT DIRECTOR. Director for the preparation of an EIR analyzing the impacts of the restoration of the Paseo Del Mar roadway near White Point in the community of San Pedro, due to a landslide which destroyed a portion of the roadway in 2011. Responsible for coordination of the EIR and facilitated meetings with City officials.

*Prior firm experience

Michael Baker INTERNATIONAL

Years with Michael Baker
<1

Years Experience
16

Education
Masters, Urban and Regional Planning (MURP), University of California, Irvine

BS, Economics, University of California, Irvine

BA, Sociology, University of California, Irvine

Licenses/Certifications
LEED Accredited Professional

American Institute of Certified Planners

LAND DEVELOPMENT COMPLETE/GREEN STREETS

Dawn Wilson, PE, TE

Ms. Wilson is experienced in preparing transportation planning studies and traffic engineering design plans. She specializes in multimodal studies that focus on balancing transportation modes within the built environment. Ms. Wilson strives to develop a balance within her teams – encouraging the creative and innovative solutions in mobility planning with the practical, feasible design required in traffic engineering. Ms. Wilson's worked on developing solutions for military installation, private development and public clients that have integrated trails, bikeways, new sidewalks, traffic calming and innovative signal solutions. With a diverse background in transportation planning projects, Ms. Wilson brings to her clients a holistic understanding of the physical, environmental and mobility needs when initiating a project and carries with her this focus as projects move through the concept development process. In addition to her experience on multimodal projects, Ms. Wilson has worked on a number of transportation impact analysis reports that support CEQA documents for projects large and small.

RELEVANT EXPERIENCE

Imperial Beach Boulevard Improvements, Imperial Beach, CA. *City of Imperial Beach.* TECHNICAL MANAGER. Assisting with the scoping and conducting a thorough review of the Mobility Plan prepared the supported the conceptual and final design for the project. Michael Baker performed complete streets design services to help transform 1.6 miles of Imperial Beach Boulevard into a public space accessible to pedestrians, bicyclists, and transit and motor vehicles. As part of its services, Michael Baker conducted a mobility assessment that studied traffic volumes and speeds for each mode of travel, parking assessments along the corridor, utility coordination, topographic mapping, water quality design, and environmental support. Most notably, Michael Baker drew up plans to convert a cross section of roadway by the Tijuana Estuary into a pedestrian and bicycle boardwalk, which would connect to the Eco Bikeway and provide a link to the Bay Shore Bikeway at the San Diego Bay.

China Lake Transportation Study. *NAVFAC Southwest.* PROJECT MANAGER. Responsible for leading a multidiscipline team in the identification of operational and physical improvements along Inyokern Road in response to the Navy's plans to construct on base earthquake repair project associated with the 2019 Ridgecrest earthquake. Calculated the trip generation of delivery trucks, construction vehicles and passenger vehicles that would use temporary gate facilities associated with the construction. The team identified solutions that would accommodate a wide array of users in compliance with the design standard established by the Department of Defense for access management. The team developed conceptual plans and estimates for the proposed improvements and provided the Navy with a detailed report of the recommendations and findings of the technical analysis.

Comprehensive Planning Services, Eastvale, CA. *City of Eastvale.* TRANSPORTATION PLANNER. Assists with technical questions related to traffic engineering and transportation planning. Michael Baker provided comprehensive planning services this recently incorporated City in Western Riverside County. Michael Baker served as the City's planning staff, providing current and advance planning processing, counter staffing, Planning Commission meeting facilitation; plan review; staff reports preparation; City functions participation; CEQA compliance and review; Tribes on SB18 and AB52 coordination; Western Riverside County Regional Conservation Authority (RCA) coordination for their Multiple Species Habitat Conservation Plan (MSHCP); and special project work, such as preparation of the City's Economic Development website.

Kudu Solar Environmental Impact Report, Kern County, CA. *County of Kern.* TECHNICAL ADVISOR. Provided a peer review of the transportation impact analysis report including providing written comments, coordination with the project team and coordination with the project's traffic engineer. Michael Baker is responsible for the preparation and distribution of a detailed IS/notice of preparation of an EIR which outlined the scope of the EIR, the preparation and distribution of the Draft EIR, and the preparation and distribution of the Final EIR, with responses to comments on the Draft EIR. It also provided professional peer review of related technical studies, including air quality, biological resources, cultural resources, energy consumption, geology/soils, greenhouse gas emissions, hazardous substances and wastes, hydrology/drainage, noise, visual resources, and water supply assessment.

Michael Baker INTERNATIONAL

Years with Michael Baker
20

Years Experience
28

Education
MS, Civil Engineering, University of California, Irvine

BS, Civil Engineering, University of California, Irvine

Licenses/Certifications
Professional Engineer (Civil), CA #C62562

Traffic Engineer, CA #2548

Professional Affiliations
Institute of Transportation Engineers

Women's Transportation Seminar

Association of Pedestrian and Bicycle Professionals

GIS/DATA COLLECTION

Jim McPherson

Mr. McPherson utilizes GIS technology to provide support for a wide variety of projects including utility, environmental, engineering, and planning projects. He is experienced in database design and system design, for which he has helped design and developed GIS Geodatabase's for Cities and Counties, as well as for numerous large and small projects. His work has included working on numerous General Plans, Housing Elements and Specific Plans for Cities and Counties. As part of these projects Mr. McPherson has been responsible for setting up project databases, templates as well as creating automated routines for data analysis and data creation. Mr. McPherson creates thematic maps to provide support for textual information found in documents. His work has been represented at several Local, State and Regional user conferences. His experience extends to setting up field data collectors for hand held GPS systems as well as utilizing Cloud server technology for mobile devices including, iPad, iPhone and Android phones. TMr. McPherson has experience in creating and representing data for online interactive maps utilizing ArcSDE and ArcGIS server software. Mr. McPherson has a wide range of experience utilizing various systems including AutoCAD, ArcGIS, ArcInfo, and Oracle, SQL Server, SDE, Silverlight and other web technologies.

RELEVANT EXPERIENCE

Dominguez Channel Watershed Study, Los Angeles, CA. *Los Angeles County Department of Public Works.* GIS ANALYST. Responsible for working with stormwater engineers to review and update the County's storm water GIS database from as-built drawings. The data included creating and updating storm drain features location and attributes based on the as-built information. Information that was reviewed included size, material, as-built length, slope, and year installed. Automated scripts were created to fill in missing attributes based on elevation rasters and the upstream and downstream data from adjacent the feature. The watershed is approximately 75 square miles and drains the southwest portion of Los Angeles County. Dominguez Channel originates near the Los Angeles International Airport (LAX) and extends to the Los Angeles Harbor, running a length of approximately 19.5 miles. The purpose of this study is to evaluate the hydraulic capacity of the existing levees along the channel and to identify deficiencies in FEMA requirements. This watershed study includes collecting data using as-built drawings and field reconnaissance, updating drainage information using GIS, performing hydrology and hydraulic analysis, and developing a technical report and presentation.

Storm Drain Master Plan, Santa Ana, CA. *City of Santa Ana.* GIT ANALYST. Responsible for GIS services. Michael Baker provided professional engineering services to update the city's storm drain master plan. The city has an established drainage system with some segments over 50 years old and other segments recently constructed. Michael Baker analyzed the main line drainage system and prepared a hydrology study along with maps for the entire city boundary and for individual sub-areas for 2-, 10-, 25-, and 100-year storm events. The capacity of the existing storm drainage was evaluated to determine system capacity sufficiency using a hydrodynamic hydraulic model. A comprehensive list of needed storm drainage improvements was then generated. Michael Baker performed a hydraulic analysis to size sufficient storm drain lines and provided an Esri ARCGIS geodatabase of city storm drain facilities, including storm drain pipes, city-owned drainage channels, manholes, catch basins, and culverts. Michael Baker used the Bentley software hydrodynamic hydraulic model CivilStorm, which uses hydrographs with in the hydraulic model to determine adequate pipe sizing.

State Parks Surface Water and NPDES Support Services, Statewide, California. *California Department of Parks and Recreation.* GIS ANALYST. Responsible for GIS services as part of an on-call stormwater consulting services to the Off-Highway Motor Vehicle Recreation Division at the division's State Vehicular Recreation Areas (SVRA) throughout California. The Michael Baker team works with SVRA staff to produce solutions for surface water challenges, including hydrology and hydraulics studies, erosion and sediment control plans, and regulation interpretation. Two of the SVRAs are enrolled in the Phase II Small MS4 permit. Michael Baker is responsible for coordinating permit compliance and developing, presenting, and implementing the programs required during each permit yea. Michael Baker developed a statewide stormwater management plan (SWMP) to provide stormwater program structure for SVRAs without permit coverage. Ongoing training is provided to division staff for inspection and compliance requirements to ensure the division remains compliant.

Michael Baker INTERNATIONAL

Years with Michael Baker
22

Years Experience
24

Education
BA, Geography, California State University, Long Beach

Licenses/Certifications
Certified GIS Professional #53613

Professional Affiliations
Esri ArcGIS Users Group

GIS/DATA COLLECTION

Kevin Oliver

Mr. Oliver is a GIT associate, with experience in a variety of GIS programs within the Esri platform and cartography. Mr. Oliver has utilized his technical experience for a wide array of projects including transportation, storm-water, database, biology, and planning.

RELEVANT EXPERIENCE

Los Peñasquitos Watershed Master Plan, San Diego, CA. *City of San Diego Economic Development.* GIS ANALYST. Responsible for editing GIS data, QA/QC, as-built verification, and field work. Michael Baker developed a master plan for the City of San Diego's jurisdiction area of the Los Peñasquitos watershed. The master plan's primary goal was to identify and prioritize capital improvement plans required to meet the desired level of service requirements for flood control, water quality, habitat, and water conservation for this watershed.

Culver City Stormwater Quality Master Plan, Culver City, CA. *City of Culver City.* GIS ANALYST. Edited GIS data, QA/QC, provided as-built verification, and performed field work for the development of this master plan. Initial steps include the collection of city, county, and other data sets along with subarea delineation to the catch basin scale for use in identifying potential best management practice (BMP) locations. Potential BMP locations are then generated and sized in geographic information systems for prioritization. Michael Baker will also produce five- and ten-year capital improvement plans (CIPs) for scenarios to meet compliance goals and to represent capabilities with existing funding. It will develop conceptual project cut sheets to support public outreach forums and for use with grant funding applications. The final product is a master plan and dynamic web-based dashboard for the city to manage as projects are constructed.

Dominguez Channel Watershed Study, Los Angeles, CA. *Los Angeles County Department of Public Works.* GIS ANALYST. Responsible for editing GIS data, QA/QC, as-built verification, and field work for the comprehensive flood hazard analysis for the Dominguez Channel Watershed. The watershed is approximately 75 square miles and drains the southwest portion of Los Angeles County. Dominguez Channel originates near the Los Angeles International Airport (LAX) and extends to the Los Angeles Harbor, running a length of approximately 19.5 miles. The purpose of this study is to evaluate the hydraulic capacity of the existing levees along the channel and to identify deficiencies in Federal Emergency Management Agency (FEMA) requirements. This watershed study includes collecting data using as-built drawings and field reconnaissance, updating drainage information using geographic information system (GIS), performing hydrology and hydraulic analysis, and developing a technical report and presentation.

Stormwater Policy and Permit Support Services, Statewide, California. *Caltrans.* GIS ANALYST. Responsible for GIS online capabilities for client use as part of statewide on-call stormwater services related to policy development, strategic planning, permit implementation, total maximum daily load implementation, and continued development and refinement of Caltrans' statewide stormwater management program. It also assisted the Department of Transportation on reviews of proposed stormwater permits and permit renewals.

GIS Consulting, San Diego, CA. *Port of San Diego.* GIS ANALYST. Providing QA/QC for database construction as part of the new database components, as-needed stormwater compliance support, and technology and GIS consulting. The system streamlines the data collection and input process for client staff and enhances data management and reporting functions.

As-Needed Civil Engineering Services for the Municipal Stormwater Program,San Diego, CA. *City of San Diego.* GIS ANALYST. Responsible for editing GIS data, QA/QC, as-built verification, and field work. Michael Baker is providing as-needed engineering services to support the City of San Diego municipal stormwater program. Under this five-year contract, Michael Baker is providing strategic planning, design, and engineering services for task orders throughout the City's sphere of influence, including completion of a watershed master plan. Work under the master plan includes gathering data on the existing stormdrain system for a GIS layer and modeling for water quality, flood control, lagoon rehabilitation, and wetlands mitigation. The purpose of the master plan is to develop and prioritize capital improvement projects that improve drainage problems and meet the City's TMDL obligations in the receiving water.

Michael Baker INTERNATIONAL

Years with Michael Baker
5

Years Experience
5

Education
BA, Communications, San Diego State University

Post-Baccalaureate Certificate, GIS, San Diego Mesa College

Licenses/Certifications
GIS and Spatial Analyst Certification

Professional Affiliations
Toastmasters International

HYDRAULICS/HYDROLOGY

Jenna Clark, PE

Mrs. Clark has been involved in a variety of projects including, but not limited to, runoff and floodplain master plans, storm drain design, FEMA processing, and large scale 2-dimensional floodplain studies. Mrs. Clark also has experience in roadway drainage and has been involved in hydrologic and hydraulic analysis and report preparation, as well as preparation of PS&E. Her computer modeling background includes the application of the Army Corps of Engineers HEC-RAS (River Analysis System), Stormwater and Wastewater Management Model (XP-SWMM) and Advanced Engineering Software (AES) for hydrologic/hydraulic analysis in Southern California. Mrs. Clark uses the Geographical Information System (GIS) hydro applications in most of the hydrology and hydraulics software's. She also is an adept user of AutoCAD Civil 3D, using a wide variety of its functions during design and plan production. Mrs. Clark is an exceptional team member, capable of coordinating with co-workers, project managers and clients, as well as having the ability to apply prior knowledge to current projects and produce effective solutions.

RELEVANT EXPERIENCE

Culver City Stormwater Quality Master Plan, Culver City, CA. *City of Culver City.* DESIGN ENGINEER. Responsible for preparing the GIS database for input into 1D-2D XPSWMM hydrology and hydraulic modeling, testing capabilities and capacities of XPSWMM, and beginning to develop the final 1D-2D XPSWMM model. Assisted in providing watershed assessments and modeling through analyzing model results for floodplain impacts to the urban development surrounding Dominguez Channel as well as writing and developing the final report. Initial steps include the collection of city, county, and other data sets along with subarea delineation to the catch basin scale for use in identifying potential BMP locations. Potential BMP locations are then generated and sized in geographic information systems for prioritization. Michael Baker will also produce five- and ten-year CIPs for scenarios to meet compliance goals and to represent capabilities with existing funding. It will develop conceptual project cut sheets to support public outreach forums and for use with grant funding applications. The final product is a master plan and dynamic web-based dashboard for the city to manage as projects are constructed.

Los Peñasquitos Watershed Master Plan, San Diego, CA. *City of San Diego Economic Development.* CIVIL ASSOCIATE. Assisted in data entry into PCSWMM for the hydrology and hydraulic modeling. Michael Baker developed a master plan for the City of San Diego's jurisdiction area of the Los Peñasquitos watershed. The master plan's primary goal was to identify and prioritize capital improvement plans required to meet the desired level of service requirements for flood control, water quality, habitat, and water conservation for this watershed.

Dominguez Channel Watershed Study, Los Angeles County, CA. *Los Angeles County Department of Public Works.* DESIGN ENGINEER. Responsible for updating GIS data to be accurately lined up with the aerial imagery for proper input into the 1D-2D XPSWMM hydrology and hydraulics model. The watershed is approximately 75 square miles and drains the southwest portion of Los Angeles County and extends to the Los Angeles Harbor, running a length of approximately 19.5 miles. The purpose of this study is to evaluate the hydraulic capacity of the existing levees along the channel and to identify deficiencies in FEMA requirements. This study includes collecting data using as-built drawings and field reconnaissance, updating drainage information using GIS, performing hydrology and hydraulic analysis, and developing a technical report and presentation.

NPDES Phase II Stormwater Regulation (Caltrans Contract #43A0307), Southern California, CA. *Caltrans.* INTERN. Responsible for performing field work to collect a storm drain inventory with the Ontario Team, data entry onto a Michael Baker International app on an iPad, determining total discharge areas (TDAs), and creating an overall database of where storm water will flow after reaching various Caltrans roadways. The objective of the Storm Drain System Inventory (SDSI) was to identify and describe existing major surface water bodies in areas subject to the Municipal Separate Storm Sewer System (MS4) permit using ArcView Geographic Information System (GIS) and mobile GPS units. All Caltrans properties and facilities located within the Phase II, MS4 urban areas of Southern California were included in the inventory.

Michael Baker INTERNATIONAL

Years with Michael Baker
7

Years Experience
11

Education
BS, Civil Engineering/ Environmental, California State Polytechnic University, Pomona

Licenses/Certifications
Professional Engineer (Civil), CA #91069

Professional Affiliations
American Society of Civil Engineers

Chi Epsilon, The National Civil Engineering Honor Society

Tau Beta Pi, The Engineering Honor Society

FEASIBILITY STUDIES/BMP STORM WATER MASTER PLAN

Connie Phan, EIT

Ms. Phan has worked on multiple projects for the Surface Water Quality department. The projects range from hydrology analysis, Low Impact Development, preparation of Water Quality Management Plans (WQMPs) and Storm Water Pollution Prevention Plans (SWPPPs), and field work for Orange County Public Works. These projects have consisted of technical experience with AutoCAD, ArcGIS, AES, and SOHM, with the use of additional supportive calculations and analysis.

RELEVANT EXPERIENCE

Culver City Stormwater Quality Master Plan, Culver City, CA. *City of Culver City.* CIVIL ASSOCIATE. Responsible in assisting with the creation of a dynamic web-based dashboard that will help the City identifying potential Best Management Practice locations. Potential BMP locations are then generated and sized in geographic information systems for prioritization to will also produce five- and ten-year CIPs for scenarios to meet compliance goals and to represent capabilities with existing funding. Michael Baker is part of a team developing Culver City's Stormwater Master Plan. Initial steps include the collection of city, county, and other data sets along with subarea delineation to the catch basin scale for use in identifying potential BMP locations. Potential BMP locations are then generated and sized in geographic information systems for prioritization.

NPDES Phase II Stormwater Regulation (Caltrans Contract No 43A0307), Southern California. *Caltrans.* CIVIL ASSOCIATE. Assisted in preparing and performing the field work of inventorying the storm drain system along Caltrans owned highways. The objective of the Storm Drain System Inventory (SDSI) was to identify and describe existing major surface water bodies in areas subject to the Municipal Separate Storm Sewer System (MS4) permit using ArcView Geographic Information System (GIS) and mobile GPS units. All Caltrans properties and facilities located within the Phase II, MS4 urban areas of Southern California were included in the inventory.

Stormwater Management and Consulting, California. *California Department of Parks and Recreation.* CIVIL ASSOCIATE. Responsible for assisting in scour analysis and providing alternatives to mitigate and prevent erosion cause by a historical tailing pile. Michael Baker is the sole water quality consultant providing surface water management and National Pollutant Discharge Elimination System support services to the CA State Parks Off-Highway Motor Vehicle Recreation Division (Division). The Division operates nine State Vehicular Recreation Areas (SVRAs) to provide off-highway vehicle opportunities.

On-Call Water Quality Management Plan Implementation Services, Orange County, California. *Orange County Public Works.* CIVIL ASSOCIATE. Assisted in preparing the WQMP. Michael Baker is assisting with on-call water quality management plan (WQMP) implementation services, including meeting post-construction permit requirements primarily regarding low impact development (LID) and hydromodification controls for new development and significant redevelopment. WQMP-related services include preparation of regulatory plans, technical guidance documents, and annual reports; assessment of economic impacts of; development of case studies and training programs for cities and the development industry; support for answering City and development industry questions; development of regional tools (e.g., mapping and modeling) to simplify preparation of project WQMPs; performance of outreach and coordination with various planning, engineering, and development industry groups; and assessment of LID and hydromodification effectiveness.

On-Call Plan Check of Preliminary and Final Water Quality Management Plans (P-WQMP and F-WQMP), Riverside County, California. *Riverside County Transportation Department.* CIVIL ASSOCIATE. Assisted in providing reviews WQMPs for approval on behalf of the County of Riverside. Michael Baker is providing the Riverside County Transportation Department with plan check services for Water Quality Management Plans (WQMP) for New Development and Significant Redevelopment projects. Michael Baker is reviewing WQMP submitted for both public and private developments and projects within all three of the principal watersheds in the County; the Santa Ana River Region (SAR), Santa Margarita River Region (SMR), and White Water River Region (WWR) to ensure RCTD is in compliance with the County's NPDES MS4 Permit.

Michael Baker INTERNATIONAL

Years with Michael Baker
7

Years Experience
7

Education
BS, Civil Engineering, University of California, Irvine

Licenses/Certifications
Engineer-in-Training, CA #154098

FEASIBILITY STUDIES/BMP STORMWATER MASTER PLAN

Chris Carandang, PE

Chris has over 6 years of experience supporting implementation efforts of stormwater and watershed management plans in California through the development of Green Infrastructure (GI), Low Impact Development (LID), and stormwater capture conceptual and engineering designs. His areas of focus have included compilation and synthesis of large inventories of datasets in support of regional planning efforts, application of GIS and quantitative methods to identify and prioritize stormwater projects on a regional scale, and leveraging technical expertise to support stormwater and watershed management planning efforts. Chris has led the development of frameworks for stormwater project prioritization for many implementation plans across the state, including Stormwater Resource Plans, Green Infrastructure Plans, and other city master plans. Chris has supported the development of WMPs/EWMPs in LA County through GIS analysis to identify signature stormwater projects. . In addition, he has led the development of green infrastructure and stormwater capture conceptual designs to support the implementation efforts of several WMP/EWMP partner agencies, including Carson, Alhambra, and Beverly Hills, as well as several cities in the San Francisco Bay region. Chris served in a critical role compiling BMP effectiveness information and developing processes for quantifying performance within the County's WMMS 2.0 and WRAMPS. Currently, he is serving as the project manager of a Safe Clean Water Program feasibility study for a green street project in Alhambra.

RELEVANT EXPERIENCE

Regional Stormwater Capture Conceptual Designs. *City of Carson, CA.* TECHNICAL LEAD. Paradigm developed conceptual designs for large-scale regional stormwater capture projects for the City of Carson. Chris served as the technical lead for the development of conceptual designs for three sites, Carriage Crest Park, Carnegie Middle School, and Stevenson Park, that would achieve progress towards meeting the cities' stormwater capture goals. Conceptual designs were presented as fact sheets that were used in discussions to pursue funding, discuss project alternatives, and support project decision-making. Chris led the development of concept details such as drainage area delineation, project sizing, pumping and diversion requirements, and cost estimates. Footprint configurations, diversion alternatives, and project phasing scenarios were presented to the cities to assist with selection of project alternatives. The concept for Carriage Crest Park was used to facilitate discussions with Caltrans that resulted in full funding of the design and construction of the project.

Conceptual Designs and Safe Clean Water Program Feasibility Study. *Alhambra, CA.* LEAD DEVELOPER. Paradigm has developed several GI conceptual designs for the City of Alhambra, including conceptual designs for three LID retrofits, a demonstration green street, and two large-scale regional stormwater capture projects. Chris led the development of these designs, including hydrologic analysis for volume capture estimates, project sizing, and footprint configurations. GIS analysis was performed to establish site characteristics used in the hydrologic analysis. The concept fact sheet for the green street demonstration project was used to support an application to the Technical Resources Program of the Safe Clean Water Program for funding for a feasibility study, which Paradigm is leading. The feasibility study prepares the project for the next phase of implementation and will support the City's application for additional design and construction funding through the Infrastructure Program. Chris is serving as the project manager for the feasibility study under development.

Safe Clean Water Program Feasibility Studies and Planning. *City of Los Angeles, CA.* TECHNICAL LEAD. Paradigm has supported the City of Los Angeles Bureau of Sanitation (LASAN) with feasibility studies for over 10 stormwater capture projects and concept reports for 11 projects in preparation for the Safe Clean Water Program. Chris served as the technical lead for tasks consisting of high-resolution delineation of project drainage areas using LiDAR-derived elevation data, hydrology and pollutant load modeling using the County's Watershed Management Modeling System (WMMS), and calculation of water quality and supply benefits of projects for scoring using the Safe Clean Water Scoring Criteria. Paradigm also assisted the City in identifying project elements that may be modified to improve multi-benefits and scores. Several of these projects have already been approved through the Infrastructure Program for design and construction funding.

PARADIGM ENVIRONMENTAL

Years with Current Firm
6

Years Experience
6

Education
Master of Science, Civil and Environmental Engineering, 2015, Colorado School of Mines

Bachelor of Science, Civil Engineering, 2013, University of California, Los Angeles

Licenses/Certifications
Professional Engineer, California (No. C 92391)

FEASIBILITY STUDIES/BMP STORMWATER MASTER PLAN

Jessica Cassman, PE, CFM, CPESC, QSD/QSP, QISP, ENV-SP, ISI, LEED AP

Ms. Cassman is a civil engineer with extensive surface water management and water quality permit compliance experience. She provides civil engineering design, planning, and water resources services for commercial, industrial, education, land development, and public works communities.

RELEVANT EXPERIENCE

Stormwater Quality Master Plan, Culver City, CA. *City of Culver City.* PRINCIPAL/PROJECT MANAGER. Provided decision-making tools to help the City spend public funding on stormwater quality compliance and defensible compliance progress. Projects identified in the SWQMP were developed into concept plans tailored for grant funding opportunities including FEMA and Measure W (LA County Parcel Fee). Ms. Cassman also developed the Syd Kronenthal Park Regional Stormwater Facility Concept Plan, and obtained Safe Clean Water Technical Feasibility Study Grant funding through the Central Santa Monica Bay Watershed Steering Committee.

Transfer Station Rain Gardens, Culver City, CA. *City of Culver City.* PRINCIPAL/PROJECT MANAGER. Provided civil design, hydrology, and hydraulic calculations for a grant-funded LID retrofit project for the Culver City Transfer Station. Work included LID BMP sizing, civil design, coordinated survey, landscape design, and educational signage for the project. This project added curb pop-out rain gardens, harvest and use cisterns, and biofiltration planters for Industrial General Permit compliance.

Low Impact Development Best Management Practice (BMP), Los Angeles, CA. *RedCar, Ltd.* PRINCIPAL/PROJECT MANAGER. Provided design and permitting for various (more than 5) projects in the City of Los Angeles. The project sites are all similarly challenged infill projects with both space and geological constraints for infiltration. Ms. Cassman works closely with architect teams, owner representatives, and the City of Los Angeles to provide the best water quality solution.

Capture and Use Pilot Project and Full Implementation, Universal City, Los Angeles, CA. *NBCUniversal.* PRINCIPAL/PROJECT MANAGER. Coordinated with NBCUniversal Project Directors and Director of Environmental Health and Safety (EHS) Programs to ensure continued NPDES permit compliance for construction, new, and re-development projects. Work as a liaison between owners and project teams, and Los Angeles County Department of Health and Regional Water Quality Control Board. Specific projects include:

- Measure W - Safe Clean Water – Coordinated closely with LA County and NBCUniversal to develop tax credit application that accurately reflects the unique and significant voluntary water quality improvements implemented on the 400-acre campus with direct discharge to the Los Angeles River.
- Designed pilot project for a unique capture and use application for water theme park attractions – 1.6M gallons annually of dry weather flow is collected and treated to meet water quality standards for reuse in existing spray irrigation system. This project also included an operation and monitoring plan. The successful pilot project is anticipated to be scaled throughout the property.
- Credit Trading Program Support – Developed a concept plan for a new credit program on the campus for planned future improvements to implement a large stormwater storage facility for delayed release to sanitary sewer and treatment at Hyperion Reclamation Plant. This is a unique project that would divert wet weather flows to sanitary sewer and requires close coordination with Los Angeles City Sanitation.
- Ongoing Construction General Permit Water Quality (QSD/QSP) consulting, inspection, and monitoring for all development over one acre – projects have included the 4-Acre Parking Structure, theme park attractions, Main Gate, Universal Hollywood Drive, Various Sound Stages, Child Care Facility, new Office Building and Promenade, and security gates.

BLUE OCEAN CIVIL CONSULTING

Years with Current Firm
6

Years Experience
17

Education
BS, Civil and Environmental Engineering, University of California, Davis

Licenses/Certifications
Professional Engineer (Civil), CA #73907

Certified Floodplain Manager, #US-15-08596

Certified Professional in Erosion and Sediment Control (CPESC)

Qualified Stormwater Pollution Prevention Plan Developer/Practitioner (QSD/P)

Qualified Industrial Stormwater Practitioner (QISP)

Institute for Sustainable Infrastructure (ISI)

Envision Sustainability Professional (ENV SP)

LEED Accredited Professional (LEED AP)

MODELING/WATER QUALITY

Ali Tasdighi, PHD, EIT

Dr. Tasdighi's expertise is in the area of hydrology and is focused on system-level analysis of the effects of natural and anthropogenic influences on quantity and quality of water resources. He has expertise in conjunctive use of land-based and remote sensing data with process-based and empirical hydrologic and water quality models at small to large spatial and temporal scales for solving challenging water resources problems including sustainability of water resources under land use and climatic change, water quality and quantity conservation, and vulnerability and resilience of water resources to natural and anthropogenic perturbations. He has developed several published tools and frameworks for assessing the water quality benefits of nonpoint source pollution conservation practices and has expertise in designing water quality credit trading programs.

RELEVANT EXPERIENCE

As-Needed Civil Engineering and Consulting Services, San Diego, CA. *City of San Diego.* TECHNICAL SPECIALIST. As the lead technical analyst, responsible for developing the HEC-RAS models for multiple channels in City of San Diego, assessing the effects of channel maintenance in increasing the channel conveyance capacity and level of service. Developed automated tools to incorporate the building footprints into the models for more accurate representation of floodplain conditions and obstructions. Developed several scenarios for mitigating the flooding events including channel vegetation and sediments maintenance and structural modification such as culvert maintenance and upsizing.

Municipal Waterways Maintenance Plan Support, San Diego, CA. *City of San Diego Economic Development.* TECHNICAL SPECIALIST. As the lead technical analyst, responsible for developing the HEC-RAS models for multiple channels in City of San Diego, assessing the effects of channel maintenance in increasing the channel conveyance capacity and level of service. Developed automated tools to incorporate the building footprints into the models for more accurate representation of floodplain conditions and obstructions. Developed several scenarios for mitigating the flooding events including channel vegetation and sediments maintenance and structural modification such as culvert maintenance and upsizing. Michael Baker provides engineering support for development and implementation of the City Municipal Waterways Maintenance Plan (MWMP). This plan and associated California Environmental Quality Act (CEQA) environmental document is intended to replace the City's Master Storm Water System Maintenance Program (MMP) and Program Environmental Impact Report (PEIR).

Reasonable Assurance Analysis, Long Beach, CA. *Port of Long Beach.* TECHNICAL LEAD. Prepared a Reasonable Assurance Analysis (RAA) in accordance with the Long Beach MS4 NPDES Permit. The initial RAA was conducted in 2015 for the Long Beach Nearshore Watershed, including City nearshore areas and the Port area discharging to San Pedro Bay, Los Angeles Estuary, Dominguez Channel, and Long Beach Harbor. Michael Baker developed new RAA models (LSPC and SUSTAIN) and calibrated them with local Port-specific monitoring data.

Rainbow Creek Watershed Implementation Plan, San Diego, CA*. *County of San Diego.* WATERSHED MODELER. Led the watershed modeling and system analysis team. Revised the HSPF model for the Rainbow Creek watershed to incorporate mechanisms through which the effectiveness of Riparian Buffers and other stream restoration approaches in reducing nutrients could be quantified. The model was then used to assess capability to meet TMDL goals

Famosa Slough Watershed Management Plan, San Diego, CA*. *City of San Diego.* LEAD SYSTEM ANALYST/WATERSHED MODELER. Refined the coupled watershed model (LSPC) and receiving water model (EFDC) to more accurately capture recent modifications to the watershed and slough. Suggested potential improvement areas in monitoring and modeling approaches based on the new monitoring datasets and modeling results. Also developed an algorithm to conduct a Global Sensitivity Analysis using method of Sobol for the LSPC watershed model. The algorithm was then used to identify the LSPC model parameters that showed the highest impact on model results. Also developed an auto-calibration algorithm for LSPC which was then used to calibrate the hydrology and water quality parameters of the model.

*Prior firm experience

Michael Baker INTERNATIONAL

Years with Michael Baker
2

Years Experience
8

Education
PhD, Civil Engineering, Colorado State University

MS, Civil Engineering, Shiraz University

BS, Civil Engineering, Yazd University, Iran

Licenses/Certifications
Engineer-in-Training, CA

Professional Affiliations
American Society of Civil Engineers

American Water Resources ASsociate

American Geophysical Union

MODELING/WATER QUALITY

Jing Liu, PE

Mr. Liu leads stormwater projects focused on residential and commercial land development and helping to deepen the SD/CB Stormwater design capabilities. He also has programming and modeling skills to help lead a wide range of projects and mentor junior staff. He has prepared drainage studies, stormwater quality management plans, water quality facilities/BMP design, hydrology, hydraulics, among other tasks, on many public and private sector projects.

RELEVANT EXPERIENCE

On-Call Plan Checking Services, Poway, CA. *City of Poway.* ENGINEER. Reveiwed drainage study/SWQMP as part of an on-call contract for high level professional plan review services. Services include performing plan review and recheck review of items including but not limited to the following: Grading Plans, Improvement Plans, Tentative and Final Maps, Title Reports, Soils Reports, Legal Descriptions and Plats for Easement Documents, traverse calculations, cost estimates, H&H Studies, Geotechnical Reports, Storm Water Quality Management Plans, and Hydromodification Management Plans, as well as related and necessary reference review of project plans for the entire plan review process. Michael Baker has assisted the City with plan review services for more than 30 projects. Plan review task orders have covered a wide range of project types with recent task orders completed for Neighborhood Healthcare, Pomerado Hospital, and Ridgeview Industrial as well as large residential sites such as Liguori Ranch.

Ocotillo Wells Solar Farm, San Diego, CA. *Vitol Solar LLC.* ENGINEER. Perpared dainage study for a 440-acre, 46-56MW photovoltaic and concentrated solar site located in the Community of Ocotillo Wells. Services focused on identification of key environmental and regulatory constraints and requirements to determine site feasibility, project costs, entitlement requirements, and schedule.

On-Call Plan Checking Services, Carlsbad, CA. *City of Carlsbad.* ENGINEER. Reviewed drainage study/SWQMP as part of an on-call plan checking contract with the City. Michael Baker provided professional engineering and land surveying plan check services on an as-needed basis. Work involved review of plans, studies, calculations, maps, and supporting documents for conformance with state and local requirements and accepted practices on an as-needed basis for private developments. Michael Baker staff reviewed improvement plans; grading and erosion control plans; landscape plans, final maps and parcel maps; water, sewer and recycled water improvement plans; SWMP and water pollution control plans; and stormwater requirements applicability checklist for BMPs.

Torrey View Hills, San Diego, CA. *City of San Diego Economic Development.* ENGINEER. Responsible for stormwater management support and prepared drainage study/SWQMP Report. Michael Baker prepared a schematic storm water mitigation analysis showing proposed BMP layouts. This preliminary design will provide water quality and hydromodification mitigation for the proposed project. Michael Baker prepared a Storm Water Quality Management Plan (SWQMP) that identifies the project's anticipated pollutants generated by the site as well as the impairments of the downstream receiving waters. BMPs were selected to adequately treat the stormwater runoff from the site, based on correspondence with the Client. The report also addresses compliance with the applicable Low-Impact Development (LID) requirements.

Pepper Canyon West Student Housing, San Diego, CA. *Clark Construction/UCSD.* ENGINEER. Assisted with civil engineering design, stormwater quality, and construction support. Michael Baker also prepared the Pepper Canyon Regional Water Quality Basin Drainage Report Workplan to address the existing (predevelopment) and proposed (post-development of the Design Innovation Building/Amphitheater, Light Rail Transit (LRT), and East Rim Trail projects) condition to tabulate the available water quality treatment volume and peak flow rate to mitigate for future developments at UCSD. Michael Baker prepared the site design for 95% grading and improvements plans prior to the COVID-19 pandemic that postponed project construction. Michael Baker worked closely with UCSD to develop a Risk Level 1 SWPPP to address pollutants and their sources, including controlling sources of sediment associated with construction, identifying and either eliminating, controlling, or treating non-storm water discharges, and reducing or eliminating pollutants in runoff from the project site during construction through effective BMPs.

Michael Baker INTERNATIONAL

Years with Michael Baker
1

Years Experience
3

Education
MS, Civil Engineering - Hydrology & Water Resources, University of California, Irvine

BEng, Civil Engineering - Water Supply & Sewage, Bejing University of Technology

Licenses/Certifications
Professional Engineer, 2022, CA

ENVIRONMENTAL/RESTORATION/PERMITTING

Anisha Malik, SITES AP, CERP

Ms. Malik is a restoration ecologist with experience in voluntary restoration projects for wetlands, riparian systems, and coastal sage scrub habitats, as well as a wide variety of compensatory mitigation projects required for jurisdictional impacts. Ms. Malik identifies mitigation site opportunities and designs site plans that will provide beneficial results for stakeholders involved as well as the local watershed. She identifies native species to be included in the plant palette, and works with landscape contractors to design the placement of plants. Additionally, she is responsible for baseline studies, including conducting jurisdictional delineations, vegetation mapping, and California Rapid Assessment Method (CRAM) analysis at project sites. She is directly involved with the implementation of her projects and collaboration with contractors, as the first stages are key to establishing a successful site. Ms. Malik conducts qualitative and quantitative monitoring at sites, with some activities involving water and soil sampling, tree height measuring, and invasive species prevention (e.g. ISHB). With the data collected, she provides adaptive management for the projects and prepares annual reports to submit to state and federal regulatory agencies.

RELEVANT EXPERIENCE

Ephemeral Washes Environmental Planning Project, Victorville, CA. *City of Victorville.* ECOLOGIST. Conducted biological assessments of multiple drainages responsible for maintaining and operating the city's flood control system in an efficient, economic, and environmentally responsible manner for the protection of property and public safety. Routine maintenance is required to ensure the long-term function, flow capacity, and infrastructure sustainability. To help restore the city's flood control system to its baseline design capacity and to maintain its future effectiveness, Michael Baker is providing environmental planning, natural resources, and regulatory permitting services to identify specific maintenance activities, methods, and procedures for 127 flood control facilities and detention basins to comply with all state and federal environmental regulations. It also provided the delineation of jurisdictional waters, a biological habitat assessment, CEQA analysis, and an IS/MND.

Maple Canyon Watershed Master Plan, San Diego, CA. *City of San Diego Economic Development.* ENVIRONMENTAL SCIENTIST. Conducted a CRAM assessment for two areas of riverine wetlands. The master plan included development of a geospatial dataset for the storm drain system and drainage characteristics for the watershed study area necessary to complete the hydrologic and hydraulic modeling, water quality modeling, and environmental mitigation analysis. A web mapping application was also developed to display the storm drain inventory and the results of the master plan study. The web map allows city staff to easily find and navigate the numerous recommendations to improve the system.

Pilgrim Creek Vector Remediation and Restoration Project, Oceanside, CA. *City of Oceanside.* ENVIRONMENTAL ASSOCIATE. Assisted the Project Manager with communication between regulatory agencies and other parties involved. Completed permits for the California Department of Fish and Wildlife, the Regional Water Quality Control Board, and the USACE. Michael Baker evaluated on-site drainages and determined the jurisdictional authority of State and Federal regulatory agencies within the boundaries of the Pilgrim Creek Vector Remediation and Restoration Project. The selected alternative proposes to recontour Pilgrim Creek invert to allow for positive slope, remove and reconstruct creek crossings for better conveyance, relocate the lateral channel, and excavate the existing ln-llne lake.

Bayview Restoration Project, Newport Beach, CA. *City of Newport Beach.* ENVIRONMENTAL ASSOCIATE. Responsibilities included conducting jurisdictional determinations of waters and wetlands on site, coordinating with regulatory agencies to complete required permits for the project, coordinating with the City and regulatory agencies to create a mitigation plan for the project, and writing the mitigation plan for the project. Michael Baker provided engineering and environmental services for a project to connect an existing storm drain outlet to a new water quality facility before discharging to the Upper Newport Bay. The project was grant funded and helped the city meet TMDL requirements for sediment in Upper Newport Bay. The project involved extensive coordination with the city, residential land owners, the Newport Bay Conservancy, and the County of Orange. The regulatory portion of the project required CEQA, California Coastal Commission, Regional Board, USACE, and Fish and Game permits.

Michael Baker INTERNATIONAL

Years with Michael Baker
7

Years Experience
8

Education
BS, Chemistry, Santa Clara University

Graduate Studies, Natural Resources Stewardship/ Ecological Restoration, Colorado State University

Licenses/Certifications
CRAM for Riverine Wetlands-Certified Practitioner

SITES Accredited Professional

Wetland Delineator Certification Program

Certified Ecological Restoration Practitioner

Professional Affiliations
Ecological Society of America

Society for Ecological Restoration

US Green Building Council

ENVIRONMENTAL/RESTORATION/PERMITTING

Tim Tidwell

Mr. Tidwell assists in the preparation of environmental and planning studies for public and private sector clients. He is involved with Section 404, 401, and 1600 permit processing, wetland delineations, field studies, Phase I environmental site assessments (ESA), and permitting in accordance with CEQA and NEPA. Mr. Tidwell's professional environmental experience includes the management, review, and preparation of hazardous material assessments, including Phase I ESAs, initial site assessments, and preliminary hazardous material assessments.

RELEVANT EXPERIENCE

Ephemeral Washes Environmental Planning Project, Victorville, CA. *City of Victorville.* ENVIRONMENTAL SPECIALIST. Performed a jurisdictional delineation for over 130 flood control facilities, leading pre-application field meetings with the regulatory agencies, drafting of regulatory permit applications, and task management. The department is responsible for maintaining and operating the city's flood control system in an efficient, economic, and environmentally responsible manner for the protection of property and public safety. Routine maintenance is required to ensure the long-term function, flow capacity, and infrastructure sustainability. To help restore the city's flood control system to its baseline design capacity and to maintain its future effectiveness, Michael Baker is providing environmental planning, natural resources, and regulatory permitting services to identify specific maintenance activities, methods, and procedures for 127 flood control facilities and detention basins to comply with all state and federal environmental regulations. It also provided staff training, agency coordination, the delineation of jurisdictional waters, a biological habitat assessment, CEQA analysis, and an IS/MND.

Morongo Creek Flood Hazard Evaluation and Channel Design, Coachella Valley, CA. *Coachella Valley Water District.* ENVIRONMENTAL ASSOCIATE. Performing a jurisdictional delineation and document preparation for a planning-level study and final engineering design services for the Morongo Wash Channel Design Phase 1. New floodplain mapping along the Morongo Wash Watershed had been recently prepared by the Coachella Valley Water District as part of the North Cathedral City and Thousand Palms Stormwater Management Plan, which resulted in significant increases in the base flood elevations along the 1-10 corridor. For the project, Michael Baker provided hydraulic modeling, flood-protection alternatives, agency coordination, and channel design.

State Parks Surface Water and NPDES Support Services, Statewide, CA. *California Department of Parks and Recreation.* ENVIRONMENTAL ASSOCIATE. Assisted in documenting proposed construction activities and processed Section 401, 404, 1602, and San Joaquin County Encroachment permits. The Michael Baker team works with SVRA staff to produce solutions for surface water challenges, including hydrology and hydraulics studies, erosion and sediment control plans, and regulation interpretation. Two of the SVRAs are enrolled in the Phase II Small MS4 permit. Michael Baker is responsible for coordinating permit compliance and developing, presenting, and implementing the programs required during each permit yea. Michael Baker developed a statewide stormwater management plan (SWMP) to provide stormwater program structure for SVRAs without permit coverage. Ongoing training is provided to division staff for inspection and compliance requirements to ensure the division remains compliant.

As-Needed Civil Engineering Services for the Municipal Stormwater Program, San Diego, CA. *City of San Diego, Transportation and Storm Water Department.* ENVIRONMENTAL ASSOCIATE. Regional General Permitting services for the City of San Diego flood control facilities with coordination with Dudek. Michael Baker is providing as-needed engineering services to support the City of San Diego municipal stormwater program. Under this five-year contract, Michael Baker is providing strategic planning, design, and engineering services for task orders throughout the City's sphere of influence, including completion of a watershed master plan. Work under the master plan includes gathering data on the existing stormdrain system for a GIS layer and modeling for water quality, flood control, lagoon rehabilitation, and wetlands mitigation. The purpose of the master plan is to develop and prioritize capital improvement projects that improve drainage problems and meet the City's TMDL obligations in the receiving water.

Michael Baker INTERNATIONAL

Years with Michael Baker
6

Years Experience
9

Education
MS, Geography, GIS and Remote Sensing, San Diego State University

BA, Geography, San Diego State University

Licenses/Certifications
CRAM for Riverine Wetlands-Certified Practitioner

Wetland Delineator Certification Program

Professional Affiliations
Association of Environmental Professionals

ENVIRONMENTAL/RESTORATION/PERMITTING, LAND DEVELOPMENT COMPLETE/GREEN STREETS

Dan Tormey, PHD, PG

Dr. Tormey is an expert in energy, water resources, land management and environmental policy. He has served as a technical expert in state and federal court, including testimony in Federal Court on questions related to water supply and sustainable yield and testimony in state court on contaminant assessment, fate and transport, risk assessment and remediation. Other litigation and testimony have included water quality and quantity, water rights, and Endangered Species Act issues. He works with the environmental aspects of all types of electrical generation and transmission; water resources; oil and gas development and decommissioning; and land management and transfer. He has conducted important assignments in onshore, offshore, nearshore, estuarine, riverine and glacial environments. Dr. Tormey is the designated geomorphology expert in the Santa Clara River watershed (by Regional Water Quality Control Board, Los Angeles County), and his work on the Kern River led to his selection by the National Academy of Sciences to the 8-person science advisory board guiding the development of the management plan for Giant Sequoia National Monument; his role was physical sciences and watershed function. He is an on-call technical expert on oil and gas issues for Ventura County Planning Department.

RELEVANT EXPERIENCE

Regulatory Roadmap and Programmatic EIR for San Gabriel Valley Greenway Network, Los Angeles, CA. *County of Los Angeles Flood Control District.* PROJECT MANAGER. Led the environmental aspects of the San Gabriel Valley Greenway Network, which aims to transform the many flood control channels, utility rows, abandoned rail lines and complete streets corridors in this heavily developed and urban region of Los Angeles County into a world-class network of safe, cohesive, and easily accessible community greenways. The emphasis is on enhancing sustainable water supplies and stormwater management, while seeking to prioritize multi-benefit and multi-modal projects.

Programmatic EIR for Stormwater Management Program, Los Angeles, CA. *City of Los Angeles Bureau of Sanitation.* PROJECT MANAGER. Oversaw a comprehensive review of a transformative stormwater management program, triggered by the Los Angeles Regional Water Quality Control Board new MS-4 permit. Evaluated low-impact design, numerous innovative infiltration measures, and other techniques for urban stormwater management. The EIR was prepared to provide the LA City Council with a view of the range of environmental effects that may result from implementation of the program.

EIR for Bacteria TMDL Compliance, Ballona Creek, CA. *City of Los Angeles Bureau of Sanitation.* PROJECT MANGER. Evaluated the impacts of the City's proposal to comply with bacteria TMDL limits in Ballona Creek and major tributaries. The project consists of three diversion structures, designed to capture all dry-season runoff. At one facility, all water would be treated and released to the channel; at another, all water would be sent to Hyperion wastewater treatment plant for beneficial reuse; and at the third there would be a hybrid of treat and release, and pump to Hyperion. Analysis included potential effects to Ballona Estuary and Ballona Wetlands.

Newhall Ranch EIR/EIS, Los Angeles, CA. *Newhall Land and Farming Company.* TECHNICAL SPECIALIST. Conducted resource studies to support proposed development projects and prepared surface water hydrology/flood control, geomorphology/riparian resources, and hazards sections of the Newhall Ranch Resources Management and Development Plan /Spineflower Conservation Plan EIR/EIS. Work included accommodating oil field development within the planning footprint and guiding the future abandonment and remediation of the oil fields in the future. Led assessment of geomorphic effects of the development on the Santa Clara River and its tributaries, and commenced long-term monitoring of this portion of the watershed as a designated expert by the Los Angeles Regional Water Quality Control Board.

Programmatic EIR for Hyperion 2035 Advanced Water Treatment Plant, Los Angles, CA. *City of Los Angeles Bureau of Sanitation.* PROJECT MANAGER/ CEQA LEAD. Led this program to maximize the production of purified recycled water, replenish the City's groundwater basins, and develop direct potable reuse with purified recycled water as an additional raw water source. Provided various levels of consultation for this program including developing CEQA pathway strategies, guidance on enhanced outreach, identifying and evaluating CEQA alternatives, and providing clear CEQA compliance guidance.

Catalyst ENVIRONMENTAL SOLUTIONS

Years with Current Firm
6

Years Experience
32

Education
PhD, Geology and Geochemistry, MIT

BS, Civil Engineering and Geology, Stanford University

Licenses/Certifications
Professional Geologist, CA #5927

ENVIRONMENTAL/RESTORATION/PERMITTING

Megan Schwartz, MESM

Ms. Schwartz has nearly 20 years of experience as an environmental planner and project manager. She is a dedicated client manager, especially adept at delivering high-quality work products, on time and within budget. She has addressed many controversial issues in the southwestern US and globally. Ms. Schwartz has extensive experience evaluating potential impacts of proposed projects under CEQA/NEPA for commercial and government clients for projects ranging from urban redevelopment to stormwater infrastructure to energy generation and transmission. Ms. Schwartz also assists clients with preparation of permit applications including 404 Individual and Nationwide Permits, 401 Water Quality Certifications, and Streambed Alteration Agreements, as well as working with agencies through permit processing and approval. She is especially adept at bringing together the resources needed to produce deliverables that exceed client expectations and are delivered on time and within budget.

RELEVANT EXPERIENCE

DC Tillman Recycled Water Project IS/MND, Los Angeles, CA. *City of Los Angeles.* PROJECT MANAGER. Evaluating the potential effects of diverting wastewater discharges from the D.C. Tillman Reclamation Plant in the Sepulveda Basin from the Los Angeles River to the San Fernando Groundwater Basin. The project is central to meeting the City of Los Angeles goal to recycle 100% of its wastewater by 2035. The CEQA document will evaluate the potential effects of changing the designated use of the wastewater from cold water aquatic habitat and recreation to municipal beneficial uses.

Rose Creek Restoration Project IS/MND/EA and Permitting, Ojai, CA. *County of Ventura.* DEPUTY PROJECT MANAGER. Evaluating the potential effects of removing dams and restoring the natural flow pathway of Rose Creek in Ojai, California as part of this joint NEPA/CEQA document. The existing Rose Lakes which were constructed by the U.S. Navy in the 1950s and 1960s are popular recreational facilities for camping, hiking, and fishing in the Los Padres National Forest. The proposed project would restore beneficial uses for the endangered southern Steelhead and other native aquatic species. Ms. Schwartz will also lead the Clean Water Act permitting processes for the project, as well as development of the Streambed Alteration Agreement process.

Upper Santa Clara River Arundo and Tamarisk Removal Plan, Los Angeles, CA. *County of Los Angeles.* DEPUTY PROJECT MANAGER. Developed a comprehensive Arundo and tamarisk removal plan for the upper Santa Clara River, including the associated Environmental Impact Report, and development of a streamlined permitting program for subsequent implementation projects. The project also involved vegetation mapping, water quality monitoring, and implementation of a 75-acre demonstration project.

Santa Clara River Comprehensive Water Quality Monitoring Plan, Los Angeles and Ventura, CA. *Counties of Los Angeles and Ventura.* PROJECT MANAGER. Led a team in compiling a comprehensive, GIS-based database of existing water quality data for the river and conducting an optimization analysis to identify data gaps in monitoring parameters, location and frequency. Ms. Schwartz worked with a large stakeholder group consisting of Los Angeles County, Ventura County, Santa Clarita water and public works agencies, as well as conservation groups to develop a user-friendly plan that could be easily implemented.

UWCD Santa Felicia Dam Safety Improvement Project EIR and FERC Exhibit E, Ventura, CA. *United Water Conservation District.* PROJECT MANAGEMENT TEAM AND SOCIAL SCIENCES LEAD. Upgrading the dam for seismic concerns and prevent flooding downstream. Primary issues of concern include recreation impacts to facilities associated with the dam and reservoir during the construction period, and potential effects to hydrology, water quality, and geomorphology due to change in spillway and water release valves. Responsibilities included regular coordination with client and project team members, review of all submitted sections, coordinating production, and preparation of additional materials for public review. Following certification of the EIR, Ms. Schwartz helped develop the Exhibit E document for submittal to FERC in support of their NEPA analysis. Ms. Schwartz was also responsible for development of Clean Water Act permit applications for the project.

Catalyst ENVIRONMENTAL SOLUTIONS

Years with Current Firm
6

Years Experience
18

Education
Master, Environmental Science & Management, University of California, Santa Barbara

BA, Biological Anthropology, University of California, San Diego

Licenses/Certifications
40-hour HAZWOPER

First Aid and CPR

LAND DEVELOPMENT COMPLETE/GREEN STREETS

Sarmad Farjo, PE

Mr. Farjo is experienced in the design and management of transportation and multi-disciplinary infrastructure for local and regional agencies and clients. He has managed projects valued over $2.0 billion in capital expenditure. His expertise is in roadway design, civil and site design, complete streets, active transportation, coordinating and solving complex drainage and utility conflicts, and managing multiple design teams to deliver projects for agencies and clients. He is familiar with the environmental clearance and regulatory permitting process. His extensive design and management experience will greatly benefit the agency on this project.

RELEVANT EXPERIENCE

Extension of Staff On-Call Services, Los Angeles, CA. *Los Angeles County Department of Public Works.* PROJECT MANAGER. Responsible for task orders issued through the on-call contract. Michael Baker is providing project management services under the formal direction of the Road/Flood Project Management Section of the Programs Development Division (PDD). The team is responsible for the oversight and delivery of the concept, design, and construction phases of road, bridge, storm drain, stormwater quality, flood control, pump station, roadway aesthetic enhancements, Measure R, and Prop C projects, all in accordance with the schedules established by PDD.

Crown Valley Parkway Westbound Widening, Laguna Niguel, CA. *City of Laguna Niguel.* PROJECT MANAGER. Project Manager for the widening of Crown Valley Parkway between the Interstate 5 southbound exit ramp and the westerly limits of the Oso Creek Bridge, and to widen Forbes Road to provide additional turning movements through the intersection. Michael Baker will provide final engineering design services to widen the north side of Crown Valley Parkway between the Interstate 5 southbound exit ramp and the westerly limits of the Oso Creek Bridge, and to widen Forbes Road to provide additional turning movements through the intersection.

SR 138/Avenue G Interchange, Lancaster, CA. *City of Lancaster, California.* PROJECT MANAGER. Responsible for managing the PA/ED phase to get the project report approved. Specific responsibility included managing the project, the design process and coordinating with Project Development Team, subconsultants, the City and Caltrans District 7 to get the project report approved. Michael Baker provided engineering and environmental services for proposed improvements to the SR 138/Avenue G interchange and widening of Avenue G to the east and west of the existing interchange. The City is proposing the improvements in cooperation with Caltrans District 7, Los Angeles County Metropolitan Transportation Authority (Metro), and County of Los Angeles. The project would widen or replace the Avenue G bridge overcrossing; realign all on- and off-ramps; add roundabouts at northbound and southbound ramp terminus intersections; eliminate loop on-ramps; and provide phased Avenue G arterial improvements, Class II bicycle lanes, and pedestrian facilities. The proposed project would improve bicycle and pedestrian system connectivity in the project area and would provide for active transportation facilities along Avenue G over SR 138.

Santa Ana River Parkway Trails Extension, Orange County, CA. *Orange County Public Works.* PRINCIPAL-IN-CHARGE. Responsible for ensuring the client goal and objectives are met and that our project manager is delivering on time and within schedule to the satisfaction of the client. Michael Baker is preparing final design plans for the Santa Ana River Parkway Extension project. As part of its service, Michael Baker will review plans for 2.6 miles of walking, biking, and horse-riding trails. Additionally, Michael Baker will prepare plans for three prefabricated bridge crossings, one retaining wall, and a staging area with utilities connections.

Irvine Center Drive and Jeffrey Road Intersection Improvements, Irvine, CA. *City of Irvine.* PROJECT MANAGER. Responsible for managing the project including quality, schedule and monthly billing, managing the design activities and coordinating with the city to get the PA/ED phase approved through the City of Irvine. Michael Baker provided project management, research and review, aerial topographic mapping, traffic analysis, preliminary design, project report preparation, photo simulations, a preliminary water quality management plan, and environmental document support for improvements at the intersection of Jeffrey Road and Irvine Center Drive. This project was a critical circulation element that provided enhanced traffic capacity as identified in the North Irvine Transportation Mitigation program.

Michael Baker INTERNATIONAL

Years with Michael Baker
2

Years Experience
32

Education
BSCE, Civil Engineering, University of Baghdad

Licenses/Certifications
Professional Engineer (Civil), CA #80769

Professional Affiliations
American Council of Engineering Companies of California

American Society of Civil Engineers

Arab American Association of Engineers and Architects

American Public Works Association

GEOTECHNICAL & ENVIRONMENTAL DUE DILIGENCE

Ethan Tsai, PE, GE

Mr. Tsai has experience in performing geotechnical services for a wide range of projects, including water, stormwater, and other projects with stormwater management components. His experience includes site characterization, design, and construction phases of projects with various geotechnical components. Mr. Tsai has provided geotechnical services in support of water and wastewater improvements, including water storage, shallow and deep infiltration systems, water pipes, and other associated infrastructure such as mechanical equipment and support structures. Mr. Tsai is specialized in infiltration testing; infiltration feasibility assessments; grading design and construction recommendations; geologic hazards; seismic hazards; slope stability; and other issues. Mr. Tsai has extensive experience managing projects, having managed many projects with budget greater than $1 million.

RELEVANT EXPERIENCE

Green Alley Master Plan, Los Angeles, CA. *County of Los Angeles Department of Public Works.* PROJECT MANAGER/TECHNICAL LEAD. Performed feasibility-level investigations and deep infiltration tests for six selected sites as part of the Green Alley Master Plan. Group Delta reviewed available data; performed geotechnical borings; performed field infiltration tests in accordance with LA County guidelines; evaluated geologic and seismic hazards; and provided feasibility-level geotechnical recommendations. Proposed infiltration improvements consisted of dry wells and infiltration testing was performed to assess infiltration rates at target depths varying from 35 to 80 feet below ground surface.

51st Street Park, Long Beach, CA. *City of Long Beach.* ASSOCIATE ENGINEER. Providing technical direction and analyses for this ongoing project. The 51st Street Park consists of constructing a greenbelt on a 1-acre property. A geotechnical investigation included infiltration testing to support stormwater management design and geotechnical recommendations for minor improvements at the park. Group Delta's scope includes exploring geotechnical conditions to depths of 30 feet and performing infiltration testing at depths of 15 to 20 feet and 0 to 5 feet for stormwater management improvements design.

Legacy High School, Los Angeles, CA. *Los Angeles Unified School District.* SENIOR ENGINEER. Provided recommendations for design and provided inspection services during construction for this campus modernization project. In addition to modernization of existing structures and new buildings, the project included stormwater management by designing and constructing an underground stormwater retention and infiltration chamber below the athletic field.

Distribution Center, Los Angeles, CA. *United States Postal Service (USPS).* PROJECT MANAGER/TECHNICAL LEAD. Oversaw a new approximately 400,000 square-feet building and associated improvements. Improvements included design and construction of infiltration drywells for stormwater management. Group Delta selected target infiltration depths based on geotechnical boring information and performed infiltration testing in accordance with Los Angeles County guidelines at depths of 35 to 45 feet below ground surface.

GROUP DELTA

Years with Current Firm
8

Years Experience
17

Education
MS, Geotechnical Engineering, University of California, Los Angeles

BS, Civil Engineering, National Chiao Tung University, Hsin-Chu Taiwan

Licenses/Certifications
Geotechnical Engineer, CA #3004

Professional Engineer, CA #71746

GEOTECHNICAL & ENVIRONMENTAL DUE DILIGENCE

Jaime Bueno, PE

Mr. Bueno has more than 26 years of experience with geotechnical and environmental projects, including water, stormwater, and other projects with stormwater management components. His experience includes site characterization, design, and construction phases of projects with various geotechnical components. His environmental experience includes due diligence (Phase I and Phase II Environmental Site Assessments) and compliance assessments. Mr. Bueno has provided geotechnical services in support of water and wastewater improvements, including water storage, shallow and deep infiltration systems, water pipes, and other associated infrastructure such as mechanical equipment and support structures. His geotechnical experience includes project management and execution of all phases of geotechnical investigations to address issues such as: percolation/infiltration testing; slope stability; foundation design; geotechnical/seismic hazards; and grading.

RELEVANT EXPERIENCE

Green Alley Master Plan, Los Angeles, CA. *County of Los Angeles Department of Public Works.* SENIOR ENGINEER. Provided support for this project which consisted of performing feasibility-level investigations and deep infiltration tests for six selected sites as part of the Green Alley Master Plan. Reviewed available data; performed geotechnical borings; performed field infiltration tests in accordance with Los Angeles County guidelines; evaluated geologic and seismic hazards; and provided feasibility-level geotechnical recommendations. Proposed infiltration improvements consisted of dry wells and infiltration testing was performed to assess infiltration rates at target depths varying from 35 to 80 feet below ground surface.

North Torrance Well Field Project, Torrance, CA. *City of Torrance.* PROJECT MANAGER/SENIOR ENGINEER. Performed a geotechnical investigation for a new water tank and associated infrastructure. The proposed tank was a 2.45 million-gallon prestressed concrete reservoir and the project included a utility building housing the booster pump station and chemical treatment to the east of the reservoir. The 2.45 million-gallon reservoir was buried, with a diameter of approximately 118 feet and a total water height of approximately 30 feet, with approximately 27.5 feet located below adjacent finished grade. Geotechnical recommendations included the tank subgrade, temporary shoring recommendations, lateral earth pressure recommendations, settlements, foundation recommendations, and grading recommendations.

Various Private Development Projects, CA. *Various Developers.* PROJECT MANAGER/TECHNICAL LEAD. Oversaw numerous private development projects in southern California with stormwater management components. Stormwater management components have included biofiltration systems, shallow infiltration structures, deep infiltration drywells, retention structures, and permeable pavers. Group Delta provided geotechnical recommendations for design and construction of these improvements, including infiltration rates, minimum distances from existing and proposed structures, and mitigation measures due to potential adverse effects (e.g., seismically-induced liquefaction, presence of collapsible soils, hillside conditions, and/or nearby foundations).

GROUP DELTA

Years with Current Firm
7

Years Experience
26

Education
MS, Geotechnical Engineering, University of Texas, Austin

BS, Civil Engineering, University of Southern California, Los Angeles

Licenses/Certifications
Professional Engineer, CA #65389

GEOTECHNICAL & ENVIRONMENTAL DUE DILIGENCE

Kevin Hall

Mr. Hall has over 17 years of regional experience in the environmental industry within Southern California. Mr. Hall manages environmental projects that include project scoping, field planning, overseeing operations and communications with clients while working in tandem with various project managers and subcontractors. Mr. Hall offers expertise monitoring and collection of soil, soil vapor and groundwater sampling techniques, technical permits like Waste Discharge Requirements, Caltrans encroachments and NPDES. Mr. Hall also has conducted environmental construction compliance audits on behalf of the Los Angeles County Public Health in support of the DTSC Exide Site Mitigation and Restoration Program in Los Angeles County. He is knowledgeable in all facets of preparing and producing groundwater monitoring reports, soil sampling reports, Phase II Environmental Site Assessment reports, dual phase/vapor extraction reports, UST closure reports and methane monitoring and mitigation reports including but not limited to work plans, data interpretation, figures, tables, cross sections, contour maps, boring logs and illustrations.

RELEVANT EXPERIENCE

Flood Control Soil, Sediment and Wastewater Sampling, City of Industry, CA. *Los Angeles County Public Health.* GEOTECHNICAL SPECIALIST. Assisted in an environmental assessment of the Flood Control Channel Property near Puente Creek in the City of Industry. Mr. Hall conducted multiple soil sampling events along the Puente Creek Flood Control Districts channel that contained open space and exposed soil that could have accumulated aerially deposited lead (ADL). In addition to shallow soil sampling, sediment from within the channel and wastewater discharge into the channel was collected from inside the Los Angeles Flood Control Channel to assist Los Angeles County Public Health officials with a regional assessment of ADL in the environment.

Victoria Golf Course-Former BKK Landfill, Carson Dump, Carson, CA. *County of Los Angeles.* FIELD INVESTIGATOR. Directly involved with the field investigation of the soil cover, waste material, native soil beneath the landfill, groundwater, leachate, and surface water run-off. During the preparation period before the project Mr. Hall assisted in the formation of the project wide DTSC Approved Health and Safety Plan (HASP), health and safety related equipment procurement and coordinating staff PPE fit testing. In the field, he directed the advancement of two groundwater wells to total depth of 117 feet bgs into the middle Bell Flower and into the lower middle Bellflower aquifer at a total depth of 158 feet bgs utilizing resonant sonic drilling techniques. Assisted in the soil cap survey to assess the condition of the landfill cap. Purged and collected groundwater and soil vapor samples and surface runoff samples for analysis.

Exide Technologies Residential Lead Contamination Remediation, Los Angeles, CA. *Los Angeles County Public Health.* GEOTECHNICAL SPECIALIST. Conducted remediation oversight and health and safety audits of the National Engineering and Consulting Group Inc. (NEC) environmental remediation activities under the California Department of Toxic Substances Control (DTSC) guidance at many lead-contaminated private residences in the Cities of Bell, Maywood and East Los Angeles. Mr. Hall acting on behalf of the LA County Public Health reviewed onsite health and safety documents, observed personal and project dust monitoring, observed remedial excavations, and observed general environmental construction housekeeping at a portion of the lead impacted residences. Mr. Hall conducted these audits over a period of weeks at residential properties. Mr. Hall relayed the environmental audits in the field to California Department of Toxic Substances Control representatives overseeing NEC's day to day remedial activities and the L.A. County Public Health Exide Oversight team.

Aliso Canyon Methane Release at SoCal Gas Aliso Canyon, Porter Ranch, CA. *Los Angeles County Public Health.* ENVIRONMENTAL SPECIALIST. Supported the environmental response during the largest natural gas leak in the United States to date. Mr. Hall worked diligently on prefield planning of project logistics, temporary staff housing for the mobilized environmental team, ordering PPE and general project coordination. As the project continued, Mr. Hall observed environmental remedial cleaning team's adherence to the Los Angeles County Public Health cleaning protocols for the indoor spaces of residential homes. The cleaning included air filter changes, surface cleaning and deep cleaning based on the material within each residence.

GROUP DELTA

Years with Current Firm
2

Years Experience
18

Education
BS, Environmental Resource Management, California State University, Bakersfield

Licenses/Certifications
CFR 1910.120 OSHA 40-Hour HAZWOPER CFR 1910.120 OSHA 8-Hour Refresher

CFR 1910.120 OSHA Site Supervisor

OSHA Construction Training- 10 HR

OSHA 300 Recordkeeping and Reporting for All Industries Certified

AQMD Rule 403B and 1466

Dust Control Supervisor

Transportation Worker Identification Credential Certified (TWIC)

GEOTECHNICAL & ENVIRONMENTAL DUE DILIGENCE

Laura Botzong, EP

Ms. Botzong has ten years of experience conducting and managing environmental investigations and property assessments for private, commercial, and industrial business clients, including property owners, banks, agency lenders (including Freddie Mac and Fannie Mae), and real estate development companies. Ms. Botzong has conducted hundreds of Phase I ESAs throughout the United States in accordance with ASTM E1527 standards, the USEPA All Appropriate Inquiry rules, and other client-specific scopes of work. In the past five years, she has specialized in assessing current or former industrial properties in the Greater Los Angeles Area, including oil refineries, tank farms, and well fields. She is proficient in collaborating with Phase II team members to create scopes of work for planned subsurface investigations and excels at preparing reports to meet the standards of California and national lenders with Environmental Risk Management teams. She has helped clients achieve compliance with federal, state, and local regulations by liaising with government regulatory agencies. Ms. Botzong maintains professional relationships with records coordinators in the Greater Los Angeles Area. She expertly navigates the complex web of regulatory environmental oversight in California, including CERCLA and RCRA regulations. She is also responsible for training all new hires in environmental due diligence and Phase I ESA report writing.

RELEVANT EXPERIENCE

Eastern Avenue Multi-Modal Transportation Improvement Projec. *Los Angeles, CA. CITY OF LOS ANGELES.* ENVIRONMENTAL INVESTIGATION. The project site consists of an approximately 1.5-mile portion of Eastern Avenue, from the intersection with Huntington Drive to the intersection with Valley Boulevard, in the City of Los Angeles. The proposed project will provide infrastructure improvements including street improvements to increase safety and mobility, pedestrian and bike facilities, transit accessibility improvements, and other traffic safety enhancements. The project is also intended to increase transit services, connectivity to significant destinations, transit ridership, and improve access to employment centers, educational facilities, healthcare facilities, parks and recreational centers. Group Delta prepared an Initial Site Assessment (ISA) Checklist for PSOMAS, which included a project screening for hazardous waste and petroleum products, and completion of the appropriate Caltrans form. The work was performed in general accordance with the Caltrans ISA Guidance. Group Delta also performed a site reconnaissance to observe the corridor and its current uses.

Perris Valley Channel Lateral B, Stage 4 Project, March Air Reserve Base, CA. *Riverside, CA.* ENVIRONMENTAL INVESTIGATION. As a subconsultant to Michael Baker, preparing a Phase I Environmental Site Assessment (ESA)which includes records review of available environmental databases, environmental lien and title review, public and private records of current and historical land use, relevant files from federal, state, local agencies and environmental sources, regulatory correspondence, and environmental reports. The project includes the design and construction of approximately 6,000 lineal feet of reinforced concrete box, starting at Heacock Street (at the upstream end of the existing Stage 2) to the downstream terminus of Stage 5 (currently under design by VIP-215 development).

I-605/Valley Boulevard Interchange Improvements, City of Industry, CA. *City of Industry.* ENVIRONMENTAL INVESTIGATION. Prepared an ISA which included records review of available environmental databases, environmental lien and title review, public and private records of current and historical land use, relevant files from federal, state, local agencies and environmental sources, regulatory correspondence, and environmental reports. The purpose of the project is to reduce congestion on Valley Boulevard, improve traffic operations at the I-605/Valley Boulevard interchange, alleviate mobility constraints, and enhance overall safety. Project improvements would occur at the I-605 and Valley Boulevard interchange and include improvements to Valley Boulevard, Temple Avenue, and associated on- and off-ramps. The work was performed in general accordance with the Caltrans ISA Guidance. Also performed a site reconnaissance to observe the interchange and its current uses.

GROUP DELTA

Years with Current Firm
2

Years Experience
10

Education
BS, Environmental Studies, University of California, Santa Barbara

Licenses/Certifications
Environmental Professional, ASTM E1527-21

Certified Asbestos Building Inspector in the State of California

40 Hr-HAZWOPER, 29CFR 1910.120

Phase I Environmental Site Assessment, ESA

FUNDING/GRANT WRITING

Dino Serafini, PE

Mr. Serafini has over three decades of public infrastructure planning, financing, design, and construction management experience in California working with city, county, school district, military, and private clients. He has facilitated the formation of several special financing districts that were specifically created to finance and maintain facilities serving both new communities and redevelopment projects. Mr. Serafini has extensive experience in the development of public facilities financing plans, cost estimates, phasing plans, threshold criteria, and the financial implications of land development policies.

RELEVANT EXPERIENCE

BUILD Grant Writing Project, Irvine, CA. *City of Irvine.* TECHNICAL SPECIALIST. Prepared the grant narrative, the Benefit Cost Analysis, evaluating savings in travel time, value of emissions reduction, safety and operator's cost savings. Mr. Serafini was responsible for developing the merit criteria: state of good repair, economic competitiveness, environmental sustainability, quality of life, innovation and describing applicable non-monetized (qualitative) benefits.

Belmont Creek Watershed Management Plan - Funding Strategy and Urban Stream Restoration Grant, Belmont, CA. *County of San Mateo.* FINANCIAL STRATEGIST. Responsible for preparing a comprehensive study and plan for financing stream restoration and flood control for the Belmont Creek watershed in the City of Belmont. Michael Baker coordinated with a consortium of stakeholders including the City of Belmont and the San Mateo County Flood and Sea Level Rise Resiliency District in preparing the watershed management plan. The financing strategy included a survey and description of state and federal grant programs as well as other funding mechanisms for the improvements recommended in the plan. We were successful in helping the District and the City of Belmont secure a $1 million California Department of Water Resources Proposition 68 Urban Stream Restoration Grant and another $900,000 from the City and County Association of Governments for flood control projects on Belmont Creek.

California Natural Resources Agency State Proposition 68 Parks and Water Bond Act of 2018, River Parkways Program Grant Application, Del Mar, CA. *City of Del Mar.* GRANT WRITER. Coordinated with the City and preparing the grant application including justification analysis, project readiness factors such as permits and site control, organizational capacity, and evidence serving disadvantaged or severely disadvantaged communities.

Community Engagement and Risk Communications (CERC), Nationwide, United States. *FEMA.* PROJECT PROFESSIONAL. Responsible for researching funding mechanisms and developing financing plans for school seismic retrofit programs. Michael Baker serves as the managing partner of Resilience Action Partners, FEMA national Community Engagement and Risk Communication team for the Risk Mapping, Assessment, and Planning (Risk MAP) program. Resilience Action Partners combined technical and communications expertise to change how FEMA engages with its customers, drive action, and build a strong foundation for a mitigation movement. Our team has partnered with FEMA to build an engagement and planning program that has driven behavior changes and catalyzed communities to take ownership in risk awareness and reduction. Michael Baker's services include hazard mitigation planning, community outreach, preparation and dissemination of outreach materials, and development and delivery of training for stakeholders.

San Marcos Creek Specific Plan, San Marcos, CA. *City of San Marcos.* PROJECT PROFESSIONAL. Responsible for the development of a pro-forma model to analyze the market feasibility of land development alternatives for the San Marcos Creek District. Michael Baker performed retail-market and land use-analyses for the creation of an amendment and update to San Marcos's specific plan. This update was necessary to reflect the realities of a much smaller commercial market due to the impact of e-retail. The project included background studies, land-use alternatives, infrastructure analyses, and extensive outreach and public engagement. Michael Baker also performed environmental and infrastructure studies.

Michael Baker INTERNATIONAL

Years with Michael Baker
15

Years Experience
26

Education
Graduate Studies, Civil Engineering, San Diego State University

MA, Environmental Policy and Management, University of California, Riverside

BS, Resource Economics, University of California, Riverside

Licenses/Certifications
Professional Engineer (Civil), CA #51164

FUNDING/GRANT WRITING

Derek Wong, AICP

Mr. Wong specializes in transportation and infrastructure financing of public facilities. He has managed complex engagements that require the identification and analysis of revenues and costs for local and regional projects and programs, including for the transportation and development communities. He has developed various revenue strategies and funding mechanisms that involve consensus building with local community stakeholders and governing boards to bridge funding shortfalls in operations and with capital facilities. He also conducts organizational performance audits of regional planning agencies and provides recommendations for process improvement and compliance with state law. Mr. Wong's work focuses on project management, transportation/transit funding, infrastructure financing, fiscal and economic analysis, and user and impact fees.

RELEVANT EXPERIENCE

Belmont Creek Watershed Management Plan, Flood Management Plan, and Funding Strategy and Grant Writing, Belmont, CA. *County of San Mateo.* ANALYST. Participated in finance strategy development and grant proposal review. Identify revenue sources for flood protection. Michael Baker developed a comprehensive flood management plan for the Belmont Creek watershed from Twin Pines Park to Industrial Road. The flood management plan screened, combined, and prioritized alternatives for hydraulic modeling that included green infrastructure and stormwater capture. It established implementable and community-supported flood-risk reduction measures. The implementation plan incorporated preliminary designs of alternatives, scheduling, cost estimates, and a high-level summary of regulatory requirements, considering environmental constraints that might impact or potentially cause lengthy delays for environmental permitting. Michael Baker also identified a funding strategy that described the source and schedule for implementing these alternatives.

BUILD Grant Writing Project, Irvine, CA. *City of Irvine.* SENIOR PLANNER. Responsible for assisting in development of U.S. BUILD grant for Jefferey Open Space Trail Bridge over I-5 in City of Irvine. Work with team to conduct economic analysis. Michael Baker provided planning services to assist the city of Irvine with preparing and submitting a proposal to the U.S. Department of Transportation's Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grant program. The intent of the application was to fund construction of a bridge over the 1-5 freeway, filling a significant gap in the Jeffrey Open Space Trail system. With the bridge, the city aims to connect communities to services and jobs that are separated by a major freeway. The target populations include college students, seniors, and workers on one side of the freeway and important health, community services, and jobs on the other.

FEMA Unreinforced Masonry Risk Reduction Strategy, Salt Lake City, UT. *Wasatch Front, Salt Lake City.* PROJECT MANAGER. Collaborating with Resilience Action Partners in developing funding implementation strategies for the Study Schools Utah initiative. Providing technical analysis of revenue strategies to support the unreinforced masonry (URM) risk reduction program in partnership with FEMA, Utah Division of Emergency Management, and local stakeholders. Evaluating alternatives for management and program implementation structure, and eligibility for FEMA funding programs including BRIC grant and STORM revolving loan program. Providing assessment of potential public-private partnerships for funding such as with regional non-profit education and advocacy groups.

US RAISE Grant Application. *City of Hayward.* PROJECT MANAGER. Supported the City in its submission of a US RAISE grant for the City's Mission Boulevard Corridor Improvements Project–Phase 3. The project proposes mobility and safety improvements including separated bicycle lanes, sidewalk reconstruction, curbs and gutters, ADA improvements, updated traffic signals, signs and lighting. Michael Baker provided a detailed benefit cost analysis conducted in accordance with the U.S. Department of Transportation's "Benefit-Cost Analysis Guidance for Discretionary Grant Programs," published February 2021. Benefits that were monetized for the analysis included health, safety and injury collisions, and emissions reductions. Qualitative analysis of other benefits such as equity, access and mode shift, and quality of life was also conducted.

Michael Baker INTERNATIONAL

Years with Michael Baker
15

Years Experience
26

Education
MBA, Economics/ Business, California State Polytechnic University, San Luis Obispo

BS, Environmental Analysis and Planning, University of California, Davis

Licenses/Certifications
American Institute of Certified Planners, CA #016553

Professional Affiliations
American Institute of Certified Planners

American Planning Association

FUNDING/GRANT WRITING

Ben Cohen

Mr. Cohen brings a deep understanding of both the impact of environmental projects, and how they can be valued and financed. Having 10 years of experience in green infrastructure, clean energy, and climate and risk reduction projects both domestically and internationally, his passion and commitment to finding creative financial solutions is driven by first-hand experiences working in communities facing environmental challenges. Mr. Cohen led the structuring of the first-ever publicly issued Impact Bond with the Atlanta Department of Watershed Management, driving the transaction from origination to close, and our work supporting the Buffalo Sewer Authority in issuing the largest-ever Impact Bond, which won a Bond Buyer Deal of the Year Award at the end of 2021, in addition to in addition to other projects in urban resilience, coastal wetland restoration, and forestry.

RELEVANT EXPERIENCE

Environmental Impact Bond, Buffalo, NY. *Buffalo Sewer Authority.* FUNDING. Structured the largest-ever Environmental Impact Bond (EIB) with the Buffalo Sewer Authority (BSA). The $54M bond, which closed on June 16, 2021, will finance public green infrastructure projects and ramp up BSA's progress on its long-term control plan (LTCP) to manage combined sewer overflows (CSOs). The novel outcomes-based call feature rewards BSA with an early call option, greater flexibility, and lower debt service on the EIB if it overachieves on its green infrastructure goals over the next 7 years. The Buffalo EIB was awarded '2021 Deal of the Year' by the Bond Buyer for Small Issuer Financing.

Financing Innovative Partnership for Rural Recreation Infrastructure, Mammoth Lakes, CA. *Mammoth Lakes Trails and Public Access Foundation.* FUNDING. Worked with the Inyo National Forest to create a Business Plan for the upgrading of Forest Service campgrounds to meet the needs of modern campers while providing pathways to further economic development in gateway communities adjacent to the National Forest. Examined outcomes that benefit local and regional stakeholders, and created a financing strategy based on a blend of federal and state funding, project revenues, and local contributions. Worked with local stakeholders to support the creation of a local "recreation council" structure empowered with the legal authority to engage in contract agreements, solicit public funds, and support pass-through funding for target investments, enabling local governments and other regional beneficiaries to work together effectively, and increasing the project's competitiveness for both public and private funds.

Atlanta Watershed Management Environmental Impact Bond, Altana, GA. *City of Atlanta Department of Watershed Management.* FUNDING. Structured the first-ever publicly offered Environmental Impact Bond (EIB) with Atlanta's Department of Watershed Management (DWM). The $14M bond, which closed on January 31, 2019, financed six green infrastructure projects to manage stormwater in economically and environmentally distressed neighborhoods that previously lacked access to funding. The outcomes evaluation of the EIB enables DWM to showcase its progress on ensuring more equitable deployment of green infrastructure and stormwater management across the City, gain internal support for projects that were previously un-prioritized, and access new sources of capital from ESG bond investors seeking to align financial returns with environmental returns.

Hampton Environmental Impact Bond, Hampton, VA. *City of Hampton.* FUNDING. Designed and issued the first Environmental Impact Bond in the Commonwealth of Virginia. The $12 million bond closed in December 2020, and finances the construction of three nature-based projects designed to slow, store, filter, and redirect stormwater in low- to moderate-income communities. By issuing the bond, the City matched financial innovation with the creativity found in its nature-based projects, which include a drainage ditch turned into a bioswale with native plants, a holding pond revamped for stormwater and water quality, and a major transportation corridor elevated for protection against future flooding. The data gathered through this EIB will inform future public investments in resilience projects that seek to improve quality of life, economic viability, and environmental health for Hampton residents.

Quantified® Ventures

Years with Current Firm
5

Years Experience
10

Education
MBA, Yale School of Management

Master of Environmental Management (MEM), Yale School of Forestry & Environmental Sciences

BA, Biology, Williams College

FUNDING/GRANT WRITING

Megan Chery, LEED GA

Ms. Chery brings 14 years of experience working with municipal water supply and stormwater teams to develop performance-driven programs that achieve water supply and quality outcomes and advance cost-effective investments in policy, programs, and education. Prior to joining Environmental Incentives, Megan was part of the leadership team at the Alliance for Water Efficiency, where her work included supporting research into effective landscape transformation programs, practices, and technologies, and designing workshops for utility managers on efficiency-oriented water rate setting. Previously, she worked as a communications practitioner developing public engagement programs for corporate and nonprofit clients. She brings subject matter expertise in diverse areas ranging from demand-side water management to green building and has been invited to speak at national gatherings on issues including stacked incentive programs and engaging large landscapes.

RELEVANT EXPERIENCE

Rebates & Incentives Program Design and Implementation, San Diego, CA. *County of San Diego Watershed Protection Program.* FUNDING. Leading development of multi-benefit incentives program to improve water quality and supply. Analyzed 16 private property BMPs to determine the most viable and impactful BMPs to incentivize. Enabled the County to rapidly prototype and launch viable approaches to incentivize property owners for fast implementation and to then expand successful elements to incrementally scale. During the project, facilitated a new partnership between the County of San Diego and the San Diego County Water Authority, resulting in a $4 million investment from the County in existing landscape incentive programs that produce water quality and supply benefits. Developed metrics to support implementation of County of San Diego's water quality improvement plan and helped draft San Diego's first pay for performance RFP for stream restoration.

Watershed Plan Implementation Performance Measures, Orange County, CA. *County of Orange.* FUNDING. Leading development of multi-benefit incentives program to improve water quality and supply. Developed a results chain connecting actions taken to intermediate results and desired outcomes. The results chains were socialized with the co-permittees enabling them to agree on a manageable set of metrics that will earn implementation credit from the regulatory authority, the San Diego Regional Water Quality Control Board. EI also developed appropriate and pragmatic reporting methods that were developed in a short, user-friendly format to ensure consistent and comparable reporting. EI also facilitated workshops for monitoring teams and municipal managers and supported engagement with regulators to negotiate metric choices.

Various Projects*. *Alliance for Water Efficiency.* DIRECTOR OF DEVELOPMENT AND PARTNERSHIPS.

Program Design and Management

- Designed and managed a multi-year program bringing together a national team of water pricing experts to produce a national model to help water managers pursue a more sustainable approach to balancing water conservation, rates, and utility fiscal health.
- Supported development of Net Blue, an innovative policy-based approach to land use and development that enables water-neutral community growth through water demand offsets.

Strategic Planning and Performance Management

- Led a year-long strategic planning process for the Alliance for Water Efficiency engaging the Board, staff, and external partners, producing a new Sustainable Water 2030 Vision to guide organizational investments and communicate with funders and partners.
- Developed the Alliance for Water Efficiency's first Performance Management plan, identifying measurable and meaningful inputs, outputs, and outcomes to help the organization assess progress towards its mission, enable clear and consistent reporting, and support communication of metrics to stakeholders.

*Prior firm experience

Environmental Incentives

Years with Current Firm
2

Years Experience
12

Education
Master of Environmental Management, Duke University

BS, Foreign Service, Georgetown University

Licenses/Certifications
LEED Green Associate

FUNDING/GRANT WRITING

Chad Praul

Mr. Praul focuses on combining policy analysis tools with clear communication approaches to promote conservation and wise use of environmental and economic resources. He founded Environmental Incentives 16 years ago to help permittees and regulators create performance-driven stormwater programs. He believes performance can be achieved through adequate funding, clear metrics, consistent reporting, and structured adaptive management. His academic background and management experience have honed his capability to facilitate selection of effective policy choices with public, management and technical audiences.

RELEVANT EXPERIENCE

San Diego Region Bacteria Cost Benefit Analysis (CBA), San Diego and Orange County, CA. *Counties of San Diego and Orange.* PROJECT MANAGER. Provided unbiased and credible information to decision makers as they consider changes to TMDL implementation – with the goal of achieving greater benefits at a lower overall cost. Used the best available science and economic data to analyze 14 scenarios such as targeting sources of human pathogens (sewers), stream/wetlands restoration, and implementation schedule changes. The CBA results showed that addressing high-risk human sources of pathogens is 20x more cost-effective than stormwater improvements for reducing illness at San Diego beaches. Stream restoration was much less cost effective than the other scenarios. The Financial Capability Assessment found that San Diego is solidly in the "high burden" category because clean water costs are nearly double the 2% of median household income threshold. The results are statistically significant and findings are strongly supported by numeric analysis.

Clarity Crediting Program, Lake Tahoe, CA. *City of Lake Tahoe.* PROJECT MANAGER. Developed and formally adopted in 2011 a program that measures the total amount of key pollutants entering the lake from urban stormwater and sets load reduction targets that each city, county and highway maintenance agency must achieve. The targets, "Lake Clarity Credits," can be traded among jurisdictions to meet regulatory requirements. Each Lake Clarity Credit quantifies the major pollutants responsible for Lake Tahoe's clarity loss: fine sediment, phosphorus and nitrogen. Implementation of the Lake Clarity Crediting Program is expected to restore Lake Tahoe's unique clarity so that people may once again see to depths of nearly 100 feet. Results show permittees exceeding the first five-year milestone, a 10% fine sediment particle reduction. Basinwide, Urban implementers achieved 118% of the total credits targeted, with nearly all surpassing their individual credit targets.

Community-Based Public Private Partnerships (CBP3), Washington. *State of Washington Department of Commerce.* PROJECT MANAGER. Helped communities make the most of limited resources by partnering with the private sector to implement green infrastructure projects that improve water quality and quality of life for their residents. Developed a Guidebook for local governments in Washington State to design and implement CBP3s and performance-based contracts in order to more effectively achieve stormwater and community objectives. The Guidebook provides resources for stormwater managers to better navigate the range of legal, financial, and performance management considerations associated with developing CBP3s. The Guidebook also provides direction and resources to support local governments through the exploration, design, and implementation of a CBP3, with the ultimate goal of increasing the proliferation of clean water and healthy communities across the state.

Environmental Incentives

Years with Current Firm
2

Years Experience
16

Education
MS., Mechanical Engineering, University of California, Berkeley

BA, Resource Economics, University of California, Santa Cruz

OUTREACH & ENGAGEMENT

Brad Jensen

Mr. Jensen is a seasoned community outreach project manager with nearly 20 years of experience and has worked with multiple Southern California agencies and municipalities on water projects throughout his time at MBI. His exceptional communication skills allow him to effectively and thoughtfully coordinate and collaborate with a wide range of stakeholders. Flexible, creative, and calm, he can think on his feet in difficult situations, diffusing conflicts before they boil over by guiding parties to equitable solutions. Exceptionally well-organized, he also develops communications strategy plans, coordinates collateral development, plans and facilitates events, oversees and maintains stakeholder databases, and oversees all day-to-day project tasks.

RELEVANT EXPERIENCE

Proposition O Clean Water Bond, Los Angeles, CA. *Los Angeles Department of Public Works, Bureau of Engineering.* PROJECT MANAGER. Managed and coordinated outreach efforts for three Proposition O projects: Wilmington Drain Multi Use Project, Machado Lake Ecosystem Rehabilitation Project, Coastal Interceptor Relief Sewer. Managed Proposition O stakeholder hotline and worked in close collaboration with Contractors, Construction Managers and Program Managers to ensure project objectives were met. Coordinated logistics, materials and staffing to facilitate public meetings and provided project updates within area neighborhood councils, neighborhood associations and service groups. Designed and managed stakeholder database, coordinated and facilitated the production of collateral materials.

El Segundo Power Plant, Alternative Source of Drinking Water, El Segundo, CA. *West Basin Municipal Water District.* RESOURCE MANAGER. Assisted with the development of message points for community outreach to community groups and generated Public Outreach Videos and Video News Releases to inform public about alternative drinking water options.

San Pedro Public Market Development & Port Public Access Improvements, San Pedro, CA. *Port of Los Angeles.* RESOURCE PROJECT MANAGER. Helped develop a detailed public outreach plan and project timeline and developed branding consistent with existing POLA materials. Responsible for planning and coordinating any potential community meetings and workshops. Worked with MBI's graphic design personnel and POLA staff to satisfy any necessary requests

Reservoir #1 Reconstruction Project, Burbank, CA. *City of Burbank.* RESOURCE PROJECT MANAGER. Assisted in creation and implementation of a strategic outreach plan, contributed to development of project website and developed project branding for use on, FAQs, fact sheets and social media pages.

Perchlorate Contamination Awareness Outreach, Rialto, CA. *City of Rialto.* PROJECT MANAGER. Worked directly with Outreach Manager on developing multiple strategies and managed logistics for public meeting regarding this highly controversial issue. Worked with MBI graphic designers to create branding, logos and collaterals. Conducted one-on-one interviews with local stakeholders and presented city information to local chambers and other community groups.

Water Rate Increase, Rialto, CA. *City of Rialto.* PROJECT MANAGER. Oversaw logistics and assisted in facilitation at employee and public meetings and advertisement placements. Coordinated with City Clerk and City Administrator to communicate information to the public and managed all collateral development.

All American Canal Lining Project, Imperial, CA. *Imperial Irrigation District.* RESOURCE PROJECT MANAGER. Provided monthly photographic documentation of the building of the canal and created quarterly PowerPoint presentations highlighting construction progress. Worked closely with Imperial Irrigation District staff to film and create a historic documentary regarding the All-American Canal Lining Project.

C Street / I-110 Access Ramp Improvements Project, San Pedro, CA. *Port of Los Angeles.* RESOURCE PROJECT MANAGER. Assisted on project that involved the Port and Caltrans working in conjunction with MBI to increase traffic circulation and reduce congestion. MBI provided Document Control and Community Outreach which included development of bilingual collateral and door-to-door canvassing to deliver notices to affected communities.

MBI

Years with Current Firm
10

Years Experience
20

Education
Business Management Courses, California State University, Fullerton

OUTREACH & ENGAGEMENT

Rick Taylor

Mr. Taylor is one of California's leading experts in strategic communications, political consulting, and public affairs. With more than 40 years of experience in the field of public affairs and political consulting, Mr. Taylor has established extensive networks with elected officials, legislative and governmental agencies, opinion leaders, public interest groups, and print and electronic media organizations. His experience and understanding of the political landscape in the region provides clients with an unparalleled level of expertise to implement successful strategic outreach campaigns. Prior to founding Dakota Communications with Kerman Maddox, Mr. Taylor was the Chief of Staff to former Los Angeles City Councilman and County Supervisor Zev Yaroslavsky and also worked in the offices of former City Councilmember John Ferraro and Mayor Tom Bradley. Mr. Taylor was the youngest Chief of Staff in the history of the City of Los Angeles. He currently leads Dakota Communications with his experience and expertise in the areas of public relations, strategic communications, political consulting, and community outreach.

RELEVANT EXPERIENCE

Various Programs, Los Angeles, CA. *Los Angeles International Airport (LAX)/Los Angeles World Airports (LAWA).* COMMUNICATION STRATEGIST. Developed outreach strategies, messages, and marketing campaigns for LAWA, including the development of key messages for the major relocation of over 70 airlines across all terminals at LAX. As one of the lead consultants for LAWA's various public outreach initiatives, Dakota Communications is currently tasked to implement a series of community outreach and marketing programs, including strategic outreach programs for the Landside Access Modernization Project (LAMP), North Airfield Safety Improvement Program (NASIP), and their suite of programs dedicated to being environmental stewards in the aviation industry. Mr. Taylor has also provided LAWA with strategic consulting on key issues that affect the legislative landscape of the aviation industry at the local, state, and federal levels.

- **Landslide Access Modernization Program (LAMP):** Developing and implementing a community outreach program for the LAMP, a multi-billion dollar modernization program at LAX. The project includes a series of improvements in and around the airport, including a new Automated People Mover System, a Consolidated Rental Car Facility, Intermodal Transportation Facilities and Roadway Improvements. Overseeing the messaging and overall creative direction of the communications strategy. Outreach efforts include the development of creative collateral in both English and Spanish, educating the general public and key stakeholders about the project, and seeking the input of a variety of groups for the project. Dakota Communications was also tasked to develop a comprehensive brand identity for the project, including a new logo, brand ID guidelines, and the visual creative direction of the project.

LAX Concessions Package. *Delaware North Companies.* COMMUNICATION STRATEGIST. Developed a strategic outreach proposal that mobilized community support for Delaware North's proposal and utilized this data to help inform key decision makers to support Delaware North. Assisted in their efforts to expand their concessions package at LAX International Airport. As the lead outreach consultant on the team, Mr. Taylor also developed a creative marketing plan for Delaware North's concession partners, ensuring that each concessionaire's unique local qualities were emphasized in collateral, marketing materials, multimedia outreach, and events. Dakota Communications successfully helped Delaware North Companies expand at LAX, with various local concepts including the Farmers Market and Wolfgang Puck.

LAX Bid Package, Los Angeles, CA. *Duty Free Americas (DFA).* COMMUNICATION STRATEGIST. Created and implemented a bid strategy that included strong local partnerships with Los Angeles based businesses, and advocated for DFA with key stakeholders and decision makers. Created a series of collateral materials to introduce the company to key elected officials and other stakeholders.

DAKOTA communications

Years with Current Firm
25

Years Experience
50

Michael Baker
INTERNATIONAL

We Make a Difference

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