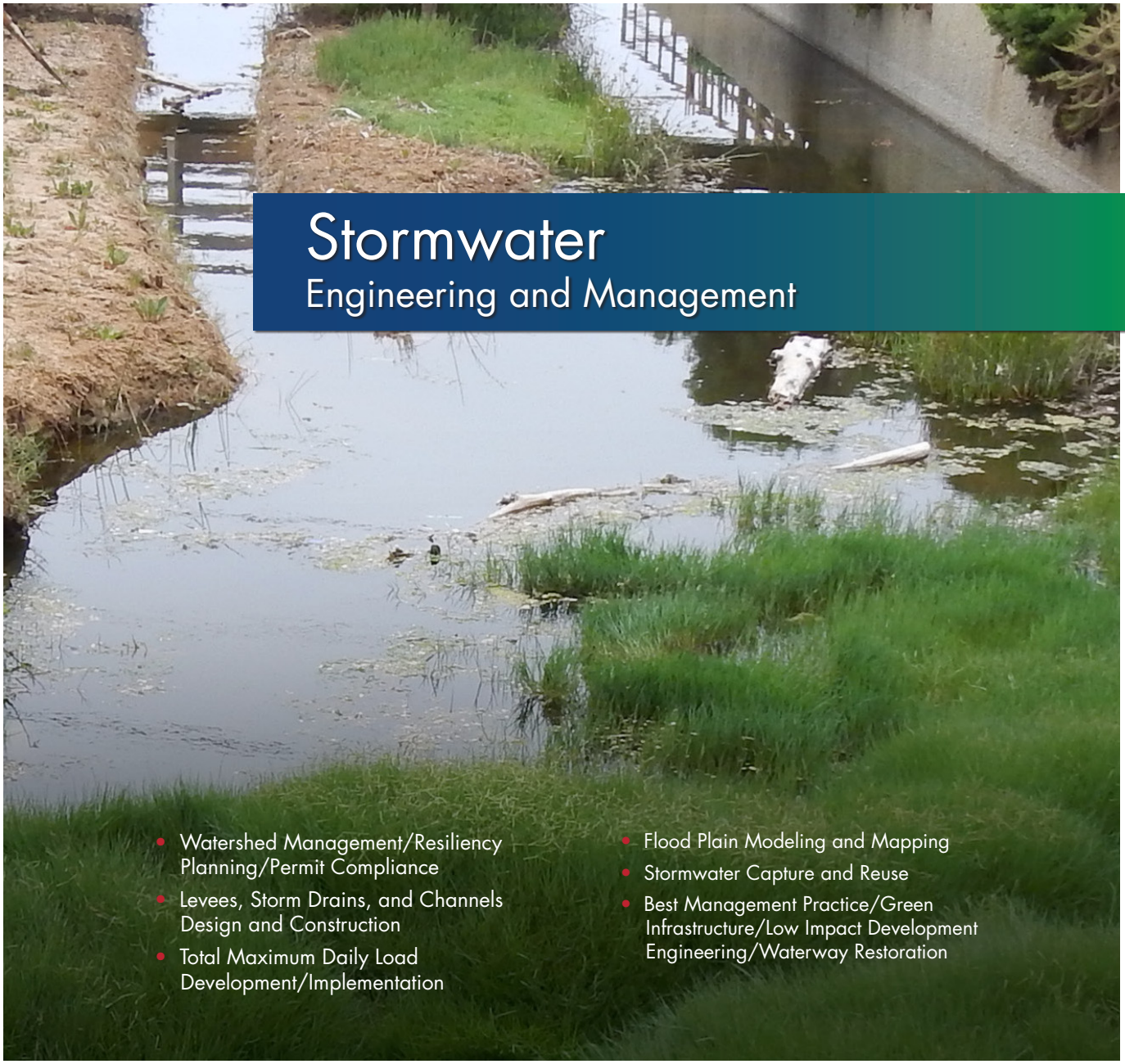


Stormwater
Engineering and Management

- Watershed Management/Resiliency Planning/Permit Compliance
- Levees, Storm Drains, and Channels Design and Construction
- Total Maximum Daily Load Development/Implementation
- Flood Plain Modeling and Mapping
- Stormwater Capture and Reuse
- Best Management Practice/Green Infrastructure/Low Impact Development Engineering/Waterway Restoration

Weston Solutions, Inc. has extensive capabilities to address surface water management challenges. We engineer solutions to manage water resources and achieve water quality compliance across the United States for local, state, and Federal agencies, and private sector clients. Our projects address engineering analysis, conceptual and final design, bidding and construction services, and permit compliance.

Our clients include:

- U.S. Army Corps of Engineers
- County of San Diego
- Los Angeles County Department of Public Works
- Oceanside, CA
- City of San Diego
- Port of Los Angeles
- Los Angeles Department of Water & Power
- University of California Los Angeles
- Albuquerque Metropolitan Arroyo Flood Control Authority
- Montana Department of Transportation

65 Years of Environmental and Infrastructure Excellence

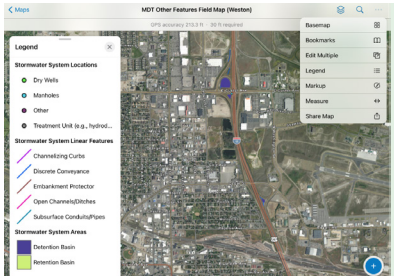
TRUST – PERFORMANCE – PEOPLE

WESTON SOLUTIONS

Municipal Separate Storm Sewer System (MS4) Program Support

Weston's in-house expertise provides technical support to assist MS4 programs in meeting their regulatory compliance requirements. Weston has successfully contributed to MS4 programs for municipalities and departments of transportation, building robust programs and providing services to meet program goals of developing, implementing, and enforcing a quality and quantity-based stormwater management program (SWMP).

PROVEN **PROJECT** SUCCESS



Montana Department of Transportation, Statewide MS4 Program Support

Weston worked alongside MDT to examine all of its existing stormwater management practices and procedures and bolster them to be consistent with the requirements of the revised Montana MS4 Program regulations. This work included revising and updating MDT's SWMP and measurable goals, defining and inventorying stormwater features, illicit discharge detection and elimination program development, and updating Facility Pollution Prevention Plans. Integral to our success was also, improving tracking of statewide MS4 data to better support annual reporting and measurable goals, providing public education and training support, and completing annual reports to the Montana Department of Environmental Quality. These efforts have improved compliance with their MPDES permit.

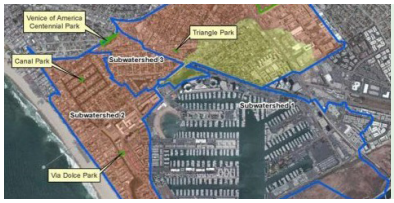
Watershed Management/Resiliency Planning/Permit Compliance

Weston is experienced in navigating the diverse aspects of watershed management, including baseline ecological and water quality assessments, modeling, stormwater impact mitigation, and water quality management plans. Our water quality experts—toxicologists, chemists, microbiologists, marine and wetland biologists, data analysts, GIS specialists, environmental engineers, and skilled field and laboratory technicians—work with stakeholders to formulate a comprehensive plan to manage, restore, and protect the watershed.

Weston water quality professionals routinely provide:

- Stormwater/floodplain management
- National Pollutant Discharge Elimination System (NPDES) permitting
- Total Maximum Daily Load (TMDL) studies/support
- Watershed planning
- Erosion and sediment control plans
- Hydrologic and hydraulic modeling
- Sediment transport modeling
- Biological and wetland treatment plans
- Land use/sustainable development planning
- GIS analysis and geodatabase development
- Pump station design

PROVEN **PROJECT** SUCCESS



Marina del Rey Watershed Management Planning, Los Angeles County, CA

Weston developed an Enhanced Watershed Management Program (EWMP) and Coordinated Integrated Monitoring Plan (CIMP) for the Marina del Rey Watershed Management Group (WMG) as part of our long history working successfully with the Los Angeles County Department of Public Works. Both the EWMP and CIMP are critical to the County's compliance with their NPDES permit, and are the basis for long-term planning for water quality improvements and compliance with multiple TMDLs.

Multimedia Sampling and Monitoring Program Development

Weston scientists and engineers have been developing statistically based, scientifically sound monitoring programs for decades. These professionals currently assist clients nationwide with development of monitoring programs to support NPDES MS4 Permits, TMDLs, and development of special studies. Our scientists publish their work in peer-reviewed journals and participate in national-level scientific groups, as recognized leaders in their field.

Weston provides experience and expertise in the following areas:

- MS4 Program development and implementation
- Multi-sector General Permit Program development and inspections
- Construction General Permit (CGP) Stormwater Pollution Prevention Plan (SWPPP) preparation, administration, and development
- TMDL compliance monitoring
- Surface water quality monitoring
- Sediment sampling and testing
- Groundwater monitoring
- Air quality monitoring
- Biological monitoring including bioassessment
- Tissue sampling
- Microbial source tracking
- 24/7 capabilities
- Remote data access (Telemetry Data Acquisition/Management)

PROVEN **PROJECT** SUCCESS

County of San Diego San Luis Rey River and San Diego River Water Quality Improvement Plan (WQIP) Implementation, CA

Weston has been implementing the municipal stormwater NPDES program support for the County of San Diego and associated co-permittees for 17 years. The program covers several watersheds in San Diego County and a variety of water quality, bioassessment and sediment monitoring, data assessment, and compliance reporting. As a leader in Microbial Source Tracking and gene-specific quantification, Weston is currently implementing microbial source tracking studies in multiple watersheds and conducting bacteria TMDL compliance monitoring.

Levees, Storm Drains, and Channels Design and Construction

Weston engineers and geotechnical experts design, construct, and re-construct levees and storm water conveyance facilities in accordance with USACE requirements for major rivers and floodways. We design new and enlarged capacity storm drains and channels, which accommodate growth and development, add value to communities, and improve existing drainage. Our projects are designed to fulfill a wide range of requirements: analysis, conceptual and final design, bidding and construction phase services, Federal Emergency Management Agency (FEMA) Flood Insurance Map Revisions (Conditional Letter of Map Revision (CLOMR)/Letter of Map Revision (LOMR)) and regulatory compliance services (Clean Water Act Section 401 & 404, MS4, SWPPPs) and Spill Prevention, Control, and Countermeasures (SPCC) Plans.

PROVEN **PROJECT** SUCCESS

Santa Fe River Trail and Channel Restoration, Phases 1–5, NM

Supported by local consultants—from geomorphologists to public involvement specialists—Weston worked alongside USACE to analyze river conditions and address severe degradation of the Santa Fe River to enable development of a key stretch of the long-sought Santa Fe River Trail. Following an extensive public input process, Weston developed a restoration program that involved "Hard" and "Low Impact/Green" engineering within most of the river corridor. Development of the trail and river restoration elements required innovative and "real time" engineering solutions during construction within the river channel as a result of the presence of waste materials. Re-construction of the overbanks of the river channel incorporated a number of crushed and abandoned automobile bodies, which were left in place. In addition, extensive construction rubble, solid waste, and existing utilities were accommodated during redesign of the historic overbank areas.

TMDL Development/Implementation

For over 20 years, Weston has been providing consulting support for TMDL development, including negotiating with regulators, reviewing GIS data, and implementing plan development. Weston also provides expertise in source tracking study development and implementation to identify causes of water quality exceedances, and develops regulatory and engineered solutions to rectify the issues.

PROVEN **PROJECT** SUCCESS

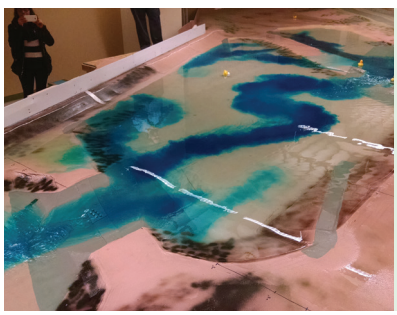
Inner Cabrillo Beach Natural Source Exclusion, Port of Los Angeles, CA

Weston is implementing the first natural source exclusion evaluation study to assist the Port of Los Angeles (POLA) with bacteria TMDL compliance. Since 2000, POLA, and the City of Los Angeles have implemented extensive corrective measures to reduce sources of fecal indicator bacteria in accordance with the Los Angeles Harbor Bacteria TMDL. As part of the project, Weston also prepared an engineering feasibility study for underground storage of water under an existing parking lot and completed a time schedule order to extend the timeline of the TMDL. Weston is at the forefront of implementing Microbial Source Tracking science to enhance our clients' knowledge of water quality management by identifying the sources of contamination.

Flood Plain Modeling and Mapping

Through the application of digital computer modeling software and leading engineering practices, Weston engineers and Certified Flood Plain Managers can forecast impacts resulting from flood events. In order to determine the behavior of a given watershed and enhance our client's decision making abilities, we use one- and two-dimensional hydraulic modeling software (Hydraulic Engineering Center-River Analysis System [HEC-RAS], FLO-2D, and Stormwater Management Model [SWMM]). In addition, our work includes flood plain map modifications to comply with FEMA Flood Insurance program requirements.

PROVEN **PROJECT** SUCCESS



Tijeras Arroyo Sediment Retention, University of New Mexico Hydraulics Laboratory

This $5 million facility was designed to capture 50,000 cubic yards of sediment annually while protecting two petroleum pipelines from damage. Located at the transition from an earthen channel to concrete conveyance draining over 125 square miles of watershed, the project fulfills a significant role in the regional water quality network owned and operated by the Albuquerque Metropolitan Arroyo Flood Control Authority. The retention facilities provide sediment reduction requirements to help comply with the Middle Rio Grande Watershed Based MS4 permit TMDL for sediment. Weston's design was based on a computational model (FLO-2D) and a physical model, constructed in the University of Mexico Hydraulics Laboratory. Results of the computational and physical models established the basis of design for final construction documents.

Stormwater Capture and Reuse

Most stormwater infrastructure in southern California was originally built to convey stormwater flows directly to rivers, creeks, and eventually to the ocean, but over the years, the rivers and creeks themselves were channelized in order to provide drainage and flood control. Weston has recent experience evaluating and developing stormwater capture and reuse facilities that provide water supply benefits and reduce pollutant loading to receiving waters. Our work includes modeling of stormwater flows, evaluation of water quality and discharge requirements, facilities to divert and store stormwater, treatment for pollutants of concern, and design of improvements.

PROVEN **PROJECT** SUCCESS

University of California, Los Angeles (UCLA) Stormwater Compliance

Weston provided leadership for UCLA for navigating the complex requirements and achieving compliance with the NPDES and Industrial General Permit (IGP) Compliance Program for UCLA campus facilities including, Chiller CoGeneration and Transit facilities. Weston provided modeling using Watershed Management Software to define the parameters needed to design an on-site best management practices (BMPs) to meet the IGP Regulations at the Chiller CoGeneration facility. This required leveraging Weston's stormwater professionals to analyze and implement complicated run-off scenarios.

Best Management Practice/Green Infrastructure/LID Engineering/Waterway Restoration

Weston engineers and scientists have addressed stormwater runoff requirements to ensure effective management and treatment of pollutants before discharge to receiving waters. Engineering of structural and non-structural best management practices (BMPs) is a skill that Weston is particularly adept at and has provided solutions to improve water quality. Weston has implemented Green Infrastructure and Low Impact Development (LID) systems to improve degraded natural waterways and enhance local green spaces while addressing water quality improvement objectives in a multi-benefit approach.

PROVEN **PROJECT** SUCCESS

Newport Area of Special Biological Significance Best Management Practices Implementation Project, City of Newport Beach, CA

Weston worked with the City of Newport Beach and California State Parks to prepare design plans, specifications, and estimates for three retrofit-type stormwater BMPs for the purpose of reducing pollutant loading into the shoreline Area of Special Biological Significance (ASBS). Design components included pervious pavers over a rock reservoir, pervious concrete, bioretention planters, modular wetland system, catch basin media filter retrofit, a modified catch basin infiltration gallery, and channel habitat restoration. Weston's experienced engineers devised a variety of BMP solutions/techniques, gained compliance with the California Environmental Quality Act, secured Prop 84 funding, and successfully constructed these improvements to address the unique environmental requirements needed to accomplish pollutant reductions and assure long-lasting benefits to the community.

The Weston Difference

Regulatory Know-how: We efficiently collect and manage large amounts of multimedia and multidiscipline information to meet planning milestones, prepare permit/licensing applications, conduct study assessments, and prepare comprehensive permit-compliant reports. We drive projects to completion: beginning with a clear understanding of regulatory obligations and then bringing forward regulatory compliance programs and full engineering, construction, and operational BMPs and industry-driven procedures.

Technical Expertise Nationwide: Weston has 40+ experienced stormwater professionals across the United States—many certified in their respective state programs. Our experts are recognized leaders in the field, participating in various national water resources associations; conducting research; authoring numerous peer-reviewed journal articles; and have completed award-winning projects.

Science-based Engineering Solutions: We provide engineering solutions to address environmental problems based on scientific data, which provides a clear understanding of the end goal of the project and leads to cost-effective solutions. Weston leverages our cadre of scientists, engineers, and regulatory experts to help develop and implement an engineered solution framework. We evaluate water quality data and apply the hydrologic regime to establish the design and operational requirements to meet regulatory objectives.

For More Information, Contact:

Moriah Thunstrom, P.E.
406-646-2415
Moriah.Thunstrom@WestonSolutions.com

Hans Tremmel, P.E.
562-758-7516
Hans.Tremmel@WestonSolutions.com

Mindy McCarthy
406-646-2418
Mindy.McCarthy@WestonSolutions.com

Follow Us