Vision and Strategic Actions for Managing Stormwater in the 21st Century

Vision
Manage stormwater as a vital component of California’s water resources in a sustainable manner, to support human and ecological needs, to protect water quality, and to enhance and restore our waterways.

California Stormwater Quality Association

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Vision and Strategic Actions for Managing Stormwater in the 21st Century

Vision

Manage stormwater as a vital component of California’s water resources in a sustainable manner, to support human and ecological needs, to protect water quality, and to enhance and restore our waterways.
Guiding Principles

The guiding principles to support this vision are:

**Principle**: Sustainable stormwater management uses runoff as a resource, protects water quality and beneficial uses, and efficiently minimizes pollution.

**Principle**: Policies, regulations, guidance, training, and funding need to support sustainable stormwater management.

**Principle**: Public awareness, understanding, and appreciation of the value of stormwater is essential to sustainable stormwater management.
**Purpose**

This Vision and Strategic Actions were developed to address the primary issue for stormwater management: The lack of consensus on how best to meet the goals of the Clean Water Act for stormwater. CASQA developed this Vision and Strategic Actions for itself, its members, and the public to pursue a comprehensive plan for stormwater that will achieve the goals of the Clean Water Act and sustainable stormwater management.
Preface

The stormwater program is in its third decade of implementation by municipal separate storm sewer systems (MS4s). Permittees have made great strides to address the impact of stormwater on local receiving waters through focused outreach to the public and an increased knowledge base on effective pollutant removal strategies. MS4 permits have evolved substantially, generally building on the original approach framed by the U.S. Environmental Protection Agency (EPA) for the Phase I program. The approach described in current permits is to reduce pollutants in runoff to the maximum extent practicable (MEP) through the implementation of best management practices (BMPs). MEP was designed as a flexible technology-based standard that would change over time to reflect evolving understanding of pollutant sources and stormwater treatment technologies. An additional requirement in permits is to comply with water quality standards, especially as implemented through total maximum daily loads (TMDLs).

The MEP approach has been applied by permittees to both the built environment during redevelopment and the urbanizing fringe with new development, with varying levels of success. New development programs for control of runoff water quality from the urbanizing fringe have been relatively successful. Permittees have used low impact development (LID) or green infrastructure and end of pipe treatment (gray infrastructure) to improve water quality. Permittees have been less successful improving water quality from existing development. Traditional urban design principles resulted in a landscape that moves stormwater quickly off-site for conveyance to receiving waters. Permittees have found that retrofit of the stormwater system with LID measures and end of pipe treatments in the existing environment is costly, technically difficult, and requires time to plan and significant resources to fund the capital improvement projects. Permittees have also found that it is not technically feasible to retrofit all existing development with treatment BMPs and further, retrofitting is not the most environmentally and cost-effective approach for improving water quality.

Drivers for the New Approach

There are several drivers for change for the stormwater program. At the most basic level, the current program is failing to meet the goals of the Clean Water Act (CWA) within a timeframe deemed reasonable by the stakeholders. Drivers – both challenges and opportunities – for a new approach are:

Challenges

- **303(d) listings and TMDLs.** More and improved monitoring has identified water bodies that are not meeting water quality standards. These water bodies are being listed as impaired under Section 303(d) of the CWA with pollutant-specific waste load allocations (WLAs) incorporated into municipal stormwater National Pollutant Discharge Elimination System (NPDES) permits. The number of 303(d) listed waters and the number of existing and proposed TMDLs are growing rapidly. The 2008-2010 303(d) list in California has 3,500 waterway-pollutant listings. Adding more TMDL water bodies is ultimately unsustainable from both a regulatory and permittee (implementation) standpoint. There are far too many potential pollutants in the environment to address them on a pollutant-by-pollutant basis.

  Additionally, the TMDL regulations (CWA Sections 303(d – e); 40 CFR 130.7) were developed almost 20 years before EPA started to regulate stormwater, therefore the regulations are based on a wastewater model. Wastewater originates in a human-made, closed system (sinks, toilets, etc.,) that is relatively controllable. Accordingly, the TMDL regulations are based on the presumption that BMPs exist and are powerful enough to reduce pollutants to achieve WLAs.
On the other hand, stormwater originates from a natural, outdoor, and open system that is inherently less controllable than wastewater. So, the presumption that BMPs exist for stormwater, let alone are powerful enough to achieve WLAs, is highly questionable. And yet, most TMDLs are written and adopted as if the presumption of BMPs is true for stormwater. Hence, the regulation of stormwater seems theoretical and out of touch with the technical reality of stormwater management.

- **Compliance with Water Quality Standards.** As currently regulated in MS4 permits, stormwater permittees must comply with water quality standards. This interpretation was supported by the Ninth Circuit Court of Appeals. This court’s decision has accelerated the need to identify a long-term solution to stormwater management that will support affordable compliance with numeric standards.

- **Water quality objectives were initially developed to protect water bodies from the continuous and relatively homogenous discharges of wastewater.** Like the TMDL regulations, the receiving water quality standards do not reflect the dynamic conditions found in stormwater discharges, or the intermittent nature of the discharges. As a result, stormwater programs struggle to attain the existing standards in Basin Plans as they provide limited value in defining standards for wet weather conditions. The public will not invest resources to correct ‘administrative’ water quality problems when no actual beneficial use impairments exist, or the existence of the ‘impairment’ is due to natural sources. This problem tends to be particularly acute for recreation quality standards, where regulation to protect swimmers is not a practical beneficial use during periods of high flows.

- **Program Funding.** Sufficient resources need to be dedicated to water quality. Most stormwater programs are funded through municipal general funds. The current funding structure presents a major challenge for elected officials as they must balance the funding of the stormwater program with other programs supported by the general fund, including such things as law enforcement, fire protection, and other essential services. Permittees must be able to clearly communicate the need and consequences of inaction to the public, so that resources for stormwater programs can be prioritized along with other social programs funded by local and state governments.

**Opportunities**

- **Stormwater as a valuable resource.** Recurring drought conditions in California have spotlighted the value of stormwater as part of the solution to providing a reliable and sustainable water supply. Stormwater needs to be addressed more as an important resource and less as a source of pollution.

- **Ascent of source-based BMPs.** BMPs are another area where the wastewater model is misleading if applied as is to stormwater. First and foremost, the BMPs for wastewater are treatment (e.g., primary, secondary) and improved BMPs tend to be more or higher levels of treatment (e.g., tertiary). On the other hand, the best management practices for stormwater tend to be those focused on the ‘sources’ of stormwater pollution. Stormwater pollution is made up of two parts or sources – stormwater combining with potential pollutants. Minimize the chances for that combination and stormwater pollution is avoided or prevented with little or no pollution reduction required. Prevention can be accomplished by reducing either or both of the two parts. Green Infrastructure reduces the amount of stormwater and True Source Control reduces the amount of potential pollutants.
- **Green Infrastructure** – EPA states “Green infrastructure is a cost-effective, resilient approach to managing wet weather impacts that provides many community benefits. While single-purpose gray stormwater infrastructure—conventional piped drainage and water treatment systems—is designed to move urban stormwater away from the built environment, green infrastructure reduces and treats stormwater at its source...” Green infrastructure slows runoff by dispersing it to vegetated areas, harvests and uses runoff, promotes infiltration and evapotranspiration, and uses bioretention and other green infrastructure practices to clean stormwater runoff.

- **True Source Control** – True source control focuses on the original source of potential pollutants by eliminating or significantly reducing the existence of potential pollutants, thereby negating the need to prevent contact between potential pollutants and stormwater or to treat the pollutants out of stormwater. That focus is different than that of operational source controls, which physically keep the potential pollutants from contacting rainfall and stormwater runoff through covering / containing, berming, or cleaning. That difference in focus between the current source and the original source is similar to the directional difference between compass north and true north.
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Principle – Sustainable stormwater management uses runoff as a resource, protects water quality and beneficial uses, and efficiently minimizes pollution.

Stormwater is a resource, with social, economic, and ecological value and should be managed in a sustainable manner. Domestic water supply sources in California are strained, and stormwater will play an important role in maintaining a consistent and resilient domestic supply. Using, and reusing water within local watersheds will help maintain local water balance, reduce energy use, and avoid environmental impact to ground and surface waters.

Stormwater programs must protect the environment and be cost-effective to implement. For each pollutant, there is a most cost-effective point of control. For many pollutants, the most cost-effective point of control will be at the source, before the pollutant contacts stormwater. For other pollutants, a combination of source controls, treatment controls, and regulatory approaches or beneficial use assessment may be needed.

Action 1.1 – Develop Guidance for Integrated Management of Water Resources that Promotes Stormwater as a Resource

Background

Excellent work has been completed on planning and developing California’s water system, but planners and engineers need a framework that describes how our water sources work together. The integrated regional water management plans (IRWMPs) have provided a partial answer to water planning, but can be improved to include more information for stormwater to ensure that it supports the highest use of other water sources in urban areas. Better guidance is needed for the development of the stormwater portion of IRWMPs, to truly integrate stormwater with the other water resources in California, and to help agencies understand how stormwater will be used as a productive part of the state’s water supply.

Similarly, the Sustainable Groundwater Management Act (SGMA)\(^1\) requirements and Groundwater Sustainability Plan (GSP) regulations present opportunities to coordinate stormwater and groundwater management. For example, under SGMA, Groundwater Sustainability Agencies, as they develop their GSPs, must address any surface and groundwater interaction or interconnection. Additionally, there may be other integrative efforts in which stormwater should be a more significant element and that would benefit from more information and guidance on stormwater.

Note: This action is closely related to Action 3.1 – Create opportunities for multiple agency and collaborative efforts to demonstrate the value of stormwater to the public. The actions share the subject of stormwater as a resource but they differ in their focus and audience. The focus of Action 1.1 is inward toward public agencies and the production of guidance for public agencies. The focus of Action 3.1 is outward toward the public and the publicity of projects and programs.

Goal: To develop guidance for IRWMPs and similar efforts that integrates all of California’s water resources to achieve optimum use while protecting the beneficial uses of receiving waters.

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\(^1\) The legislative intent of the 2014 SGMA is for groundwater to be managed sustainably in California’s groundwater basins by local public agencies and newly-formed groundwater sustainability agencies (GSAs). In the basins designated by DWR as medium and high priority, local public agencies and GSAs are required to develop and implement groundwater sustainability plans (GSPs) or alternatives to GSPs (Alternatives). Pursuant to Water Code Section 10733.2, DWR drafted and adopted emergency regulations in May 2016 for the evaluation of GSPs and Alternatives, the implementation of GSPs and Alternatives, and coordination agreements.
Related STORMS\textsuperscript{2} Project(s)

1a. Promote Stormwater Capture and Use, 2016-2018 (project term)  
2a. Increase Stakeholder Collaboration to Promote Stormwater as a Resource, 2019-2021  

Related California Water Action Plan\textsuperscript{3} Action(s)

2. Increase Regional Self-Reliance and Integrated Water Management across All Levels of Government  
6. Expand Water Storage Capacity and Improve Groundwater Management

Proposed Efforts

IRWMPs

Objective 1. Meet with State Water Board and Department of Water Resources (DWR) staff to discuss the goal of Action 1.1 and develop a problem statement as well as general steps for corrective action. Determine the most appropriate approach to guide the development of the stormwater portion of IRWMPs.

Objective 2. Work with the State Water Board and DWR to develop a guide (model) for the integrated use of all water sources in California that will serve as a required reference document during the development of IRWMPs. The guide should address the following items:

- Potential ways that stormwater capture and use can complement, rather than compete with, recycled and grey water use
- Incentives for capture and use
  - Methods to encourage site based capture and use, including distributed green infrastructure and infiltration strategies in urban areas
  - A Water Rights definition for captured stormwater, either at the surface or after infiltration
- Potential conflicts between uses (stormwater use, habitat protection, flood control) and proposed solutions for conflicts
- Criteria for application of model guidelines to IRWMPs
- Steps for integrated planning with other organizations and agencies
- Required partners such as water agencies, etc.
- Key findings of the STORMS Project 1a/1b report and recommended actions relevant to IRWMP guidance

\textsuperscript{2} STORMS is a strategy-based initiative developed and managed by the State Water Board that is closely related to this Vision and Strategic Actions. The mission of the Strategy to Optimize Resource Management of Stormwater (STORMS) is “to lead the evolution of stormwater management in California by advancing the perspective that stormwater is a valuable resource, supporting policies for collaborative watershed-level stormwater management and pollution prevention, removing obstacles to funding, developing resources, and integrating regulatory and non-regulatory interests.”

\textsuperscript{3} The California Water Action Plan – originally released by the administration of Governor Brown in January 2014 – is “a roadmap for the first five years of the state’s journey toward sustainable water management.”
Objective 3. Work with the State Water Board and DWR to finalize the guide (model) by adopting it as a required reference document. Develop an implementation plan, including scope of work, schedule, resources, and roles (including lead and support), and responsibilities.

**SGMA**

Objective 1. Meet with State Water Board and DWR staff to discuss the goal of Action 1.1 and how stormwater agencies can play a significant role in the development of various GSPs (statewide and locally), and incorporate stormwater capture and recharge projects into those GSPs. Furthermore, identify actions to coordinate with those DWR and State Water Board divisions responsible for SGMA implementation.

**Lead:** CASQA

**Support:** Department of Water Resources; State Water Board

**Schedule**

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<tr>
<th>#</th>
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<td>IRWMPs</td>
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<tr>
<td>1</td>
<td>Meetings with State Water Board, DWR, and others as appropriate. Develop strategy to incorporate stormwater management into IRWMPs.</td>
<td>2018</td>
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<tr>
<td>2</td>
<td>Develop guidance to better integrate stormwater into IRWMPs.</td>
<td>2019</td>
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<tr>
<td>3</td>
<td>Finalize IRWMP stormwater integration guidance and begin implementation.</td>
<td>2020</td>
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**SGMA**

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<th>Completion Date</th>
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<td>1</td>
<td>Meetings with State Water Board, DWR, and GSAs as appropriate. Identify actions to coordinate with DWR and State Water Board and a schedule of implementation.</td>
<td>2018</td>
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**Action 1.2 – Identify Constraints and Opportunities for Maximizing Stormwater as a Resource**

**Background**

MS4 permit provisions and other regulatory requirements can result in unintended constraints on the use of stormwater as a resource. Additionally, as new regulations are developed in other areas, such as local site use or SGMA, consideration of stormwater as a resource is not always maximized or consistently incorporated. This action will demonstrate how local agencies can improve their use of

4 Under SGMA, Section 10721. Definitions – Undesirable Results, (w) “Undesirable result” means one or more of the following effects caused by groundwater conditions occurring throughout the basin: (6) Depletions of interconnected surface water that has significant and unreasonable adverse impacts on beneficial uses of the surface water.

SGMA Section 10727.2. Required Plan Elements (d) Components relating to the following, as applicable to the basin:

(4) How recharge areas identified in the plan substantially contribute to the replenishment of the basin.

(5) A description of surface water supply used or available for use for groundwater recharge or in lieu use.

SGMA Section 10727.4. Additional Plan Elements, a groundwater sustainability plan shall include, where appropriate and in collaboration with the appropriate local agencies, all of the following: (f) Activities implementing, opportunities for, and removing impediments to, conjunctive use or underground storage.
stormwater. The STORMS Project 1a/1b report has begun to identify barriers, drivers, and factors affecting success with stormwater capture and use and will be used as a resource for implementing Action 1.2

Goal: To identify existing constraints and opportunities to incentivize use of stormwater as a natural resource.

Related STORMS Project(s)
1a. Promote Storm Water Capture and Use, 2016-2018
1b. Identify and Eliminate Barriers to Stormwater Capture and Use, 2016-2019
1c. Increase Stormwater Capture and Use through Regulatory Approaches, 2019-2021
1d. Develop and Establish a Monetary Value of Stormwater, 2019-2023

Related California Water Action Plan Action(s)
1. Make Conservation a California Way of Life

Proposed Effort

Objective 1. Survey agencies and review recently adopted MS4 permits to identify key conflicts and constraints for identifying and implementing projects that use stormwater. Use the STORMS Project 1a/1b Report as a starting point to develop the survey. Meet with the State Water Board and DWR to discuss the findings.

Objective 2. Based on the results of the survey, meetings with DWR and State Water Board in Objective 1, and the STORMS Project 1a/1b Report, develop recommendations for ways in which future regulations and guidance can more effectively support use of stormwater as a resource. Provide the State Water Board with ways to incentivize the use of stormwater as a resource and remove constraints that currently exist to support the State Water Board’s STORMS program.

Objective 3. Work with the State Water Board and DWR to incorporate consideration of stormwater as a resource into development of new regulations and guidance where appropriate. Establish a statewide goal for capturing stormwater and using it as a resource.

Lead: CASQA

Support: State Water Board

Schedule

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<tr>
<td>1</td>
<td>Survey and technical memorandum identifying constraints.</td>
<td>2018</td>
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<tr>
<td>2</td>
<td>Recommendations for incentivizing stormwater use and removing constraints.</td>
<td>2018</td>
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<tr>
<td>3</td>
<td>Work with State Water Board and DWR to incorporate consideration of stormwater as a resource in future regulations and establish a statewide goal.</td>
<td>Ongoing as needed</td>
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Action 1.3 – Provide Effective and Efficient Solutions through True Pollutant Source Control

Background

A sustainable stormwater program will implement controls that are recognized as effective and economical. For example, it is difficult to remove nutrients from stormwater. The most effective point of control for this pollutant is at the source (e.g., application). The control of some pollutants in stormwater is beyond the direct control of the municipality. True source control and the use of alternative products and green chemistry may ultimately offer the most effective and economical approach to the elimination of many pollutants that impair beneficial use of waters. New legislation may be needed to implement this action.

Goal: Develop a list of pollutants in stormwater that should most appropriately be controlled at the source (true source control). Determine the commercial use of each pollutant, and outline a recommended source control approach.

Related STORMS Project(s)

6b. Identify Opportunities for Source Control and Pollution Prevention, 2016-2020

Proposed Effort

Objective 1. Assemble a scope of work for a technical report to identify pollutants in stormwater that impact local receiving waters. This effort will largely be a compendium of MS4 annual reports around the state. Assemble a technical advisory team to oversee the development of the technical report.

Objective 2. Prepare a technical report per significant pollutant that describes the causes of receiving water impairment in urban areas, defines each pollutant and assesses the degree of pollutant control available to municipalities. As an example, each pollutant may be assessed according to the following categories:

- Source characterization – sources, pathways (e.g., stormwater, air deposition), fate; relative amounts of pollutant / uncertainty per pathway
- Whether removal is available through cost effective treatment controls
- Whether true source control is feasible or cost effective
- Whether a Green Chemistry approach is appropriate, and for what industry

The reports should identify partners for collaboration to implement the control for each of the categories defined above. The reports should also include a prioritized implementation plan.

Objective 3. Provide State Water Board with recommended actions to support true pollutant source control consistent with STORMS Project 6b. Work with the State Water Board, Department of Toxic Substances Control (DTSC), and other agencies to support development of partnerships and collaboration and other actions identified in the

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5 EPA defines green chemistry as, “the design of chemical products and processes that reduce or eliminate the generation of hazardous substances.” True source control is the elimination of the pollutant at its source, as opposed to physically keeping the potential pollutant from contacting rainfall and stormwater runoff through covering / containing, berming, or cleaning (i.e., operational source control).
technical reports to support true pollutant source control. Work with EPA to implement true source control work through education and regulation.

**Lead:** CASQA

**Support:** Pollutant-dependent

**Schedule**

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<td>1-2</td>
<td>Technical Report(s) on pollutant(s) sources and controls.</td>
<td>2018</td>
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<tr>
<td>3</td>
<td>Coordination with State Water Board, DTSC, and EPA.</td>
<td>Ongoing</td>
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**Action 1.4 – Work with DPR to Control Toxity in Receiving Waters from Pesticide Application**

**Background**

Pesticides represent a special and specific challenge to municipal stormwater programs since they are licensed for use by the State and EPA, are present in concentrations too low to be practical to remove from stormwater but are commonly found in sufficient quantities to cause toxicity in receiving waters. They may also be synergistic in effect, combining to cause greater toxicity. Widespread toxicity due to urban-use diazinon and chlorpyrifos in urban water bodies was discovered in the mid 1990s. Toxic levels of other urban use pesticides, including pyrethroids, fipronil, and imidacloprid, continue to be found in urban runoff and receiving waters.

In response, CASQA as well as Water Board staff, have actively advocated for more effective, proactive regulation of pesticides by the California Department of Pesticide Regulation (DPR), and the EPA Office of Pesticide Programs (OPP). In the 2000s, DPR began to improve its capacity and procedures for protecting urban water quality, and currently has a much more robust and effective system for identifying, preventing, and mitigating pesticide impacts. Currently, the State Water Board is developing the Urban Pesticide Amendments (Amendments) to the Ocean Plan and Inland Surface Waters, Enclosed Bays, and Estuaries Plan. The Amendments project is one of the initial priorities of the State Water Board’s STORMS strategic initiative (Project 6a - Establish Statewide Framework for Urban Pesticide Reduction). The Amendments are expected to help institutionalize DPR’s more effective, proactive regulation of pesticides. Additionally, the Amendments are expected to include:

- Pesticide regulatory authority will be recognized statewide by State Water Board policy as critical for addressing pesticides in urban runoff. As stated in the STORMS fact sheet, “The most effective way to reduce urban pesticide-related impairments now and into the future is source control through coordination with state and federal pesticide regulators.”
- A statewide regulatory framework for addressing urban pesticide impairments will be established that supplants the need for developing multiple watershed-specific TMDLs.
- A statewide monitoring framework will be established to better coordinate Water Board, DPR, and MS4 pesticide monitoring to utilize public resources more efficiently, satisfy Clean Water Act requirements, and support effective pesticide regulation.
- Consistent, reasonable requirements for MS4 implementation.
Goal: Develop a regulatory system implemented by EPA OPP and California DPR to identify whether use of a pesticide poses a threat to water quality, and then restrict or disallow those uses proactively so that water quality impacts are avoided.

Related STORMS Project(s)
6a. Establish Statewide Framework for Urban Pesticide Reduction, 2016-2018

Proposed Effort
Implement the following key objectives (for details, see Pesticides Subcommittee Annual Report and Effectiveness Assessment, 2016-2017, CASQA, August 2017)

Objective 1. Respond to the immediate need to participate in EPA pyrethroids, fipronil, and imidacloprid reviews (the only such opportunity for the next 15 years) and to support and encourage DPR steps toward expanded pyrethroids and new fipronil mitigation measures.

Objective 2. Seek EPA risk mitigation for malathion and carbaryl in urban runoff and the continuation of traditional water quality risk assessments in tandem with Endangered Species Act (ESA) evaluations.

Objective 3. Continue to leverage successes at the state level as a key stakeholder in the development of statewide Water Quality Control Plan Amendments for urban pesticides reduction.

Lead: CASQA

Support: DPR; State Water Board; EPA

Schedule

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<td>1</td>
<td>Registration reviews and mitigation measures.</td>
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<td>2</td>
<td>Risk mitigations, and water quality assessments and ESA evaluations.</td>
<td>Ongoing</td>
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<tr>
<td>3</td>
<td>Amendments adoption.</td>
<td>2018</td>
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Principle – Policies, regulations, guidance, training, and funding need to support sustainable stormwater management

There is a fundamental flaw in the current approach to improving water quality – municipalities have limited control over the generation and release of pollutants into the environment and a limited number of cost-effective tools to improve runoff water quality. The new outcome-based permit strategies developed by the Water Boards will require increased accountability of the permittee, but the current technical and legal constraints will limit improvements in receiving water quality. Stormwater program managers need regulatory assistance along with new source control and treatment control tools to comply with permit requirements.

To achieve sustainable stormwater management, a re-examination of regulatory and management structures is warranted. Regulations must support the use of adaptive management and alternative control approaches. The public will support programs that address demonstrated water quality issues. These efforts will require collaboration among agencies and industries to affect the biggest change for the lowest cost, as well as modification to regulatory requirements to accommodate beneficial uses of receiving waters that are deemed essential.

Action 2.1 – Clarify Regulations

Background

Stormwater is legally defined as point source and is addressed through a point source regulatory program (i.e., the NPDES program). In reality, stormwater is a non-point source (diffuse in nature). Some of the compliance issues that MS4s are facing can be traced to the application of the current regulatory model, which is based on 30+ years of experience with point sources (e.g., wastewater), with limited acknowledgement for the non-point source nature of stormwater (e.g., MEP and BMP concepts). Court cases have stipulated that stormwater is a point source and subject to the NPDES program, therefore the only option available to modify this interpretation is to clarify through rulemakings, or amend the Clean Water Act to refine the regulatory approach to better support the non-point source nature of stormwater pollution.

This change requires a significant undertaking and discussions with all interested parties to develop a broad-based consensus of how best to clarify regulations to reduce pollution in stormwater and improve the cost efficiency of stormwater programs.

Goal: Propose rulemaking or legislation that clarifies stormwater as a non-point source, and clearly outlines expectations of stormwater as different from wastewater and other point sources.

Related STORMS Project(s)

3a. Develop Guidance for Alternative Compliance Approaches for Municipal Stormwater Permit Receiving Water Limitations, 2016-2019
3b. Develop Watershed-Based Compliance and Management Guidelines and Tools, 2016-2019
3c. Assess Municipal Stormwater Program Monitoring and Effectiveness, 2019-2022
3d. Establish Statewide Regulatory Framework for Municipal Stormwater Programs, 2019-2024
3e. Standardize Minimum Control Measures for Specific Municipal Program Elements, 2022-2023
5c. Establish Sector-specific Technology-based Numeric Effluent Limitations for Industrial and Construction Stormwater Permits, 2022-2028
Proposed Effort

Objective 1. Confer with national stormwater organizations (e.g., National Municipal Stormwater Alliance (NMSA), Water Environment Federation (WEF), National Association of Flood and Stormwater Management Agencies (NAFSMA), National Association of Clean Water Agencies (NACWA), Natural Resources Defense Council (NRDC)) to explore ideas about rulemaking or legislation that would redefine stormwater as a non-point source of pollutants, or change how stormwater is permitted as a point source. Develop a consensus strategy with interested stakeholders to accomplish this objective.

Objective 2. Reach out to state and national governmental organizations (e.g., League of California Cities (LCC), California State Association of Counties (CSAC), County Associations of Government) to educate local and state elected officials on the issue. Coordinate with EPA and NGOs.

Objective 3. Develop and implement a strategy that would redefine stormwater as a non-point source of pollutants.

Lead: NMSA; WEF; NAFSMA; National League of Cities; National Association of Counties; EPA

Support: CASQA

Schedule

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<td>Confer with national organizations and develop legislative strategy.</td>
<td>2019</td>
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<tr>
<td>2</td>
<td>Educate public officials.</td>
<td>2020</td>
</tr>
<tr>
<td>3</td>
<td>Develop and implement legislative strategy.</td>
<td>2020-2021</td>
</tr>
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Action 2.2 – Articulate Stormwater Program Priorities

Background

Municipalities face many challenges in developing and implementing an effective and sustainable stormwater program. Such challenges may be regulatory, technical, or financial in nature. It is important to identify the water quality priorities that municipalities can best address so that resources are allocated accordingly. The first step in crafting a long-term sustainable approach to stormwater management is to identify the challenges and then to identify strategies to address these challenges.

The State Water Board can help provide guidance/policy to address critical water quality issues associated with stormwater. For example, the State Water Board is currently addressing trash through amendments to the Water Quality Control Plans for the Ocean Waters and the Inland Surface Waters, Enclosed Bays, and Estuaries of California and has initiated efforts to develop a bacteria initiative relevant to wet weather conditions. Similar efforts are also underway for biological objectives. The State Water Board also developed and is running the STORMS program that will help prioritize the State’s actions.

Goal: To ensure the most critical water quality issues associated with stormwater are identified and corresponding strategies developed to address the issues.
Related STORMS Project(s)
3b. Develop Watershed-Based Compliance and Management Guidelines and Tools, 2016-2019

Proposed Effort

Objective 1. Identify the highest priority issues for the stormwater program as a part of the Triennial Review process or the other mechanism (e.g., State Stormwater Policy – see Action 2.4, Objective 4).

Objective 2. Engage stakeholders in a collaborative effort to prioritize the water quality issues associated with stormwater discharges relevant to the region or State. The effort may be led by any of the stakeholders (e.g., Regional Water Boards, permittees, environmental non-governmental organizations (NGOs)).

Objective 3. Identify priorities of the region or state by considering impacts on beneficial uses, maximum benefit of the water body, water use opportunities, and other considerations that affect prioritization. Prioritize pollutants based on considerations.

Objective 4. Collectively develop strategies for high priority stormwater program issues. Such strategies may include developing consistent permit requirements, modifying Basin Plans, and providing guidance to support technical and regulatory issues.

Objective 5. Develop and deliver comments and testimony on technical, regulatory, and legal aspects of priority issues.

Lead: CASQA

Support: State and Regional Water Boards

Schedule

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<th>#</th>
<th>Objective / Deliverable</th>
<th>Completion Date</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Identify a mechanism to address high priority issues.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>2</td>
<td>Engage stakeholders to prioritize issues.</td>
<td>2018</td>
</tr>
<tr>
<td>3</td>
<td>Identify high priority stormwater issues.</td>
<td>2018</td>
</tr>
<tr>
<td>4</td>
<td>Develop strategies for identified issues through a collaborative process.</td>
<td>2019</td>
</tr>
<tr>
<td>5</td>
<td>Develop and deliver comments and testimony.</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>

Action 2.3 – Augment and Implement Basin Plan Amendment Process

Background

Porter Cologne (Section 13240) provides an opportunity for the Regional Water Boards to periodically review their Basin Plans to ensure the plans reflect the newest information and data, are current with State and Federal policies, and support the priorities of the Regional Water Board. Basin Plans were primarily developed in the 1970s and 1980s and as a result have limited consideration of wet weather issues. This action will review adopted water quality objectives and beneficial uses (i.e., water quality standards) to ensure they are applicable for wet weather conditions. Some Regional Water Boards have started to address this concern. This action will be designed to support those efforts.
Goal: Modify water quality standards to reflect sustainable beneficial uses and the nature and impact of stormwater.

Related STORMS Project(s):
3d. Establish Statewide Regulatory Framework for Municipal Stormwater Programs, 2019-2024

Proposed Effort

Objective 1. Initiate the Basin Plan amendment process or equivalent state or regional planning effort based on recommendations and priorities established under Actions 1.3 and 2.2 respectively.

Objective 2. Assess water quality standards per the California Water Code Section 13241. Working with the State Water Board, develop an assessment method reflective of wet weather conditions that would address the following factors to support a Basin Plan amendment:

- §13241(a): past, present, and probable future beneficial uses of water.
  - Further guidance by the State is needed to assist Regional Boards in defining “existing” and “probable” uses as this factor is one of the more difficult factors to evaluate.
- §13241(b): environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.
- §13241(c): water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area.
- §13241(d): economic considerations.
  - Further guidance by the State is needed as there is significant disagreement between permittees and environmental community regarding the method used to comply with this section. The need for further guidance has also been identified by other organizations (e.g., Little Hoover Commission, California Council for Economic and Environmental Balance (CCEEB)).
- §13241(e): the need for developing housing within the region.
- §13241(f): the need to develop and use recycled water.

Objective 3. Develop an implementation program consistent with §13242 to support revised water quality standards including a schedule and monitoring program. Working with the State Water Board, develop a framework for defining the implementation program required to support the revised water quality standards.

Objective 4. Amend Basin Plans consistent with the assessment and framework developed above for wet weather conditions. During the triennial review provide input and data to support the reconsideration of water quality standards including assessment of current beneficial uses and application of water quality objectives during wet weather conditions.
Lead: Regional Water Boards

Support: CASQA

Schedule

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<tr>
<th>#</th>
<th>Objective / Deliverable</th>
<th>Completion Date</th>
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<tbody>
<tr>
<td>1</td>
<td>Initiate Basin Planning statewide.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>2</td>
<td>Develop 13241 Assessment.</td>
<td>2019</td>
</tr>
<tr>
<td>3</td>
<td>Develop 13142 Framework.</td>
<td>2020</td>
</tr>
<tr>
<td>4</td>
<td>Amend Basin Plans.</td>
<td>Ongoing</td>
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</table>

Action 2.4 – Develop Policies and Permitting Framework to Support Sustainable Stormwater Management

Background

What constitutes a stormwater program has evolved considerably since the stormwater regulations were promulgated in November 1990. In the almost 30 years since, stormwater programs have changed from relatively basic programs focused on stormwater quality to relatively comprehensive and complicated programs addressing everything from Areas of Special Biological Significance to watershed management. Despite the evolution of what constitutes a stormwater program, the regulations have not changed and although the permits have gotten longer and more complex, they are still essentially based on the Part I and Part II permit application requirements from the 1990 regulations.

EPA regulations, policies, and guidance provide the opportunity to address water quality issues through an adaptive management and sustainable process. For example, EPA adopted a strategy to support the adoption of green infrastructure as a means of supporting water quality and community development goals. These actions will provide policy guidance to assist MS4 and other permittees with an overall approach to protect water quality through an adaptive management process. This guidance may be provided in a statewide stormwater policy, standard permit conditions, or equivalent document.

Goal: Develop a regulatory framework for stormwater that will provide statewide consistency in permitting and TMDL implementation and support the implementation of sustainable stormwater programs. Provide definitions and requirements as needed to clarify expectations for MS4 programs. Ensure that the framework is implemented statewide.

Related STORMS Project(s)

3c. Assess Municipal Stormwater Program Monitoring and Effectiveness, 2019-2022
3d. Establish Statewide Regulatory Framework for Municipal Stormwater Programs, 2019-2024
5d. Align Water Quality Statewide Planning Efforts with Stormwater Program Implementation – Pilot Project Using the Biological Integrity Plan, 2019-2021

Proposed Effort

Objective 1. Identify constraints and inconsistencies. Use the first of two EPA-sponsored Municipal Stormwater Permit Evolution workshops (December 2017) to confer with interested parties to identify the constraints and inconsistencies as well as benefits and challenges of existing policy and permitting efforts. Prioritize the challenges for subsequent attention in Objective 2 below. It is likely that two of the most important challenges...
will be defining MEP and creating sustainable pathways for achieving TMDL waste load allocations (WLAs) and complying with receiving water limitations (RWL).

**Objective 2.** Define MEP and RWL compliance and TMDL implementation. Stipulate the mandatory requirements for stormwater program implementation to define MEP using the work already completed by CASQA, State Water Board executive management, Regional Water Boards Executive Officers, and EPA Region IX stormwater staff, (Statewide Stormwater Permit Design Review, 2011-2012). Likewise, develop an adaptive management approach for TMDL development and implementation and compliance with receiving water limitations. Define any additional priorities identified in Objective 1, and develop a scope(s) and schedule(s) to address in subsequent objectives.

**Objective 3.** Define baseline monitoring requirements. Use the second of two EPA-sponsored Municipal Stormwater Permit Evolution workshops (March 2018) and follow-up to convene stakeholders to clarify purpose of the monitoring effort, to clarify standard monitoring methods and procedures, and establish mandatory reporting requirements and format.

**Objective 4.** Develop a statewide policy for stormwater. The policy should support an approach that incorporates adaptive management, provides a logical and progressive pathway to water quality protection and promotes green infrastructure. As such, the approach should progress from a narrative definition of technology-based effluent limits (TBELs) to numeric based technology based effluent limits to narrative water quality-based effluent limits (WQBELs) and ultimately, if required, numeric WQBELs.

**Objective 5.** Incorporate adaptive management as a pathway for compliance with water quality standards and TMDLs into all MS4 permits. This approach would also include the need to provide options for reviewing and modifying TMDLs based on new information, technology, monitoring results, etc.

**Lead:** State and Regional Water Boards

**Support:** CASQA

**Schedule**

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<th>#</th>
<th>Objective / Deliverable</th>
<th>Completion Date</th>
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<tbody>
<tr>
<td>1</td>
<td>Identify constraints.</td>
<td>2018</td>
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<tr>
<td>2</td>
<td>Define MEP and RWL compliance strategies, and TMDL implementation; Define any additional priorities.</td>
<td>2019</td>
</tr>
<tr>
<td>3</td>
<td>Develop baseline monitoring requirements.</td>
<td>2018</td>
</tr>
<tr>
<td>4</td>
<td>Develop statewide policy for stormwater.</td>
<td>2024</td>
</tr>
<tr>
<td>5</td>
<td>Incorporate adaptive management as compliance pathway.</td>
<td>Ongoing</td>
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</table>
Action 2.5 – Establish Guidance/Tools to Support Sustainable Stormwater Programs

Background
Continuously updated technical guidance is necessary to support the long-term success of the stormwater program. Some of the current guidance is dated and does not reflect new priorities of sustainable water use and a focus on low impact development, green infrastructure, asset management, and true source control. It will be necessary to provide updated or additional guidance to address these priorities and strategies identified in Action 2.2. Additionally, information and guidance is needed for adaptive management, which in turn supports sustainable stormwater management.

Goal: To ensure technical and regulatory guidance is provided to support sustainable stormwater programs.

Related STORMS Project(s)
3f. Develop Guidance for Implementation of Post-Construction Requirements to Improve Watershed Health, 2019-2023
3g. Establish Guidance for Stormwater Program Asset Management Planning and Cost Estimation, 2022-2023
5a. Create Stormwater Program Data and Information “Open Data”, 2016-2020
5b. Evaluate and Increase Stormwater Permit Compliance, 2019-2021
6c. Evaluate and Implement Trash Control, 2019-2022

Proposed Effort

Objective 1. Update CASQA BMP Handbooks. As new information becomes available and technical advances take place, the CASQA BMP Handbooks will need to be updated. Such updates should coincide with the updates of the relevant permits and permitting approaches.

Objective 2. Develop guidance for regulatory priorities. Pending the results of Action 2.2, it may be necessary to provide guidance to develop site specific objectives, develop technology based effluent limits, characterize natural sources, support a high flow suspension, or develop wet weather standards.

Objective 3. Update CASQA Program Effectiveness Assessment Manual. MS4s are continually trying to improve their stormwater programs both in effectiveness in addressing water quality issues and in efficiency in minimizing program costs. The CASQA program effectiveness assessment provides the basis for such improvements but should be revised to reflect the watershed approach currently being provided for in permits (see Action 2.6 below) that allow agencies to focus their resources on water quality priorities.

Objective 4. Develop case studies of adaptive management. Adaptive management is as much art as science and the process and form it takes can vary from situation to situation. Case studies improve our understanding of adaptive management by showcasing the ways the process may be used and the results it can generate.
Objective 5. Develop and host events (e.g., quarterly meetings, annual conferences) on a regular basis to assist stormwater professionals to remain current on the latest issues and developments. Identify and engage high quality and relevant sources of information.

Objective 6. Create and host information places (e.g., websites, forums) where stormwater professionals can access current, relevant, and high-quality information and interact with like professionals.

Objective 7. Create and provide training for stormwater professionals. Create curricula from current, relevant, and high-quality information sources. Identify and engage high quality and experienced trainers.

Lead: CASQA

Support: State and Regional Water Boards

Schedule

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<th>#</th>
<th>Objective / Deliverable</th>
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<tbody>
<tr>
<td>1</td>
<td>Update BMP Handbooks.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>2</td>
<td>Guidance for regulatory priorities.</td>
<td>Ongoing</td>
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<tr>
<td>3</td>
<td>Improve/Revise Program Effectiveness Manual.</td>
<td>2019</td>
</tr>
<tr>
<td>4</td>
<td>Develop case studies.</td>
<td>Ongoing</td>
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<tr>
<td>5</td>
<td>Develop and host events.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>6</td>
<td>Create and host information places.</td>
<td>Ongoing</td>
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<tr>
<td>7</td>
<td>Create and provide training.</td>
<td>Ongoing</td>
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Action 2.6 – Establish Watershed-Based or Equivalent Program

Background

The National Research Council noted the greatest potential improvement to EPA’s stormwater program would be to convert to a watershed based permitting system. The Little Hoover Commission in California has also recommended the State emphasize a watershed-based approach. Recent MS4 permits in California (e.g., Los Angeles countywide and San Diego countywide) have reflected a focus on watersheds.

Goal: Develop process for implementing watershed based approaches for the MS4 program.

Related STORMS Project(s)

3b. Develop Watershed-Based Compliance and Management Guidelines and Tools, 2016-2019

Proposed Effort

Objective 1. Assess efforts in Los Angeles, Bay Area, and San Diego to identify the benefits, the challenges, and any recommended changes.

Objective 2. Work with the State Water Board to incorporate watershed based planning into all MS4 permits. The permits should highlight the need to prioritize watershed based water quality issues and encourage implementation of stormwater programs at the
watershed level. Review and incorporate the EPAs Integrated Planning Framework into permits.

Objective 3. Create opportunities for regional solutions. Initial stormwater permits discouraged regional solutions to water quality issues but more recently this approach has been updated and regional approaches are allowed. The State Water Board should be encouraged to find ways to incentivize regional solutions as part of the State’s STORMS program. Incorporate recommendations from EPA-sponsored Municipal Stormwater Permit Evolution workshops (December 2017).

Objective 4. Create a pollutant trading / credit program framework. Water quality trading is an innovative approach to achieve water quality goals more efficiently and is especially suited for projects and programs that are watershed based and subject to a TMDL. A pilot project should be identified and implemented.

Lead: CASQA

Support: State and Regional Water Boards

Schedule

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<th>Objective / Deliverable</th>
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<tbody>
<tr>
<td>1</td>
<td>Conduct assessment of watershed programs.</td>
<td>2018</td>
</tr>
<tr>
<td>2</td>
<td>Incorporate watershed planning into permits.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>3</td>
<td>Create opportunities for regional solutions.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>4</td>
<td>Create pollutant trading framework.</td>
<td>2019</td>
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Action 2.7 – Create Funding Opportunities

Background

**SB 231 Implementation**

Municipal stormwater systems are public facilities, but they differ from other public utilities such as water, sewer, gas, electric, and trash in one key aspect: other utilities existed prior to the passage of Proposition 218 and are financially supported by service fees. By comparison, most stormwater programs rely on the public agency’s general fund. This funding structure presents a major challenge for elected officials as they must balance the funding of the stormwater program with other programs supported by the general fund, including such things as law enforcement, fire, paramedics, parks, street lighting, and libraries.

Proposition 218 (1996) requires local voter approval of certain property-related fees. The imposition or increase of a property related fee or charge must be approved by a majority vote of the property owners subject to the fee or charge or, at the option of the agency imposing the fee or charge, by a 2/3 vote of the electorate residing in the area affected by the fee or charge. Proposition 218 exempts certain types of fees, such as those for water, sewer, and refuse, from the voter approval requirements of Proposition 218.

Recent legislation has clarified the standing of stormwater within Proposition 218 and the accompanying Omnibus Implementation Act of 1997, including relative to the water and sewer exemptions. The passage of AB 2403 (2014) provides an option under the water exemption for
funding the capital portion of projects that conserve or use stormwater for water supply. Similarly, the passage of SB 231 (2017) provides the same option under the sewer exemption for projects that benefit sewer services. To-date, the option created by AB 2403 has not been used by a MS4 to raise stormwater fees but CASQA expects the passage of SB 231 to encourage MS4s to do so.

The use of either option is expected to be closely watched by interest groups in preparation for bringing one or more lawsuits to try to restrict or reverse the interpretation of the legislation. As a result, the SB 231 Implementation Working Group, a coalition expected to include the legislator’s office, the sponsors of the legislation, LCC, CSAC, environmental NGOs, and others are developing a strategy to try to ensure that agencies use the options appropriately and avoid engendering lawsuits that could set legal precedents unfavorable to the needs of stormwater programs. To implement this action, CASQA will work closely with the coalition and CASQA members to help ensure that all MS4s are aware, understand, and follow the strategy.

**Joint Powers Authority**

Another approach to creating funding opportunities is to form a Joint Powers Authority (JPA). Over the last 25 years the State Water Board and CASQA have partnered on several statewide projects and programs to assist stormwater permittees (e.g., BMP Handbooks, Construction General Permit Qualified SWPPP Developer (QSD)/Qualified SWPPP Practitioner (QSP) training program, Industrial General Permit Qualified Industrial Stormwater Practitioner (QISP) Training Program). However, restrictions and barriers to collecting, combining, or receiving funds from agencies to conduct statewide programs and projects through CASQA as a non-profit organization or through a third-party agency acting as CASQA’s fiduciary agent make these approaches difficult, inefficient, and often infeasible. A JPA is a public agency and as such, under State policies, the State as well as local agencies would be able to fund programs and projects through a JPA more easily and efficiently.

**Funding Information Online Portal**

There currently exist many sources of information on stormwater funding, however given the specific California constraints and opportunities and through collaboration with the State Water Board and EPA the development of one location for stormwater permittees to identify and evaluate opportunities for stormwater funding in California has been identified. The portal will function as the primary location for information on funding opportunities in California and provide an opportunity for stormwater project proponents to evaluate multiple benefits of proposed projects and identify funding sources associated with multiple benefits. The portal will also link to the EPA water financing portal and the portal will serve as the primary repository of information related to CASQA stormwater funding initiatives including the CASQA funding white papers developed as part of the LID Barriers Grant. A key element of the funding online portal will be maintenance of the portal, which CASQA will need to identify how the portal will be maintained including evaluation of how the State Water Board can potentially contribute resources.

**Funding for Sustainable Streets**

Sustainable Street projects are projects that include both active transportation improvements and green infrastructure, and that are maintained in a state of good repair. Sustainable Streets are important to stormwater compliance, due to the water quality impacts of vehicles, the fact that stormwater runoff from adjacent properties is often routed to roadways, and the integration of storm drain systems into streets and roads. However, the funding of Sustainable Streets projects has proven challenging, due to the tendency for various funding programs to focus only on one or a few of the multiple benefits provided by Sustainable Streets. It may be possible to achieve economies of scale by combining investments in reducing water pollutant loads and greenhouse gas emissions
with funding for active transportation, pavement rehabilitation, and water grants to fully fund Sustainable Streets projects. To that end, EPA Region 9 funded a grant project that was used to convene meetings of representatives from federal, state, regional, and local agencies to produce a roadmap of specific actions for funding Sustainable Streets. The proposed efforts below regarding Sustainable Streets are drawn from that roadmap.

**Goal:** To assist with use of one or more funding options for municipalities to support their stormwater programs to reduce or eliminate reliance on general funds.

**Related STORMS Project(s)**

1d. Develop and Establish a Monetary Value of Stormwater, 2019-2023  
4b. Eliminate Barriers to Funding Stormwater Programs and Identify Funding for Stormwater Capture and Use Projects, 2016-2018

**Related California Water Action Plan Action(s)**

10. Identify Sustainable and Integrated Financing Opportunities

**Proposed Efforts**

**SB 231 Implementation**

Objective 1. Participate in SB 231 Implementation Working Group and the planning and development of the strategy.

Objective 2. Develop and disseminate information regarding the strategy and its implementation.

**Joint Powers Authority**

Objective 1. Assist formation of JPA, including authorization of State Water Board participation, execution of JPA formation documents, constitution of governance (e.g., Board of Directors), development of governance documents (e.g., Bylaws, Policies and Procedures), and establishment of Administering Entity.

Objective 2. Assist with securing funding and implementation of first JPA project.

**Funding Information Online Portal**

Objective 1. Develop in collaboration with the State Water Board and as an initiative associated with the STORMS Funding Subcommittee a stormwater funding information online portal.

**Funding for Sustainable Streets**

Objective 1. Update Proposition 1 Stormwater Grant Guidance. In the 2018 Stormwater Grant Program solicitation, provide guidance on how to demonstrate the eligibility of transportation elements, including pervious paving and active transportation and transit improvements that reduce greenhouse gases (Roadmap Specific Action 1.3).

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6 Draft Roadmap of Funding Solutions for Sustainable Streets, Urban Greening Bay Area Initiative, Bay Area Stormwater Management Agencies Association, 2017
Objective 2. Clarify green infrastructure eligibility in the local streets and roads program. As guidelines are developed in accordance with SB 1 (2017) clarify the eligibility of green infrastructure elements in pavement rehabilitation and other applicable projects (Roadmap Specific Action 1.4).

Objective 3. Prepare guidance for packaging projects. Prepare statewide guidance on how to package Sustainable Streets projects for specific grants (Roadmap Specific Action 2.4).

Leads:
SB 231 Implementation: SB 231 Implementation Working Group
Joint Powers Authority: CASQA
Funding Information Online Portal: CASQA
Funding for Sustainable Streets: State Water Board (Objective 1); California Transportation Commission (Objective 2); CASQA (Objective 3)

Support:
SB 231 Implementation: CASQA
Joint Powers Authority: State Water Board, Alameda County Flood Control & Water Conservation District, Fresno Metropolitan Flood Control District
Funding Information Online Portal: State Water Board
Funding for Sustainable Streets: CASQA (Objectives 1 - 2); Funding agencies (Objective 3)

Schedule

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<td>SB 231 Implementation</td>
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<tr>
<td>1</td>
<td>Participate in SB 231 Implementation Working Group developing the strategy.</td>
<td>2018</td>
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<tr>
<td>2</td>
<td>Develop and disseminate information about the strategy and its implementation.</td>
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<tr>
<td>Joint Powers Authority</td>
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<tr>
<td>1</td>
<td>Assist with formation of JPA.</td>
<td>2018</td>
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<tr>
<td>2</td>
<td>Assist with administration of first JPA project.</td>
<td>2019</td>
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<td>Funding Information Online Portal</td>
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<tr>
<td>1</td>
<td>Develop in collaboration with the State Water Board a stormwater funding information online portal</td>
<td>2018</td>
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<tr>
<td>Funding for Sustainable Streets</td>
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<tr>
<td>1</td>
<td>Update Proposition 1 Stormwater Grant Guidance.</td>
<td>2018</td>
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<td>2</td>
<td>Clarify green infrastructure eligibility in the local streets and roads program.</td>
<td>2018</td>
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<td>3</td>
<td>Prepare guidance for packaging projects.</td>
<td>2019</td>
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**Action 2.8 – Survey Needs and Identify Costs**

**Background**

An MS4’s defining characteristic is that it is an open system, wherein flows are determined by the amount of precipitation and inputs into the system are open and accessible on every street and property. Discharges (stormwater and other flows) into an MS4 represent the diversity of activities and behaviors conducted by humans and other species from the surrounding watershed and the airshed. To address such an open system, regulations, permits, and programs have been developed that match its scope. Accordingly, the scope of a municipal stormwater program cuts across all departments and professional disciplines. Most stormwater programs do not have a dedicated fee or assessment and are funded out of an agency’s general fund. Additionally, many of the activities of a stormwater program are conducted as part of other existing municipal services (e.g., street sweeping, catch basin cleaning). Finally, the size of the agencies implementing the program range from populations of 10,000 to more than 10 million.

All of these factors – diffuse pollution sources (including cross media, sources), broad scope, multiple departments and budgets, integrated tasks, wide range of agencies – make determining the needs and costs of the stormwater program an accounting challenge within any one agency. Between agencies, differences in program design and organization make it difficult to combine information from multiple agencies into a larger, consistent database from which to report average results without significant variability. Without a reliable accounting of funding and funding needs, it is difficult to identify funding to fill the gaps.

At the national scale, there are several attempts to gather information on needs and costs:

- **EPA Clean Watersheds Needs Survey (CWNS)** - In partnership with states, territories and the District of Columbia, EPA conducts the CWNS every four years. Congress requires EPA to conduct the CWNS under sections 205(a) and 516 of the CWA (33 U.S Code §1375). The CWNS is a comprehensive assessment of the capital costs (or needs) to meet the water quality goals of the CWA and address water quality and water quality related public health concerns. Every four years, the states and EPA collect information about:
  - Publicly owned wastewater collection and treatment facilities
  - Stormwater and combined sewer overflow control facilities
  - Non-point source pollution control projects
  - Decentralized wastewater management

EPA collects information about these facilities and projects including:

  - Estimated needs to address water quality or water quality related public health problems.
  - Location and contact information for facilities and projects.
  - Facility populations served, flow, effluent, and unit process information.
  - Non-point source pollution control best management practices.

EPA documents national and state needs in a Report to Congress used by Congress and state legislatures in their budgeting efforts. The data are also used to:

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7 Although the lower population threshold for Phase II Stormwater Program is 10,000, many municipalities with populations less than 10,000 are required to implement stormwater programs. This is the case in heavily urbanized areas where smaller municipalities are contiguous with larger municipalities, or they are part of regional programs, or the Water Boards designated population areas based on density or water quality concerns.
HELP measure environmental progress
Contribute to academic research
Provide information to the public
Help local and state governments implement water quality programs

- **WEF Needs Assessment Survey of MS4s** - WEF’s Stormwater Institute is developing a national needs assessment of MS4s. The national survey will determine where potential program theme gaps may occur, identify opportunities to share lessons among peers, and provide a catalyst for developing new programs to meet the stormwater challenge. The MS4 survey will be conducted in early 2018 and be completed by mid-2018. The Stormwater Institute will work with partners to implement indicated improvements to both enhance existing programs and develop new tools to help the municipal sector meet their permit requirements and community water quality goals.

*Goal: To identify or develop a system for collecting and analyzing information on needs and costs of compliance for stormwater permittees (construction, industrial, and municipal), and implement it in California.*

**Related STORMS Project(s)**
3g. Establish Guidance for Stormwater Program Asset Management Planning and Cost Estimation, 2022-2023
4c. Identify Municipal Stormwater Permit Compliance Cost, 2019-2021
4d. Identify Industrial and Construction Stormwater Permit Compliance Cost, 2028-2030

**Proposed Effort**

Objective 1. Research the EPA and WEF surveys and determine the extent to which they address municipal stormwater in California. Identify any gaps.

Objective 2. Dependent on the results and recommendations from Objective 1, develop and conduct a survey for MS4s in California, and analyze the results.

Objective 3. Develop and conduct a survey for construction stormwater permittees in California, and analyze the results.

Objective 4. Develop and conduct a survey for industrial stormwater permittees in California, and analyze the results.

Objective 5. Determine the management questions and utility of conducting the surveys on some regular basis.

**Lead:** CASQA

**Support:** State Water Board, WEF, EPA

**Schedule**

<table>
<thead>
<tr>
<th>#</th>
<th>Objective / Deliverable</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Technical Memorandum describing research, results, gaps, and recommendations.</td>
<td>2018</td>
</tr>
<tr>
<td>#</td>
<td>Objective / Deliverable</td>
<td>Completion Date</td>
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<tr>
<td>2-4</td>
<td>Reports describing the construction, industrial, and municipal surveys, results, and recommendations.</td>
<td>2018</td>
</tr>
<tr>
<td>5</td>
<td>Technical Memorandum describing analysis, results, and recommendations.</td>
<td>2019</td>
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</table>
**Principle – Public awareness, understanding, and appreciation of the value of stormwater is essential to sustainable stormwater management.**

Stormwater agencies need to educate the public about the value of water. Domestic water is relatively inexpensive and abundant in the U.S. The recurring drought and population increases have begun to strain the storage and delivery infrastructure in California and the southwest. Management of water resources in California must change. To make the necessary changes, there must be public support.

**Action 3.1 – Create Opportunities for Multiple Agency and Collaborative Efforts to Demonstrate the Value of Stormwater to the Public**

**Background**

The public is more likely to support infrastructure projects that are multi-objective and multi-benefit as compared to single-purpose projects. The potential number of funding sources is greater for multi-objective projects. Multi-objective projects are more complex owing to disparate funding sources, and the requirements of various public agencies. However, multi-objective projects have additional benefits as compared to single use projects, and generally will have a comparatively higher return on investment for the public. An example would be a green street project that is also a complete street to enhance mobility, or a green street with a safe routes to schools project.

Note: This action is closely related to Action 1.1 – Develop guidance for integrated management of water resources that promotes stormwater as a resource. The actions share the subject of stormwater as a resource but they differ in their focus and audience. The focus of Action 3.1 is outward toward the public and the publicity of projects and programs. The focus of Action 1.1 is inward toward public agencies and the production of guidance for public agencies.

*Goal: Establish and define a basic set of multi-benefit projects and programs that a stakeholder agency can initiate.*

**Related STORMS Project(s)**

1d. Develop and Establish a Monetary Value of Stormwater, 2019-2023  
2a. Increase Stakeholder Collaboration to Promote Stormwater as a Resource, 2019-2021

**Proposed Effort**

**Objective 1.** Identify stakeholder agencies to participate in this action. Potential candidate projects and programs to consider:

- Water Supply
- Groundwater Recharge
- Recreational Facilities
- Transportation
- Municipal Infrastructure

Identify funding sources that each agency uses for capital improvements, programs, maintenance, and land acquisition and the limitations on the use of those funds.

**Objective 2.** Identify at least one multi-benefit project type or program that includes two or more agencies listed in Objective 1 that can be implemented by municipalities or other
stakeholders. Create or document demonstration projects that can be implemented by permittees statewide. For each multi-benefit project or program, develop a detailed ‘road map’ or model manual for the project describing:

- Approval processes
- Funding sources and limitations
- Benefits of project
- Preferred application environment
- Idealized schedule

Multi-benefit projects should focus on urban infrastructure and include the following:

- Transform existing flood control facilities to optimize use of stormwater
- Daylighting of streams
- Volume and flow reduction – hydromodification controls
- Protect or restore stream habitat
- Converting standard streets to Sustainable Streets

Objective 3. Publish a report on the findings of this action with completed project scenarios.

Objective 4. Track plans for STORMS Project 2a. Increase Stakeholder Collaboration to Promote Stormwater as a Resource, and depending on the circumstances, scope out a task(s) to coordinate with, support, or help implement STORMS Project 2a.

**Lead:** CASQA

**Support:** Agencies – To be determined

**Schedule**

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<tr>
<th>#</th>
<th>Objective / Deliverable</th>
<th>Completion Date</th>
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<tbody>
<tr>
<td>1</td>
<td>Identify stakeholders to participate.</td>
<td>2017</td>
</tr>
<tr>
<td>2</td>
<td>Identify multi-benefit projects – Produce Technical Memorandum summarizing results.</td>
<td>2018</td>
</tr>
<tr>
<td>3</td>
<td>Publish report of findings.</td>
<td>2018</td>
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<tr>
<td>4</td>
<td>Track and scope out task(s).</td>
<td>2018</td>
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**Action 3.2 – Create Statewide Message that Establishes Stormwater as a Resource**

**Background**

MS4 programs should have a consistent message to use in public education and outreach to create the best potential for change in public opinion and education. Ideally, a common message will be used across local agencies as well as State agencies, including the State Water Board, Regional Water Boards, Caltrans, Department of Parks and Recreation, and Department of Water Resources. The statewide consistent message should be supported by the State and Regional Water Boards through MS4 permits, as a recommended option available to permittees for public education.

Since version 1.0 of this Vision was officially adopted by CASQA in January 2015, Caltrans has developed a statewide message and campaign – “Protect Every Drop” – that appears to have met the intent of this action – a consistent, statewide message that can be used by all agencies and yet the message can be
combined with complementary, customized sub-messages as desired by partner agencies. The subject of this action – promoting stormwater as a resource is such a sub-message.

*Goal: Within the context of the “Protect Every Drop” campaign, develop a message and outreach materials promoting stormwater as a resource for use in public education.*

**Related STORMS Project(s)**

1a. Promote Stormwater Capture and Use, 2016-2018
2a. Increase Stakeholder Collaboration to Promote Stormwater as a Resource, 2019-2021

**Proposed Effort**

**Objective 1.** Convene a steering committee to agree on the concept framework and direct the development of the “stormwater as a resource” message. The steering committee will be comprised of members from the following entities:

- Municipalities
- State and Regional Water Boards
- Department of Water Resources
- Water Districts
- Groundwater Sustainability Agencies

**Objective 2.** Draft a work plan. The steering committee will draft a work plan to develop the “stormwater as a resource” outreach message, any materials, and method of dissemination to the public. The work plan will include an action to identify the appropriate and unique target audiences, and messages and delivery customized to each target audience. Work will also include a public outreach plan that uses all traditional and social media formats.

**Objective 3.** Implement the public outreach plan. Coordinate outreach statewide with all cooperating agencies.

**Lead:** CASQA

**Support:** State Water Board; Caltrans; Environmental NGOs

**Schedule**

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<tr>
<th>#</th>
<th>Objective / Deliverable</th>
<th>Completion Date</th>
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<tbody>
<tr>
<td>1–2</td>
<td>Scope of work and selection of consultant, completion of statewide “stormwater as a resource” message.</td>
<td>2018</td>
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<tr>
<td>3</td>
<td>Incorporation of option into MS4 permits, implement recommended plan.</td>
<td>Ongoing</td>
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