Strategy to Optimize Resource Management of Storm Water

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Draft

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Table of Contents

List of Tables

List of Figures

Acronyms and Abbreviations

CASQA	California Stormwater Quality Association
CED	California Environmental Dialog
CEDEN	California Environmental Data Exchange Network
CIWQS	California Integrated Water Quality System
CWA	Clean Water Act
DPR	Department of Pesticide Regulation
DTSC	Department of Toxic Substances Control
IRWM	Integrated Regional Water Management
JPA	Joint Power Agreement
LID	Low Impact Development
MEP	Maximum Extent Practicable
MOA	Memorandum of Agreement
MS4	Municipal Separate Storm Sewer System
NEL	Numeric Effluent Limitation
NPDES	National Pollutant Discharge Elimination System
OPP	Office of Pesticide Programs
Draft Proposal	Draft Proposal to Develop a Storm Water Program Workplan and Implementation Strategy
Regional Water Board	Regional Water Quality Control Board
SGMA	Sustainable Groundwater Management Act
SMARTS	Storm Water Multiple Application and Report Tracking System
State Water Board	State Water Resources Control Board
Storm Water Strategy	Strategy to Optimize Resource Management of Storm Water
SWAMP	Surface Water Ambient Monitoring Program
SWGP	Storm Water Grant Program
TMDL	Total Maximum Daily Load
UCLA	University of California, Los Angeles
USEPA	United States Environmental Protection Agency
WAMP	Watershed Management Plan
Water Boards	State Water Resources Control Board and Regional Water Quality Control Boards
WDRs	Waste Discharge Requirements

1. Executive Summary

Storm water[1] runoff from municipal separate storm sewer systems (MS4s), industrial facilities, and construction sites ~~is a major source of~~can be a source~~s~~ of pollutants and has~~ve~~ contributed to water quality impairments ~~throughout the~~in developed areas of California. Additionally, population growth, climate change and the current drought are increasing pressure on the state to take immediate action and manage its water resources more effectively. These challenges represent an opportunity to redefine how California utilizes and values storm water as a water resource. The State Water Board Resolution No. 2009-0011 (Policy for Water Quality Control for Recycled Water) identified the goal for California to increase the use of storm water over use in 2007 by at least 500,000 acre-ft/year by 2020, and by at least one million acre-ft/year by 2030.

Well-conceived storm water management actions provide multiple benefits for California communities, including improved water quality, increased water supply, increased space for public recreation, increased tree canopy, enhanced stream and riparian habitat area, as well as many other benefits. Accordingly, this proposed Strategy to Optimize Resource Management of Storm Water (Storm Water Strategy) identifies the goals, objectives, and actions needed for the State Water Resources Control Board and nine Regional Water Quality Control Boards (Water Boards) to improve the regulation, management, and utilization of California's storm water resources.

In June 2015, a multidisciplinary team (composed of engineers, scientists, and geologists from the Central Coast, Los Angeles and San Diego Regional Water Boards and the State Water Resources Control Board (State Water Board)) created a Draft Proposal to Develop a Storm Water Program Workplan and Implementation Strategy (Draft Proposal) included as Appendix C~~B~~. Executive Sponsors from the San Francisco Bay and Los Angeles Regional Water Boards and the State Water Board provided guidance on the effort; in addition to a collaborative process with stakeholders representing environmental advocacy groups, non-profit organizations, municipal storm water permittees, industrial and construction storm water permittees, and the general public. The Draft Proposal was used to develop this Strategy to Optimize Resource Management of Storm Water (Storm Water Strategy) with the purpose of: (1) providing clarity on the goals the Water Boards intend to achieve; (2) identifying objectives and projects that will enable the Water Boards to achieve the goals; and (3) proposing ways to measure progress.

The overarching intent of the Storm Water Strategy is to establish the value of storm water as a resource in California and encourage its application to beneficial uses. The evolution of storm water management may be accomplished through a watershed-based evaluation of needs and a coordinated implementation strategy. Because a number of regulatory and non-regulatory interests overlap in their efforts to manage storm water, development of a coordinated and complementary approach will benefit both interests. Successful collaboration with the regulated

[1] Storm water is defined as temporary surface water runoff and drainage generated by immediately preceding storms (Water Code, §10561.5 (b)).

community will require evaluation of compliance approaches, storm water capture strategies, and funding options for capital improvement projects. This Storm Water Strategy also aims to establish financially sustainable storm water programs through additional grant funding and elimination of funding barriers.

This Storm Water Strategy identifies a ten year vision and mission with a description of outcomes anticipated (Table 1). Goals, objectives, and proposed projects are also identified (Table 2) to successfully implement the mission and achieve the vision. Finally, the Storm Water Strategy includes a phased implementation approach based on internal and external resources to accomplish the proposed projects.

Storm Water Strategy Vision

Successful implementation of the Storm Water Strategy will result in a future where *storm water is sustainably managed and utilized in California to support water quality and water availability for human uses as well as the environment.*

VISION

Storm water is sustainably managed and utilized in California to support water quality and water availability for human uses as well as the environment.

Storm Water Strategy Mission

To lead the evolution of storm water management in California by advancing the perspective that storm water is a valuable resource, supporting policies for collaborative watershed-level storm water management and pollution prevention, removing obstacles to funding, developing resources, and integrating regulatory and non-regulatory interests.

MISSION

To lead the evolution of storm water management in California by advancing the perspective that storm water is a valuable resource, supporting policies for collaborative watershed-level storm water management and pollution prevention, removing obstacles to funding, developing resources, and integrating regulatory and non-regulatory interests.

2. Introduction

In 1987, the United States Congress amended the Federal Water Pollution Control Act (Clean Water Act; CWA) to include section 402(p), requiring the United States Environmental Protection Agency (USEPA) to address storm water impacts to water quality. Almost 30 years later, storm water runoff from MS4s and from some construction sites and industrial facilities continues to be a ~~major~~ source of pollutants and has~~ve~~ contributed to ~~of~~ water quality impairments ~~throughout~~ in California (2010 Integrated Report). Consequently, it is imperative that the Water Boards' Storm Water Program continues to revise and update policies and plans to guide storm water regulation, draft and reissue permits, and improve efforts that address water quality problems resulting from storm water discharges.

Water management in California has historically been divided and compartmentalized into water quality, water supply, and flood control interests across a variety of state, county, and local agencies. With the impacts of population growth, climate change, and the current drought, storm water management must evolve into a more collaborative approach that recognizes the value of storm water as a resource that can be managed more effectively to improve both water quality and water supply. The primary approaches to improving storm water management ~~is~~ are through reduced runoff, ~~and~~ increased storm water retention, and pollution prevention.

2.1 Background

In 2013, the State Water Board recognized the need to formulate a long-term vision for the statewide storm water program. The California Water Action Plan, released in January 2014, further called for multiple benefit storm water management solutions and efficient permitting for multiple benefit projects. Additionally, in early 2014, the California Environmental Dialog (CED) conducted a special session to consider setting a vision for a "Storm Water Strategy." The overall vision of the session was to manage storm water in a manner that is beneficial to water quality and water supply (CED, 2014). In April 2014, the Water Boards responded by forming the Storm Water Strategic Initiative (Initiative). The goal of this effort was to transition the Storm Water Program to better address new challenges, including drought and climate change. Water Board staff (Staff) developed a concept paper and then met extensively with stakeholders to understand their interests and to solicit suggestions. The result was the Draft Proposal capturing the intention to integrate watershed management, including multiple benefits and source control, into the statewide storm water regulatory program to improve storm water management efficiency and effectiveness.

On August 19, 2015, the State Water Board held a workshop to receive input on the Proposal with presentations from the Department of Toxic Substances Control, California Stormwater Quality Association, California Coastkeeper Alliance, California Council for Environmental and Economic Balance, and the Business Community Coalition. Based on the feedback received during the workshop, Staff was directed to proceed with the Proposal's work plan and consider the following suggestions:

- Develop a strategic vision for the program with discrete goals.

- Consolidate the overlapping tasks and priorities into implementable projects.
- Leverage existing information and efforts.
- Facilitate the collaboration of regulatory and non-regulatory interests.
- Consider the creation of an Implementation Committee.

2.2 Relationship to the California Water Plan

The California Water Plan Update 2013 (Bulletin 160-13) provides a collaborative planning framework for elected officials, agencies, tribes, water and resource managers, businesses, academia, stakeholders, and the public to make informed decisions for our state's water future. The California Water Plan identifies statewide resource management strategies, and evaluates different combinations of these strategies to reduce water demand, increase water supply, reduce flood risk, improve water quality, and enhance environmental and resource stewardship.[2]

Urban Stormwater Runoff Management (**Figure 1**) is a resource management strategy identified in the California Water Plan with linkages to other resource management strategies, such as Urban Water Use Efficiency, Conjunctive Management and Groundwater Storage, Municipal Recycled Water, Pollution Prevention, Land Use Planning and Management, Recharge Area Protection, and Watershed Management. This Storm Water Strategy enhances these linkages by promoting storm water as a valuable resource where capture and use can result in multiple benefits within a watershed.

[2] http://www.waterplan.water.ca.gov/cwpu2013/final/index.cfm

Figure 1. Urban Stormwater Runoff Management

2.3 Relationship to the California Water Action Plan

The California Water Action Plan, issued by Governor Brown in January 2014, provides a roadmap for the first five years of the state's journey toward sustainable water management.[3] Ten actions (**Figure 2**) were identified in the California Water Action Plan to address the most important issues in the state, while also laying the groundwork for a sustainable future. The plan calls for an increased focus on projects with multiple benefits, such as storm water capture and floodplain reconnection, that can help simultaneously improve the environment, flood management, and water supplies. Collaboration between state, federal, and local governments, regional agencies, tribal governments, and the public and private sectors will be necessary for successful implementation. This Storm Water Strategy assists in achieving many of the actions identified in the California Water Action Plan by promoting multiple benefit projects where storm water is treated as a resource to be captured and used; therefore resulting in increased flood protection, integrated water management, protection of important ecosystems, and improvement of groundwater management.

[3] http://resources.ca.gov/california_water_action_plan/

Figure 2. California Water Plan Action Items

This Storm Water Strategy further emphasizes and supports the following actions identified in the California Water Action Plan:

- **Make Conservation a Way of Life**

  The 2009 Water Conservation Act (Senate Bill X7-7) aims to achieve a 20 percent reduction in urban per capita water use by December 31, 2020. The promotion of storm water capture and beneficial use is one of the many strategies identified in the California Water Action Plan to increase the value and awareness of how we use water in order to work toward this goal.

- **Increase Regional Self-Reliance and Integrated Water Management Across All Levels of Government**

  Over the past decade, the state has provided technical and financial assistance to regions to incentivize inter-agency/stakeholder cooperation in planning and implementing multi-objective actions that provide both regional and statewide benefits to water resources management and protection. Several projects identified in the Storm Water Strategy are intended to evaluate existing programs and propose modifications to incentivize integrated water management, promote storm water capture and use, and emphasize low impact development (LID) strategies in storm water permits.

- **Expand Water Storage Capacity and Improve Groundwater Management**

  Surface and groundwater storage is necessary to deal with the effects of drought and climate change on water supplies for human and environmental needs. Groundwater storage improvement consists of replenishing groundwater basins directly through injection, by allowing water to percolate into the ground naturally, or from constructed spreading basins and/or storm water capture. The Storm Water Strategy is supportive of the efforts identified in the California Water Action Plan to improve interagency

coordination and identify additional needs to evaluate groundwater recharge opportunities, such as capture and infiltration of storm water.

2.4 Relationship to Sustainable Groundwater Management

Sustainable groundwater management is an essential part of California's future. As such, on September 16, 2014, Governor Brown signed a three-bill package known as the Sustainable Groundwater Management Act.[4] The legislation charges local agencies with the management of local groundwater basins through the creation of groundwater sustainability agencies and groundwater sustainability plans. The State Water Board, in coordination with the Department of Water Resources, is committed to engaging local groundwater managers in the development of locally-driven sustainable groundwater solutions.[5]

The Department of Water Resources drafted a Strategic Plan that describes its responsibilities and vision for implementing the Sustainable Groundwater Management Act. The draft Strategic Plan outlines key actions the Department of Water Resources will undertake over the next several years to position itself to better support local agencies across California to achieve sustainable groundwater management.[6] In addition, the Department of Water Resources is developing regulations for groundwater sustainability plans, while allowing agencies the flexibility to customize these plans to their regional economic and environmental needs. The Department of Water Resources will review groundwater sustainability plans and, if found inadequate, will refer the plan to the State Water Board for intervention. Intervention could result in the State Water Board writing and implementing an interim groundwater sustainability plan where local efforts are not successful.

In compliance with the Sustainable Groundwater Management Act, and in concert with the Department of Water Resources' draft Strategic Plan, the Storm Water Strategy will assist efforts to sustainably manage groundwater through the removal of impediments to recharge such as through the capture and infiltration of storm water.

3. Vision and Mission

3.1 Storm Water Strategy Vision

Vision Statement

Storm water is sustainably managed and utilized in California to support water quality and water availability for human uses as well as the environment.

[4] http://groundwater.ca.gov/legislation.cfm
[5] http://www.waterboards.ca.gov/water_issues/programs/groundwater/workplan.shtml
[6] http://www.water.ca.gov/groundwater/sgm/

Vision Outcome (Ten Year)

Achieving this vision will result in a future where Californians understand the importance of water resources and incorporate this knowledge into home and work activities on a daily basis and are fully engaged in protecting this resource.

Furthermore, this vision encompasses a future where watershed processes critical to watershed health, such as overland flow, infiltration and groundwater recharge, interflow, and evapotranspiration, are improved and protected, where urbanized areas of California retain, infiltrate, and use rain falling within their jurisdictions and municipalities regularly build and maintain multi-benefit storm water projects to achieve positive community, watershed and water resource management outcomes.

And finally, achieving this vision will result in water resource practices that adapt to or offset the impacts of climate change, including moving or locating infrastructure outside of hazard zones, building resilient features that provide community, hydrologic, public safety and environmental benefits.

Table 1. Vision Outcome (Ten Year)

Achieving this vision will result in a future where -
Every Californian understands the importance of water resources and incorporates this knowledge into home and work activities on a daily basis and is fully engaged in protecting this resource.
Furthermore, this vision encompasses a future -
Where watershed processes critical to watershed health, such as overland flow, infiltration and groundwater recharge, interflow, and evapotranspiration, are improved and protected
Where urbanized areas of California retain, infiltrate, and use rain falling within their jurisdictions
Where municipalities regularly build and maintain multi-benefit storm water projects to achieve positive community, watershed and water resource management outcomes
And finally, achieving this vision will result in a future -
Where the impacts of climate change are offset through sustainable alternatives that optimize storm water as a resource.
Where the life cycle of materials is considered when~~to~~ determining~~e~~ what actions, behaviors, or processes could be altered to reduce the exposure and contributions to storm water.

3.2 Storm Water Strategy Mission of the Water Board along with Key Partners

To lead the evolution of storm water management in California by advancing the perspective that storm water is a valuable resource, supporting policies for collaborative watershed-level storm water management, minimizing barriers to collaborative watershed-level management, developing resources, and integrating regulatory and non-regulatory interests.

4. Implementation Strategy

An overall goal of the Storm Water Strategy is to leverage existing regulatory tools for management of storm water to better focus on incentive-driven multiple benefit approaches that achieve tangible results in terms of both improved water quality and supply. Concepts and efforts captured as part of the Draft Proposal (Appendix C~~B~~) were used to establish a framework for the following proposed implementation strategy. The intent is to establish priorities, focus energy and resources, and ensure that staff and stakeholders are working toward common goals.

4.1 Terminology

The following terms are defined in this document as follows:

- **Goal** – A broad statement describing a desired end state.
- **Objective** – A specific, measurable output that supports achievement of a goal.
- **Project** – A set of tasks that contribute to achievement of an objective.

4.2 Goals

The guiding principles identified in the Draft Proposal were developed by a multidisciplinary team composed of engineers, scientists, and geologists from the State and Regional Water Boards through a thoughtful internal process. The guiding principles were further refined through a stakeholder involved process that included representatives of environmental advocacy groups, non-profit organizations, storm water permittees, and the general public. In order to recognize and preserve the collaboration and thought placed into development of the guiding principles, they have been revised as the goals of this Storm Water Strategy. The goals listed below represent the fundamental values the Water Board aspires to uphold and advance, from the perspective of the regulator as well as the regulated community and other stakeholders. Furthermore, the manner in which each individual project addresses or contributes to the Storm Water Strategy's goals is detailed in the attached Proposed Project List (Appendix A).

Goal 1 – Change the Perspective that Storm Water is a Waste or Hazard, and Treat it as a Valuable Water Resource

Storm water is a valuable resource and a critical element of local sustainability. Past land development practices increased impervious areas and compacted soils, resulting

in less storm water infiltrating and more surface runoff. Traditional MS4s and infrastructure were designed to rapidly convey storm water from the landscape into receiving waters and eventually the ocean, bays, and estuaries. In many cases under predevelopment conditions, storm water would infiltrate and recharge the water table rather than discharge to surface waters. As a result of land use impacts, groundwater characteristics and flow regimes are also altered, reducing available groundwater supplies as well as base flow for perennial streams during dry periods. This paradigm needs to shift. Capturing and using storm water as a resource can provide multiple benefits such as offsetting drought related impacts through additional recharge and aquifer storage, mitigating storm water pollution, creating open space, enhancing fish and wildlife habitat, supporting watershed processes, and improving water use efficiency while mitigating the adverse effects of flood flows.

Goal 2 – Manage Storm Water to Preserve Watershed Processes and Achieve Desired Water Quality and Environmental Outcomes

In California, pollutants in storm water from urban areas are a primary cause of impairment of rivers, lakes, reservoirs, estuaries, and the ocean. Urbanization causes changes in the natural landscape and hydrology resulting in increased loads of pollutants, increased toxicity, changes in stream flow magnitude and frequency, changes in the seasonality of various discharges, physical changes to stream, lake, and wetland habitats, changes in the energy dynamics of food webs, sunlight, and temperature, and biotic interactions between native and exotics species. Management of storm water to maintain watershed processes within natural ranges can avoid these impacts. Restoring key watershed processes,[7] through actions such as retrofitting of the existing urban environment, can help mitigate the damage done by past land development practices.

Goal 3 - Implement Efficient and Effective Regulatory Programs

Improving the efficiency and effectiveness of the Water Boards' Storm Water Program increases Water Board productivity while concurrently achieving progress toward desired environmental outcomes. Because external stakeholders must focus on environmental outcomes, the Water Boards should ensure its regulatory and funding programs also focus on environmental outcomes. Implementing a more efficient and sustainable storm water program will allow staff to work on other important program issues and is a critical key to success of this effort. As California's population increases, pressure mounts on the environment, which leads to pressure on the Water Boards to improve regulatory results (e.g. updated permits, inspections, improved data management, policy changes). Accordingly, the Water Boards seek to improve regulatory results while also achieving environmental outcomes such as improved water quality, reliable water supply, and healthy watersheds.

[7] Key watershed processes include overland flow, rilling and gullying, infiltration and groundwater recharge, interflow (i.e., shallow groundwater flow), evapotranspiration, delivery of sediment and organic matter to waterbodies, and chemical/biological transformations.

Goal 4 – Collaborate in order to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches

While standard regulatory approaches such as issuing permits can be effective, other less common regulatory and source control approaches can play an important role in reducing pollutant discharges and protecting water quality. For example, removing pollutants before they enter storm water can be more effective than traditional treatment-based management practices. Limited resources have been applied to source control related techniques, such as product replacement, product substitutions, and green chemistry. Supporting, and where possible, implementing and incentivizing these concepts through the Water Boards' Storm Water Program can appreciably improve storm water quality at reduced cost relative to treatment-based management practices. For example, few materials commonly reported in storm water are evaluated from a lifecycle perspective: that is, what actions, processes, or handling techniques are causing high pollutant levels in storm water and what actions, behaviors, or processes could be altered to reduce the exposure. These types of actions necessitate extensive collaboration with industries and require those agencies with appropriate authorities to take action to achieve success. Additional efforts will include public and stakeholder outreach to share information and promote change.

4.3 Objectives and Projects

The projects identified in the Draft Proposal have been reevaluated and further developed into projects that support this Storm Water Strategy. The projects have been unified under six overarching objectives to identify cohesion among them. The projects listed under a particular objective may require the same partnerships for implementation, use similar resources, or be led by the same Staff member. The six objectives are as follows:

Objective 1 - Increase Storm Water Capture and Use through Regulatory and Non-Regulatory Approaches

The projects captured in this objective are intended to increase sustainable management of storm water by establishing a technical guidance on capture and use, identifying key market drivers for estimating a monetary value for storm water and providing permit-driven incentives for storm water capture. Furthermore, the projects will examine the technical, legal, and financial barriers to storm water capture, in order to address and resolve them.

Objective 2 - Increase Stakeholder Collaboration on a Watershed Scale

Watershed and waterbody scaled partnerships increase the efficacy of water quality improvement actions and ensure that regional projects receive adequate support and funding. The project captured in this objective promotes collaboration between flood control agencies, water conservation agencies, groundwater sustainability agencies,

municipalities, and other key partners, to work toward sustainable management and use of storm water.

Objective 3 - Establish Permit Pathways to Assess Storm Water Programs and Meet Water Quality Requirements

The projects captured in this objective aim to evaluate current storm water programs, with particular emphasis on the municipal program, and identify alternative compliance pathways, as well as the appropriate tools and methods applied to assess compliance with these compliance pathways.

Objective 4 - Establish Financially Sustainable Storm Water Programs

The cost of compliance is a major issue for many storm water permittees and a significant source of contention among the regulated community, environmental advocacy groups and Water Boards. The projects captured in this objective aim to identify the costs of compliance with the municipal, industrial, and construction permitting programs. Additionally, projects within this objective will focus on making funding accessible to storm water projects.

Objective 5 - Improve and Align State Board Oversight of Water Board Programs and Water Quality Planning Efforts

Storm water is unique in comparison to other types of discharges and these differences are rarely accounted for in program planning, data collection or integration with other monitoring efforts. The projects captured in this objective aim to improve program oversight through a data-driven approach, and align storm water data collection with other water quality planning efforts at the Water Board.

Objective 6 - Increase Source Control and Pollution Prevention

The projects captured in this objective aim to develop strategies to reduce storm water pollutant discharges to waterbodies through the promotion of source control and other non-regulatory strategies that would reduce the exposure of pollutants to runoff.

Each project listed below (**Table 2**) is described in detail in Appendix A. A description of the associated timelines and products for each project is also included in Appendix A.

Table 2: Objectives, Projects, and Goals

Objective	Projects	Goal
Objective 1 Increase Storm Water Capture and Use through Regulatory and Non-Regulatory Approaches	**Project 1a** – Promote Storm Water Capture and Use	1
	Project 1b – Identify and Eliminate Barriers to Storm Water Capture and Use	1
	Project 1c – Increase Storm Water Capture and Use through Regulatory Approaches	1
	Project 1d – Develop and Establish a Monetary Value of Storm Water	1
Objective 2 Increase Stakeholder Collaboration on a Watershed Scale	**Project 2a** – ~~Encourage~~ Increase Stakeholder Collaboration to Promote Storm Water as a Resource	1 4
Objective 3 Establish Permit Pathways to Assess Storm Water Programs and Meet Water Quality Requirements	**Project 3a** – Develop Guidance for Alternative Compliance Approaches for Municipal Storm Water Permit Receiving Water Limitations	2
	Project 3b – Develop Watershed-Based Compliance and Management Guidelines and Tools	2
	Project 3c – Assess Municipal Storm Water Program Monitoring and Effectiveness	3
	Project 3d – Establish Statewide Regulatory Framework for Municipal Storm Water Programs	3
	Project 3e – Standardize Minimum Control Measures for Specific Municipal Program Elements	3
	Project 3f – Develop Guidance for Implementation of Post-Construction Requirements to Improve Watershed Health	2
	Project 3g – Establish Guidance for Storm Water Program Asset Management Planning and Cost Estimation	3
Objective 4 Establish Financially Sustainable Storm Water Programs	**Project 4a** – Implement Senate Bill 985 – Incorporate Principles~~Requirement~~s of Storm Water Resource Plan Guidelines into Storm Water Programs	1 2
	Project 4b – Eliminate Barriers to Funding Storm Water Programs and Identify Funding for Storm Water Capture and Use Projects	1 2 3

Objective	Projects	Goal
	Project 4c – Identify Municipal Storm Water Permit Compliance Costs	3
	Project 4d – Identify Industrial and Construction Storm Water Permit Compliance Cost	3
Objective 5 Improve and Align State Board Oversight of Water Board Programs and Water Quality Planning Efforts	**Project 5a** – Create Storm Water Program Data and Information "Open Data"	3
		4
	Project 5b – Evaluate and Increase Storm Water Permit Compliance	3
		4
	Project 5c – Establish Sector-specific Technology-based Numeric Effluent Limitations for Industrial and Construction Storm Water Permits	3
		4
	Project 5d – Align Water Quality Statewide Planning Efforts with Storm Water Program Implementation – Pilot Project Using the Biological Integrity Plan	3
Objective 6 Increase Source Control and Pollution Prevention	**Project 6a** – Establish Statewide Framework for Urban Pesticide Reduction	4
	Project 6b – Identify Opportunities for Source Control and Pollution Prevention	4
	Project 6c – Evaluate and Implement Trash Control	3
		4
Goal 1 – Change the Perspective that Storm Water is a Waste or Hazard, and Treat it as a Valuable Water Resource		
Goal 2 – Manage Storm Water to Preserve Watershed Processes and Achieve Desired Water Quality and Environmental Outcomes.		
Goal 3 - Implement Efficient and Effective Regulatory Programs		
Goal 4 – Collaborate in order to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches		

5. Implementation Resources

The State Water Board, Division of Water Quality (Division), created the Storm Water Planning Unit through redirection of existing Division resources. The unit consists of one Senior Water Resource Control Engineer, four Water Resource Control Engineers (two of which are Limited Term), one Engineering Geologist, and one Environmental Scientist. These staff are dedicated to successful implementation of the Storm Water Strategy.

The Storm Water Planning Unit will recognize the multi-benefit aspect of the Storm Water Strategy as it will overlap with a variety of State Water Board programs. The implementation of the Storm Water Strategy will bring together those involved in storm water permitting, storm water resource planning, funding programs, groundwater management, and water rights. The Storm Water Strategy will provide the opportunity to coordinate these interests and collaborate on the identification of program priorities, and the application of regulations, policies, and funding. A Water Board Storm Water Program Roundtable also exists to ensure efficient, consistent, and effective implementation of program requirements and ~~directions from management~~ policy direction by providing a forum for the following: 1) incubation of ideas and information exchange, 2) consideration of program challenges and associated lessons learned, 3) consideration of program improvements, and 4) development of collective feedback and recommendations on program implementation and improvement. Priorities identified for the storm water program by this roundtable will be captured and updated as part of this Strategy.

The Storm Water Planning Unit will collaborate with other related Water Board programs including but not limited to, storm water permitting, basin planning, TMDLs, Surface Water Ambient Monitoring Program (SWAMP), enforcement, water rights, funding, and groundwater management, to ensure that input, updates, and assistance are provided holistically from a Water Boards perspective (**Figure 3**). In addition, the Water Boards have assigned four Executive Sponsors, along with committed participation from staff in four Regional Water Boards (San Diego, Los Angeles, Central Coast, and North Coast) to assist and provide regional expertise and guidance for project outcomes.

Figure 3. Storm Water Planning Interconnectivity with Water Board Programs

Additional non-Water Board ancillary resources include, but are not limited to:

- **Contractors supported through project contract funding**
  The State Water Board may provide limited discretionary funding to the University of California, California State University, or other research organizations to evaluate highly controversial issues or perform technical studies outside their expertise or to provide equipment and services not available in-house. Because the regulated community and environmental advocacy groups differ significantly on how storm water should be managed, using third party contractors to assist in assessing controversial issues will provide significant benefit to the Water Boards as well as stakeholders. Typically, the products and deliverables generated as a result of these contracts directly influence permit conditions and requirements. Existing examples are described below.

    - Project 1a is intended to support Goal 1 to stimulate greater storm water capture and use in California. Significant feedback was received during initial outreach and stakeholder meetings from the storm water community suggesting that legal, economic, and technical hurdles limit storm water capture and use. This project is contracted to Office of Water Programs at California State University at Sacramento to assess and evaluate the actual benefits that may be realized in California with storm water capture and use, identify critical legal, economic, and technical hurdles that currently impede municipalities from implementing storm water capture and use, identify forcing factors that significantly affect the success of existing projects, and identify opportunities for expansion of capture and use approaches in California. The goal of this project is to provide the basis for development of a storm water capture and use policy for California.

    - Project 3a is intended to directly address Goal 2 to manage storm water to preserve watershed processes to achieve desired water quality outcomes. In California, municipal storm water permits are increasingly incorporating alternative compliance pathways in order to better preserve and protect watershed processes as well as water quality. Assessing compliance with alternative compliance pathways requires sophisticated watershed and water quality based models and forecasting tools to assess whether planned improvements and associated infrastructure will meet permit requirements. This project is intended to address the quality and improve the consistency of reasonable assurance analyses throughout the state, and address the significant sources of uncertainty within the data tools and studies these analyses rely upon. This project is also contracted to Office of Water Programs at California State University at Sacramento.

- **Storm Water Strategy Implementation Committee**
  A Storm Water Strategy Implementation Committee (Implementation Committee) ~~will~~ is expected to provide a forum for stakeholders from other state agencies, the regulated community, and nonprofit organizations to work with staff on continued ~~the~~ evaluation and guidance of the Storm Water Strategy ~~with the State Water Board serving as lead~~. Staff anticipates the following sectors and organizations to be represented on the Implementation Committee:
  - Environmental advocacy groups
  - Phase I and phase II municipal storm water permittees
  - Industrial and construction storm water permittees
  - Water suppliers
  - Public owned treatment works (wastewater)
  - Public health agencies/organizations
  - Businesses with storm water interests
  - Other appropriate sectors

  The sector and organizational specific representatives will be decided by the attendees at a kickoff meeting. The Implementation Committee will discuss and coordinate applicable regulatory programs and policies to develop mutually beneficial approaches to storm water management for common objectives. The Implementation Committee will meet periodically (initially quarterly) at varying locations to discuss additional collaboration opportunities, impacts and interpretation of regulations, regional storm water capture considerations and priorities, performance metrics, and ongoing program feedback and recommendations. This committee will serve in an advisory capacity for the benefit of staff and management and ~~Unless otherwise directed by the Board, this Implementation Committee will~~is expected to sunset in seven years.

- **Regional Pilot Projects**
  Any regional efforts proposed, already underway or completed that can provide additional information to the projects identified in this Storm Water Strategy will be captured. The extent of the information will be systematically evaluated and compiled for consideration as a resource or as information to guide subsequent strategic efforts. The regional nature of the information must be considered within the context of California's watersheds, and categorized accordingly. To the extent feasible, the information will also be made available through the Water Board as part of a library of resources to be accessed by both the regulatory and non-regulatory community. A list of potential pilot projects identified by interested parties is included in Appendix B.

5.1 Training and Information Sharing

As an ongoing project, the Storm Water Planning Unit will review the available storm water management training opportunities and identify gaps in storm water education. The unit will develop and/or conduct training events with staff, the regulated community, and the public as

directed by the analysis. This ongoing project was not included in the formal project list because it has no distinct timeline and is ongoing as information is developed and staff changes occur. However, it is included in this Storm Water Strategy to communicate the intention of the Storm Water Planning Unit to continually evaluate the need for specific storm water training and educational outreach.

5.2 Proposed Phased Implementation of Projects

The following three-phased implementation plan was developed based on projects available to initiate, individual project priority, regional pilot projects available, Water Board resources available, Regional Water Board resources available, and contract funding. Target start and completion dates are estimations and may be revised at a later date.

5.2.1 Proposed Phase I Projects

The following projects are recommended for implementation as part of the Phase I Projects (Table 3). These projects will be initiated immediately, with deliverables and project completion targeted within four years. The projects will use a combination of State Water Board staff, Regional Water Board staff, and contracted partners to achieve the objectives.

Table 3. Phase I Projects

Phase I Projects	Target Start	Target Completion
1a. Promote Storm Water Capture and Use	2016	2018
1b. Identify and Eliminate Barriers to Storm Water Capture and Use	2016	2019
3a. Develop Guidance for Alternative Compliance Approaches for Municipal Storm Water Permit Receiving Water Limitations	2016	2019
3b. Develop Watershed-Based Compliance and Management Guidelines and Tools	2016	2019
4a. Implement Senate Bill 985 – Incorporate Principles~~Requirement~~s of Storm Water Resource Plan Guidelines into Storm Water Programs	2016	2018
4b. Eliminate Barriers to Funding Storm Water Programs and Identify Funding for Storm Water Capture and Use Projects	2016	2018
5a. Create Storm Water Program Data and Information “Open Data”	2016	2020
6a. Establish Statewide Framework for Urban Pesticide Reduction	2016	2018
6b. Identify Opportunities for Source Control and Pollution Prevention	2016	2020

5.2.2 Proposed Phase II Projects

Proposed Phase II Projects are targeted for completion within eight years of initiating the program. Lessons learned from the Phase I Projects may influence the scope, ~~and~~ priority, and identification of the Phase II Projects (Table 4) resulting in potential changes and/or additions to Table 4. Estimated start dates were determined based on the average targeted completion date of Phase I Projects with the exception of a Phase II Project with identified prerequisites. In that case the start date immediately follows completion of the prerequisites. Alternatively, additional contractor funding may be necessary to partner on a project, or to initiate a project on a timeframe independent of Water Board staff resources.

Table 4. Phase II Projects

Phase II Projects	Prerequisites	Target Start	Target Completion
1c. Increase Storm Water Capture and Use through Regulatory Approaches	1a, 1b	2019	2021
1d. Develop and Establish a Monetary Value of Storm Water	None	2019	2023
2a. ~~Encourage~~ Increase Stakeholder Collaboration to Promote Storm Water as a Resource	None	2019	2021
3c. Assess Municipal Storm Water Program Monitoring and Effectiveness	None	2019	2022
3d. Establish Statewide Regulatory Framework for Municipal Storm Water Programs	None	2019	2024
3f. Develop Guidance for Implementation of Post-Construction Requirements to Improve Watershed Health	None	2019	2023
4c. Identify Municipal Storm Water Permit Compliance Cost	None	2019	2021
5b. Evaluate and Increase Storm Water Permit Compliance	None	2019	2021
5d. Align Water Quality Statewide Planning Efforts with Storm Water Program Implementation – Pilot Project Using the Biological Integrity Plan	None	2019	2021
6c. Evaluate and Implement Trash Control	None	2019	2022

5.2.3 Proposed Phase III Projects

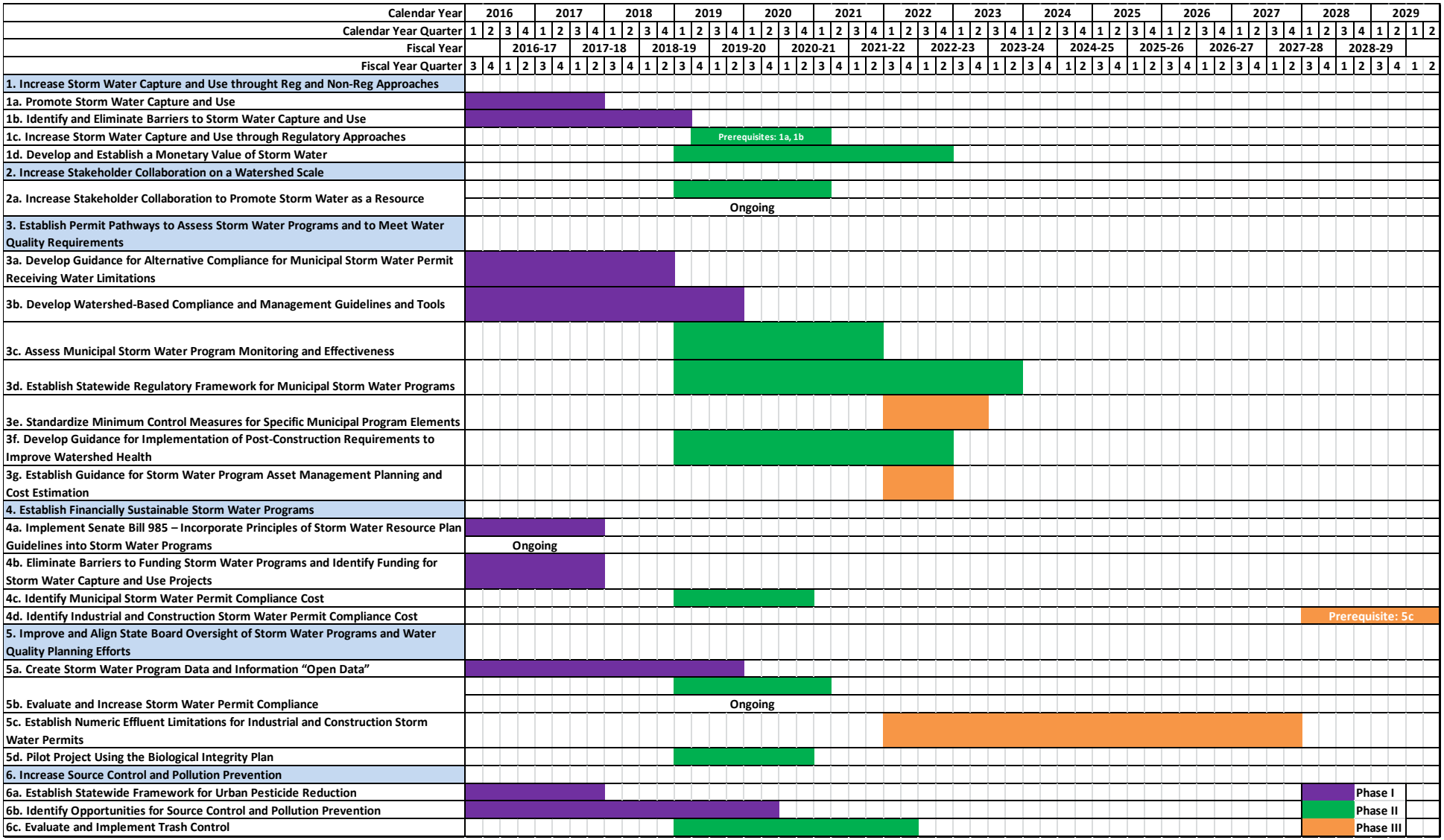
Phase III Projects have been targeted for completion within twelve years of initiating the program (**Table 5**). Proposed Phase III Projects include projects categorized as medium and low priority. Estimated start dates were determined based on the average targeted completion date of Phase II Projects with the exception of a Phase III Project with an identified prerequisite. In that case the start date immediately follows completion of the prerequisite.

Table 5. Phase III Projects

Phase III Projects	Prerequisites	Target Start	Target Completion
3e. Standardize Minimum Control Measures for Specific Municipal Program Elements	None	2022	2023
3g. Establish Guidance for Storm Water Program Asset Management Planning and Cost Estimation	None	2022	2023
4d. Identify Industrial and Construction Storm Water Permit Compliance Cost	5c	2028	2030
5c. Establish Sector-specific Technology-based Numeric Effluent Limitations for Industrial and Construction Storm Water Permits	None	2022	2028
~~6c. Evaluate and Implement Trash Control~~	~~None~~	~~2022~~	~~2025~~

A timeline illustrating the projects included in the Storm Water Strategy is included as **Figure 4**. Additional work will likely occur, in many cases, beyond the times shown; however, specific activities are not yet clearly identified.

Figure 4. Timeline of Proposed Projects



6. Measuring and Reporting Progress

The following performance reporting mechanisms are intended to evaluate the success of the Storm Water Strategy in making progress towards the goals identified.

6.1 Performance Reporting - Part I

Currently, information collected by the Water Boards includes permittee information (enrollment in general permit, co-permittees, type of facility, industry code, location, size, etc.), compliance evaluations (inspections, ad-hoc and annual report review, etc.), and enforcement actions (notices of violation, notices of non-compliance, formal enforcement, etc.). Overall Storm Water Strategy performance measures cannot be established based on the data collected at this time. The intent of proposed Project 5a (Storm Water Program Data and Information "Open Data") is to increase the amount and use of storm water data and information for Water Boards' decision making and program performance review. Accordingly, completion of proposed Project 5a will be integral to identifying and achieving data driven performance measures and their targets.

The Water Boards, in conjunction with the Implementation Committee proposed in Section 5 above, will complete the development of specific data-driven performance measures and their targets. State Water Board staff will create baselines, set appropriate targets, and measure progress toward the targets with periodic updates provided to the State Water Board.

6.2 Interim Performance Reporting - Part II

<u>Integrated Regional Water Management (IRWM) Funding Provided to Storm Water Projects</u>
The Storm Water Resource Planning Act (Senate Bill 985) requires the development of a watershed-based Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. The Storm Water Resource Plan must include a prioritized list of storm water and dry weather capture projects and be integrated into the appropriate IRWM Plan. The integration of the Storm Water Resource Plan into an IRWM Plan is intended to facilitate the partnering of the various water quality, water supply, and environmental interests.

Two previous voter-approved bonds, Proposition 50 and 84, included funds for IRWM projects. Proposition 50 funds were co-managed by the State Water Board and the Department of Water Resources, and Proposition 84 funds were managed entirely by the Department of Water Resources. The projects funded through both of the IRWM grants were spread across the state, and some of the regions included both storm water and dry weather runoff capture projects.

In order to quantify the impact of Senate Bill 985, the amount of Propositions 50 and 84 IRWM funds that were awarded to storm water and dry weather capture projects will be identified and summarized as a reference or baseline. **As the Proposition 1 IRWM funds are awarded, those projects will be screened for storm water capture projects to include in the**

tracking summary and compare to previous IRWM grant programs (Propositions 50 and 84).

Annual Accounting and Reporting of Information-Sharing Outlets

One method to achieve Goal 1 (Change the Perspective that Storm Water is a Waste or Hazard, and Treat it as a Valuable Water Resource) is to identify, establish, and capitalize on opportunities for public outreach and education by the State Water Board's Storm Water Planning Unit. **An accounting of media outlets (lyris e-mails, websites, social networking, etc.), public training classes, and speaking opportunities will be conducted annually.** A table summary report will be established and updated on the State Water Board's Storm Water Strategy website.

Year 5 - Stakeholder Follow-up Survey

Over twenty stakeholder meetings were conducted in the summer and fall of 2014 as part of an initial stakeholder process. Each meeting targeted specific groups including representatives from environmental advocacy groups, non-profit organizations, municipal storm water permittees, industrial and construction storm water permittees, the general public, and Regional Water Board staff to gather input on how to improve the effectiveness of the Storm Water Program. Cumulatively, forty issues were identified through this process as barriers to effective storm water management and water quality protection.

By Year 5, a follow-up survey will be conducted targeting the same initial stakeholder groups discussed above. Survey questions will be crafted to closely follow the questions asked during the stakeholder meetings held in 2014. Successful implementation of the Storm Water Strategy will result in fewer identified issues as compared to the 2014 compilation.

7. ~~Plan~~ Strategy Updates and Revisions

The Storm Water Strategy is envisioned as a living process that will take advantage of the interactive nature of the internet. Accordingly, an interactive website will be created to display the Storm Water Strategy's goals, objectives, and associated projects, while also providing routine project status updates and deliverables.

In addition, the interactive website will be designed to integrate previous comments received and new stakeholder input ~~such that anyone can provide input~~ on specific sections of the Storm Water Strategy. The interactive nature of this format will generate new connections, concepts, and solutions for the goals of the Storm Water Strategy. Lessons learned from projects initiated in previous phases of implementation may also influence the scope and priority of future projects or result in new projects being added to the Storm Water Strategy~~-~~.

There are many regulatory, non-governmental organizations, and educational institutions with efforts that support the goals and objectives of the Storm Water Strategy. The interactive

website will also be used as a repository for linking existing efforts and will attempt to consolidate content of ongoing studies, data, and/or regulations.

APPENDIX A - PROPOSED PROJECT LIST

December 2015

Strategy To Optimize Resource Management of Storm Water

New insertions are in Blue Underline and deletions in ~~Red Strikeout~~

Strategy to Optimize Resource Management of Storm Water

Proposed Project List

Table of Contents

Strategy to Optimize Resource Management of Storm Water

Proposed Project List

Introduction

This document contains a proposed list of projects developed during the Storm Water Strategic Initiative process. The projects listed in the Draft Proposal for a Storm Water Program Workplan and Implementation Strategy (Appendix B) were reorganized (Table 1) and developed in more detail, as recommended at the August 19, 2015, public workshop. Without eliminating content from the original project list, similar projects were grouped together under unifying objectives. The objectives help categorize and connect projects, to support the intention that the projects should not be viewed as stand-alone efforts. The projects listed under a particular objective may require the same partnerships for implementation, use similar resources, or be headed by the same staff member. By recognizing the cohesion among projects, projects can be implemented in concert to increase the efficiency and effectiveness of the Storm Water Program's efforts. The term "project" refers to any action or work element the Storm Water Program pursues to achieve the Water Boards' goals. Each project description includes the following categories:

Storm Water Strategy Objective

Brief description of overall objective

- List of Projects

Project Number: Project Title

Priority: Project priority rank based on scored criteria.

Assessment: Explanation of prioritization based on three summary criteria: (1) how important is completing the project for the Storm Water Program to align with the goals, (2) how achievable is the project, and 3) do the Water Boards have the needed authority and resources to complete the project?

Prerequisite: Other project(s) that will inform or must be completed prior to initiation of a project.

Goal(s): The goal(s) each project addresses. The four goals of the Strategy to Optimize Resource Management of Storm Water (Storm Water Strategy) are to:

1. Change the Perspective that Storm Water is a Waste or Hazard, and Treat it as a Valuable Water Resource
2. Manage Storm Water to Preserve Watershed Processes and Achieve Desired Water Quality and Environmental Outcomes
3. Implement Efficient and Effective Regulatory Programs
4. Collaborate in Order to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches

Project Objective: A specific action item that supports the identified goal(s).

Scope: A scope of work to accomplish the project objective.

Strategy to Optimize Resource Management of Storm Water

Proposed Project List

Background: Information, including barriers, regarding the project. Previous and/or current information is also included to assist in developing the project scope.

~~**Current Pilot Project(s)**: A small-scale/regional project that may be leveraged, or used to inform a proposed project.~~

Product and Timelines: For each major task, the resulting product is identified and estimates of the timeline and required resources are provided. Resource estimates are given in terms of both staff resource allocations and contract funds.

Strategy to Optimize Resource Management of Storm Water

Proposed Project List

Table 1. Current Project Number, Project, and Draft Proposal for a Storm Water Program Workplan and Implementation Strategy (Draft Proposal) Project Number

Project Number	Project	Draft Proposal Project Number
1a	Promote Storm Water Capture and Use	1a
1b	Identify and Eliminate Barriers to Storm Water Capture and Use	1b
1c	Increase Storm Water Capture and Use through Regulatory Approaches	1c
1d	Develop and Establish a Monetary Value of Storm Water	3
2a	~~Encourage~~ Increase Stakeholder Collaboration to Promote Storm Water as a Resource	2
3a	Develop Guidance for Alternative Compliance Approaches for Municipal Storm Water Permit Receiving Water Limitations	5
3b	Develop Watershed-Based Compliance and Management Guidelines and Tools	6
3c	Assess Municipal Storm Water Program Monitoring and Effectiveness	12
3d	Establish Statewide Regulatory Framework for Municipal Storm Water Programs	16
3e	Standardize Minimum Control Measures for Specific Municipal Program Elements	15
3f	Develop Guidance for Implementation of Post-Construction Requirements to Improve Watershed Health	7
3g	Establish Guidance for Storm Water Program Asset Management Planning and Cost Estimation	11
4a	Implement Senate Bill 985 – Incorporate ~~Requirements~~Principles of Storm Water Resource Plan Guidelines into Storm Water Programs	4
4b	Eliminate Barriers to Funding Storm Water Programs and Identify Funding for Storm Water Capture and Use Projects	8
4c	Identify Municipal Storm Water Permit Compliance Cost	9
4d	Identify Industrial and Construction Storm Water Permit Compliance	10
5a	Create Storm Water Program Data and Information “Open Data”	13
5b	Evaluate and Increase Storm Water Permit Compliance	14
5c	Establish Sector-specific Technology-based Numeric Effluent Limitations for Industrial and Construction Storm Water Permits	18
5d	Align Water Quality Statewide Planning Efforts with Storm Water Program Implementation – Pilot Project Using the Biological Integrity Plan	20
6a	Establish Statewide Framework for Urban Pesticide Reduction	22
6b	Identify Opportunities for Source Control and Pollution Prevention	21
6c	Evaluate and Implement Trash Control	19
Ongoing	Training and Information-Sharing for Water Board Staff and the Regulated Community	17

Objective 1: Increase Storm Water Capture and Use through Regulatory and Non-Regulatory Approaches

The projects captured in this objective are intended to increase sustainable management of storm water by establishing a technical guidance on capture and use, identifying key market drivers for estimating a monetary value for storm water and providing permit-driven incentives for storm water capture. Furthermore, the projects will examine the technical, legal, and financial barriers to storm water capture, in order to address and resolve them. The projects are the following:

- Project 1a – Promote Storm Water Capture and Use
- Project 1b – Identify and Eliminate Barriers to Storm Water Capture and Use
- Project 1c – Increase Storm Water Capture and use through Regulatory Approaches
- Project 1d – Develop and Establish a Monetary Value of Storm Water

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Project 1a Promote Storm Water Capture and Use

Priority: Very High, *Assessment: Critically important, readily achievable*

Prerequisite: None

Goal(s): 1 – Change the Perspective that Storm Water is a Waste or Hazard, and Treat it as a Valuable Water Resource

Project Objective: Develop strategies and set regionally-based goals to increase storm water capture and use.

Scope: Identify existing storm water capture and use strategies the Water Boards are successfully utilizing to maintain and restore storm water infiltration and achieve multiple benefits such as, flood control, drought and climate change preparedness, water supply augmentation, groundwater recharge, water quality improvement, habitat restoration and protection, and recreational uses (open space). Consider broadening the use of existing strategies, where appropriate, for implementation throughout the state. Consider new opportunities to increase storm water capture and use. Identify how to align Water Board programs addressing conservation, recycled water, and groundwater management with storm water capture actions that implement multiple benefit projects. With this information, produce regionally-based metrics (or a suite of metrics) for short-term and long-term storm water capture and beneficial use goals. In the project documentation, include the technical rationale and scientific basis of the goals, and implementation requirements including quantifiable measures indicating attainment of the project goal(s). Additionally, commit to the goals and any metrics developed for quantifying the expected storm water capture and beneficial use.

Background: This project represents continued steps forward from the storm water reuse goal identified in the State Water Board's Recycled Water Policy (as amended in State Water Board Resolution 2013-003), by establishing detailed, regionally-based goals and quantifiable performance measures. The current drought has created additional pressure on the state to

manage its water resources more effectively, as reflected by the goal in Governor Brown's Executive Order B-29-15 to reduce statewide water use by 25 percent. Beyond drought response, storm water projects that provide multiple benefits, in addition to storm water capture and treatment, present opportunities for better buy-in by communities. For example, well-conceived storm water resource projects can provide additional public benefits including increased space for public recreation, increased tree canopy, and increased stream and riparian habitat area, resulting in an overall increased sense of ownership and pride in the natural infrastructure and community empowerment. By establishing a statewide goal for storm water capture and beneficial use, the State Water Board will lead the state's effort to incorporate storm water capture and use in its management of water resources. A statewide storm water capture and use goal will serve as the impetus to implement storm water capture and multiple benefit projects, such as Projects 1b and 1c below. The State Water Board acknowledges that in order to achieve such a goal, local and regional agencies must cooperate and implement their own independent mandates that support the goal. Some agencies, such as the Santa Ana Watershed Project Authority's "One Water, One Watershed" Plan have already benefited from a comprehensive approach that treats storm water as a resource.

~~**Current Pilot Project(s)**:~~

- ~~Central Coast LID Initiative on developing technical guidance and identifying associated policy and regulatory issues related to the use of dry wells for enhanced storm water infiltration and groundwater augmentation in the City of Gonzales~~

Products and Timelines:

1.5 Years: Develop a staff report identifying strategies for increasing storm water capture and beneficial use.

6 Months: Prepare a draft Storm Water Capture and Use Item for State Water Board consideration of adoption.

Project 1b Identify and Eliminate Barriers to Storm Water Capture and Use

Priority: High, *Assessment: Critically important, achievable with moderate barriers*

Prerequisite: None

Goal(s): 1 – Change the Perspective that Storm Water is a Waste or Hazard, and Treat it as a Valuable Water Resource

Project Objective: Identify actions required to eliminate existing legal/regulatory, political, logistic and technical barriers to the implementation of storm water capture and beneficial use and begin to implement them.

Scope: The intent of this project is to increase understanding and address the limitations to the capture and use of storm water. Barriers are diverse and include technical, political, legal/regulatory, and logistical issues, and may differ from region to region. The analysis of technical barriers include: (1) technical feasibility challenges often encountered when attempting storm- water quality retrofit projects; (2) a description of high-potential urban retrofit project types to support storm water treatment, infiltration and groundwater augmentation (such as detention, retention, and catch basin retrofits); and (3) a summary of potential risks to groundwater quality from infiltration-based storm water management designs (e.g., infiltration basins, bioretention, dry wells) and methods to avoid potential contamination. Identify and evaluate legal considerations, including water rights, instream environmental impacts, and storm water infiltration in adjudicated and non-adjudicated basins. Political and logistical barrier considerations may include potential mitigation by the new Sustainable Groundwater Management Act (SGMA), and the unintended consequences on public health due to vector control issues.[1] Identify and, where feasible, implement follow-up actions to address the identified barriers.

Background: Storm water capture projects are often hindered by concerns related to: water quality, water rights, stream and wetland ecosystem impacts, and funding. Guidance on the technical aspects of determining water quality treatment needs for different types of use, identification of appropriate stream hydrographs to support public trust uses and natural processes, and legal analyses and guidanceopinions on water rights implications, is needed before many stakeholders can support increased storm water capture and use and funding of such projects. Financial barriers to storm water capture and use are addressed in Project 6b below.

Current Pilot Project(s): None

Products and Timelines:

9 Months: Develop a staff report identifying barriers to storm water capture and recharge, and recommend actions to remove or alleviate identified barriers, as appropriate.)

6 Months: Develop guidance for Board consideration, where needed, for addressing legal and technical barriers to implementing storm water capture and use projects.

2 Years: Implement actions identified in the staff report to remove or alleviate barriers.

Project 1c Increase Storm Water Capture and Use through Regulatory Approaches

Priority: Very High, *Assessment: Critically important, readily achievable*

[1] The Mosquito and Vector Control Association of California (www.mvcac) created a white paper titled, "How Better Planning and Use of the California Environmental Quality Act Can Prevent Mosquitoes and Vector-Borne Disease" discussing the benefits for developers, natural resources and public health when adding vector control considerations to local government project planning and design.

Strategy to Optimize Resource Management of Storm Water

Proposed Project List

Prerequisite: This project will be informed by Projects 1a and 1b, and should be implemented subsequent to the staff reports developed as outcomes resulting of those projects.

Goal(s): 1 ~~.~~ Change the Perspective that Storm Water is a Waste or Hazard, and Treat it as a Valuable Water Resource

Project Objective: Adopt storm water policies, guidelines, and permits to incentivize storm water capture and use.

Scope: Review current storm water permits, policies, and programs to identify where storm water capture and beneficial use can be required or incentivized for both new and existing development. Focus the analysis on the results of Projects 1a and 1b. Consider requiring or incentivizing multiple-benefit approaches, green infrastructure, flood control, regional storm water retention, infiltration facilities, and direct use. Options for regulatory requirement-based actions and incentives could include: (1) incentivizing multiple-benefit project proponents through alternative compliance pathways consistent with the principles discussed in the adopted order resolving the Los Angeles Municipal Separate Storm Sewer System (MS4) Petition; (2) providing funding and financial tools to encourage retrofits and/or alternative compliance pathways; (3) requiring or incentivizing retrofits of existing infrastructure; and (4) using existing regulatory authority to ensure implementation of multiple benefit projects and retrofits.

Background: Traditional permitting practices mainly focus on storm water capture and use for new development/redevelopment and less on modifying the existing urban landscape. Moreover, few permits provide incentives to increase storm water capture and use but rather create unintended obstacles to implementing storm water capture/use. A concerted effort to retrofit the existing urban landscape to green infrastructure is needed to restore storm water infiltration capacity previously lost in developed areas. While large-scale retrofits to urban landscapes appear to be costly, cost-effective options for increasing storm water capture and use while achieving environmental outcomes may include: (1) converting to green infrastructure at the end of existing infrastructure life-cycles; (2) using simple retrofits like standardized parkway curb cuts in public rights of way; and (3) establishing healthy, living soil in landscaped areas. Increasing storm water infiltration in developed areas provides multiple benefits, including improving groundwater recharge, restoring lost watershed processes such as base flow to creeks, and reducing pollutant loads discharged to surface waters.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

1.5 Years: Develop a staff report to identify opportunities to require and incentivize storm water capture and use.

6 Months: Prepare a draft Item of proposed regulatory approaches for State Water Board consideration of adoption.

Project 1d Develop and Establish a Monetary Value of Storm Water

Priority: Medium, *Assessment: Critically important, achievable with significant barriers*

Prerequisite: None

Goal(s): 1 – Change the Perspective that Storm Water is a Waste or Hazard, and Treat it as a Valuable Water Resource

Project Objective: Create a Water Boards-supported framework establishing a monetary value of storm water in volumetric terms as an additional source of local water supply as well as its value to water quality. Collaborate with the appropriate agencies and stakeholders to institutionalize values of storm water.

Scope: Develop a storm water value framework that will establish a method for calculating the net unit cost of storm water as a water supply source, as compared to the current and projected cost of imported water. The method will consider: (1) groundwater basin-specific factors that will affect the cost of infiltration and extraction for potable use; (2) the cost offset for water quality protection; (3) the cost for imported water; and (4) other factors that influence the monetary value of storm water.

Upon completion of the value framework, evaluate mechanisms for multi-agency agreements that promote storm water capture and use projects. Identify and evaluate the pros and cons of each mechanism. Identify and evaluate legal hurdles and opportunities. The mechanisms could include Memorandums of Agreement (MOAs) or Joint Power Agreements (JPAs) between municipalities and water agencies that address water rights issues, facilitate cooperative funding of storm water capture projects, and establish a crediting system or dedicated revenue stream for municipalities based on the volume of storm water recharged.

Background: Many stakeholders commented that in order for storm water capture and use projects to gain traction, there needs to be an established framework for calculating the monetary value of storm water. The City of Los Angeles Department of Water and Power and the Natural Resource Defense Council have both conducted focused studies to quantify the potential for storm water capture and use projects (Los Angeles and the Bay area, respectively); however, the effort to establish a monetary value has proven challenging and is driven in many cases by local conditions and agency needs. UCLA's Luskin Center and the Pacific Institute have completed some preliminary work on the monetary value of storm water and are currently working to broaden the research on the economic value of storm water.

The SGMA may create a new mechanism for monetizing storm water through the implementation of groundwater sustainability plans. Restrictions on extractions implemented through sustainability plans may cause local groundwater markets to mature without impacting surface water rights. As markets develop, storm water use will be increasingly incentivized. A monetary framework developed within the next five years could support leveraging storm water as a resource when sustainability plans are adopted five to seven years from now.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

2 Years: Prepare staff report outlining methods and results of economic value of storm water (or incorporate the results of other studies into Staff Guidance). Compile case studies (if available) and prepare and approve template MOA/JPA legal documents for municipality and water agency water crediting partnerships.

2 Years: Propose a framework for storm water capture and recharge crediting systems to be incorporated into institutional mechanisms. Prepare an item for State Water Board consideration of adoption.

Objective 2: Increase Stakeholder Collaboration on a Watershed Scale

Watershed and waterbody scaled partnerships increase the efficacy of water quality improvement actions and ensure that regional projects receive adequate support and funding. The project captured in this objective promotes collaboration between flood control agencies, water conservation agencies, groundwater sustainability agencies, municipalities, and other key partners, to work toward sustainable management and use of storm water. The project is the following:

- Project 2a – ~~Encourage~~ Increase Stakeholder Collaboration to Promote Storm Water as a Resource

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Project 2a ~~Encourage~~ Increase Stakeholder Collaboration to Promote Storm Water as a Resource

Priority: Medium, *Assessment: Critically important, achievable with significant barriers*

Prerequisite: None

Goal(s): 1 – Change the Perspective that Storm Water is a Waste or Hazard, and Treat it as a Valuable Water Resource, 4 – Collaborate in Order to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches

Project Objective: Partner with flood control agencies, water conservation efforts, groundwater sustainability agencies, water agencies, land use planning departments, and other municipal~~ities~~ departments to promote projects that provide multiple benefits.

Scope: Identify opportunities and barriers to collaborating with other agencies to promote the treatment of storm water as a resource and promote water use efficiency. Develop templates for formal or informal partnership agreements to take advantage of opportunities and remove barriers to multiple benefit projects. Identify ways to incentivize multiple benefit projects (e.g. water supply offset or other non-permitting incentives).

Background: Many agencies, especially the Department of Water Resources and other water supply agencies, can potentially benefit from projects that use storm water as a resource. These beneficiaries can be important partners; however, some water supply agencies are cautious of linking their projects to storm water retention projects related to MS4 permits, particularly because of compliance deadlines. Other agencies, such as school districts, that have land that could be used for multiple benefit projects may have concerns about environmental liability. The Water Boards acknowledge that in order for successful completion of this project, other agencies will need to participate and implement their own authorities and mandates in order to increase the use of storm water as a resource. The SGMA may also be one of the catalysts the Water Boards can rely on to encourage treating storm water as a resource, because it provides an opportunity for storm water projects to be leveraged through agency collaboration to help achieve groundwater sustainability.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

6 Months: Identify opportunities and any barriers to collaborate with other agencies.

9 Months: Meet with a select but limited number of water agencies to discuss collaboration opportunities.

1 Year: Propose a template for a Memorandum of Agreement (MOA) or other agreement mechanism with water agencies to form sustainable relationships and communication avenues.

Ongoing: Participate in work groups or meetings to facilitate collaboration.

Objective 3: Establish Permit Pathways to Assess Storm Water Programs and Meet Water Quality Requirements

The projects captured in this objective aim to evaluate current storm water programs, with particular emphasis on the municipal program, and identify alternative compliance pathways, as well as the appropriate tools and methods applied to asses compliance with these compliance pathways. The projects are:

- Project 3a – Develop Guidance for Alternative Compliance Approaches for Municipal Storm Water Permit Receiving Water Limitations
- Project 3b – Develop Watershed-Based Compliance and Management Guidelines and Tools
- Project 3c – Assess Municipal Storm Water Program Monitoring and Effectiveness
- Project 3d – Establish Statewide Regulatory Framework for Municipal Storm Water Programs
- Project 3e – Standardize Minimum Control Measures for Specific Municipal Program Elements
- Project 3f – Develop Guidance for Implementation of Post-Construction Requirements to Improve Watershed Health
- Project 3g – Establish Guidance for Storm Water Program Asset Management Planning and Cost Estimation

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Project 3a Develop Guidance for Alternative Compliance Approaches for Municipal Storm Water Permit Receiving Water Limitations

Priority: High, *Assessment: Critically important, achievable with moderate barriers*

Prerequisite: Work will be informed by the State Water Board's decision/order on the Los Angeles County MS4 permit.

Goal(s): 2 – Manage Storm Water to Preserve Watershed Processes and Achieve Desired Water Quality Outcomes

Project Objective: Develop guidance and permit template language for Water Board staff to incorporate alternative compliance measures.

Scope: Compile and evaluate alternative compliance approaches to meeting receiving water limitations in municipal storm water permits throughout California, including the transferability of the alternative compliance approach to other regions/permittees. Monitor implementation of the State Water Board decision regarding the Los Angeles MS4 Permit appeal and other Water Boards' efforts to develop alternative compliance options. Based on this evaluation, develop general guidance, consistent with the State Water Board's action on the Los Angeles MS4 Permit, for Water Boards to incorporate alternative compliance approaches into storm water permits, including permits developed and issued by the State Water Board. The San Francisco Bay Region has also developed an approach applied within the Regional Municipal Storm Water Permit for translating or implementing receiving water limitations through explicit enforceable permit provisions that will be incorporated into this evaluation. Establish technical

guidance and supporting documentation for Water Board staff to incorporate alternative compliance approaches into storm water permits, while ensuring water quality outcomes are achieved. This project has a direct nexus with Project 3b.

Background: Since the beginning of the storm water regulatory program, the National Pollutant Discharge Elimination System (NPDES) permit requirement that dischargers must not cause or contribute to an exceedance of a water quality standard has been contentious (this discussion was recently expanded to address TMDL requirements. Dischargers claimed that strict reading of the permit requirement would lead to cost-prohibitive compliance efforts that would require many years to implement. Accordingly, two recent NPDES permitting efforts attempted to address this issue. Both the Los Angeles County Permit and the San Diego Region Permit identified an alternative compliance approach for the municipalities to use in demonstrating compliance with permit requirements; however, petitioners associated with the Los Angeles Permit challenged whether the alternative compliance pathway was legal and appropriate. The State Water Board issued an order addressing the arguments on June 16, 2015. The San Francisco Bay Region Municipal Regional Storm Water Permit also provides examples of translating or implementing receiving water limitations through explicit enforceable permit provisions.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

2 Years: Staff report evaluating alternative compliance approaches to meeting receiving water limitations in storm water permits throughout California, including the transferability of the alternative compliance approach to other regions/permittees.

1 Year: Present draft general guidance, consistent with the State Water Board decisions/orders, for Water Board staff to incorporate alternative compliance approaches into storm water permits. Prepare Item for State Water Board consideration of adoption.

Project 3b Develop Watershed-Based Compliance and Management Guidelines and Tools

Priority: High, *Assessment: Critically important, achievable with moderate barriers*

Prerequisite: ~~This project will be informed by Project 3c.~~None

Goal(s): 2 – Manage Storm Water to Preserve Watershed Processes and Achieve Desired Water Quality Outcomes

Project Objective: Develop technical and management guidance, including data and modeling needs, for local storm water programs to demonstrate water quality protection and support watershed-based storm water management.

Strategy to Optimize Resource Management of Storm Water

Proposed Project List

Scope: Develop guidance for municipalities to: (1) prioritize their water quality issues and limit pollutants; (2) identify all sources of pollutants; (3) plan and implement a watershed-based storm water management plan; and (4) conduct a reasonable assurance analysis for the water quality outcomes of the watershed-based plans. The reasonable assurance analysis guidance will identify the data and quantitative numeric (including modeling) requirements for demonstrating water quality protection. This project has a direct nexus with Project 3a.

Background: Watershed-based storm water planning, and to a lesser extent, reasonable assurance analysis, is being incorporated into municipal (MS4) permits on a region by region basis. The most recent Los Angeles County MS4 Permit allows permittees to develop and implement Watershed Management Programs and Enhanced Watershed Management Programs to achieve water quality standards (e.g., wasteload allocations) and requires permittees to conduct reasonable assurance analysis to demonstrate that the Watershed Management Plans will attain water quality standards. The San Francisco Bay Water Board is working on similar issues, promoting use of green infrastructure plans, and will be convening workshops with United States Environmental Protection Agency (U.S. EPA) on approaches for conducting reasonable assurance analysis that demonstrates attainment of water quality standards. In addition to highly urbanized areas, MS4s in less developed watersheds with other land uses would benefit from guidance in implementing a watershed based program that addresses all sources of pollutants. This project will incorporate findings, conclusions, and recommendations from existing efforts to standardize watershed-based compliance tools and reasonable assurance analysis methods used across the state.

~~**Current Pilot Project(s)**~~:

- ~~U.S EPA is currently providing contract resources in order to assist the San Francisco Bay Region and municipalities in the region in the 1) development of guidance and appropriate tools for reasonable assurance analysis and 2) incorporation of these tools and products in municipalities' regional asset management planning efforts to better integrate storm water management and compliance assessment with long term infrastructure planning. The Water Boards will work collaboratively with U.S. EPA to build upon this effort for potential state wide applications.~~

Products and Timelines:

~~9 Months~~1 Year: Staff report based on evaluation of the Los Angeles Regional Board staff's guidance for conducting reasonable assurance analysis and developing Watershed Management Programs / Enhanced Watershed Management Programs, and other watershed-based compliance and management tools under development or in use elsewhere in the state.

~~9 Months~~1 Year: Develop technical guidance (version one) for State Water Board consideration of adoption, based on the staff report findings and recommendations presenting tools for developing watershed-based plans to achieve water quality standards with controls for various pollutants or combination of pollutants of concern. Recommendations will include information and data needs, modeling options for siting and sizing of controls, and conducting

reasonable assurance analysis that the watershed-based control plan will achieve water quality outcomes.

2 Years: Develop technical guidance (version two) for State Water Board consideration of adoption, based on the staff report and version one findings and recommendations presenting advanced tools for development of watershed-based control plans and conducting reasonable assurance analysis, including consideration of watershed-based sizing criteria for controls.

Project 3c Assess Municipal Storm Water Program Monitoring and Effectiveness

Priority: High, *Assessment: Important, readily achievable*

Prerequisite: None

Goal(s): 3 – Implement Efficient and Effective Regulatory Programs

Project Objective: Identify monitoring and effectiveness assessment approaches that efficiently generate information used for adaptive management and improvement of the local municipal storm water programs regulated by Water Board requirements.

Scope: The result of the project is a data and information management approach that will inform Water Board Storm Water Program management decisions, improve program effectiveness, and maximize water quality-based outcomes. After first identifying data and information needs, explore traditional water quality monitoring and new measures of program effectiveness, such as surrogate measures for discharge and receiving water quality (leveraged with efforts already undertaken by stakeholders). Develop methodologies and tools for answering high-priority monitoring and effectiveness assessment questions, such as: (1) how and where compliance with receiving water limitations should be assessed; (2) how to estimate baseline pollutant loads; (3) how to determine relative spatial risks to receiving water quality; and (4) how to quantify the expected load reduction associated with water quality improvement projects. Develop training materials and statewide workgroups to set up implementation, training, and troubleshooting.

Background: Significant funds are spent annually on storm water monitoring and effectiveness assessment; however, the work to date has in some cases been limited in guiding program implementation. Accordingly, reduced costs and increased utility of monitoring and effectiveness assessment is needed. As opposed to past complex techniques, simple models can yield valuable information to support short-term and long-term storm water program decisions and priorities. Use of simple, spatially-based pollutant load and reduction information will support identification and prioritization of water quality actions. For example, the Central Coast Regional Board is developing a spatial approach to estimate pollutant loads and load reductions to provide a simple visual way to identify and prioritize areas for water quality improvements. This work builds from earlier Lahontan Regional Board staff efforts to provide a useable, transparent, and scientifically-credible tool to estimate baseline pollutant loads, determine relative spatial risks to receiving water quality, and quantify the expected load

reduction associated with water quality improvement actions. Rather than attempting to model multiple pollutant types, this methodology uses credible and effective representative parameters (i.e., total suspended solids and volume) to create a ranking of municipal catchments in terms of relative risk to the receiving water. The result is information that serves as an effective communication tool between Water Board staff and municipal representatives.

~~**Current Pilot Project(s)**:~~

- ~~Central Coast Regional Water Quality Control Board - MS4 Support Project~~

Products and Timelines:

3 Years: Develop technical guidance document that identifies useful data to collect for storm water program effectiveness analysis, and how to report the water data and information on water quality program effectiveness to drive the best responses and management actions. Develop tools, including guidance on: (1) assessing receiving water limitations; (2) estimating baseline pollutant loads; (3) determining relative spatial risks to receiving water quality; and (4) quantifying the expected load reduction associated with water quality improvement actions. Develop Item for State Water Board consideration of adoption.

Project 3d Establish Statewide Regulatory Framework for Municipal Storm Water Programs

Priority: High, *Assessment: Critically important, achievable with moderate barriers*

Prerequisite: None

Goal(s): 3 – Implement Efficient and Effective Regulatory Programs

Project Objective: Develop a framework that compliments federal and state regulations, incorporates adaptive management, provides a sustainable pathway to water quality protection, and promotes green infrastructure.

Scope: Develop a framework that will provide guidance in the development and application of technology and water quality based effluent limits, the incorporation of TMDLs into permits, and addressing impacts to beneficial uses during wet weather conditions. The framework may ultimately be incorporated into the State Implementation Plan for Inland Waters, Enclosed Bays, and Estuaries of California, or equivalent document. This project has a nexus with many of the other projects, particularly Projects 3a, 3b, 3c, 4e, and 5b.

Background: The NPDES permitting program for municipalities has evolved from the incorporating technology-based standards of reducing pollutants to the maximum extent practicable (MEP) and general compliance with receiving water limitations; to incorporating more targeted water quality based requirements based on TMDL limitations. The approach taken by Regional Boards in locally issued permits varies; accordingly, stakeholders requested

that the State Water Board provide better guidance and consistency in the form of a Statewide Storm Water Policy. Furthermore, both stakeholders and regulators seek opportunities to create an adaptable storm water program that will provide for long-term, sustainable water quality protection. This project will provide consistency and guidance for permit writers in their efforts to craft permits that provide for adaptive management and sustainable water quality protection.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

1 Year: Initiate stakeholder process to receive input on framework.

4 Years: Develop guidelines to implement the framework for both the Water Boards and regulated community. Draft either a stand-alone storm water document for State Water Board consideration of adoption, or incorporate guidelines into the State Implementation Plan for Inland Waters, Enclosed Bays, and Estuaries of California, or equivalent document.

Ongoing: As necessary or required, update the document(s) or guideline(s) to reflect changes or additions.

Project 3e Standardize Minimum Control Measures for Specific Municipal Program Elements

Priority: Medium, *Assessment: Somewhat important, achievable with moderate barriers*

Prerequisite: None

Goal(s): 3 – Implement Efficient and Effective Regulatory Programs

Project Objective: Develop permitting and policy-making guidance tools to implement consistent and applicable minimum control measures statewide.

Scope: Review previous efforts and current permits to identify sections or issues where standardized approaches for storm water permits could improve program efficiency and water quality outcomes. Such focus areas could include minimum control measures for mature program tasks, such as illicit connections/illicit discharges, and establishment of adequate authority for municipalities. Products will consist of minimum control measures for municipal permits.

Background: Significant time and effort is spent preparing and reissuing municipal storm water permits. The time and resources could be reduced if the Water Boards developed a template for issues that do not have region-specific requirements, or will benefit from a conceptual framework that provides regions flexibility to address unique topographic, climatic, hydrologic, geologic, and land use differences. There were several past efforts to develop either draft statewide municipal permit language or statewide permit template for municipal

storm water permits, and though some success was achieved in terms of agreements, these efforts were terminated before any products were finalized.

~~**Current Pilot Project(s):** None~~

Products and Timelines:

6 Months: Create a work group and identify permitting issues that could be addressed through development of standardized language and water quality outcomes.

1 Year: Produce permit writing tools and sample permit language for the minimum control measures identified for standardization.

Project 3f Develop Guidance for Implementation of Post-Construction Requirements to Improve Watershed Health

Priority: High, *Assessment: Critically important, achievable with moderate barriers*

Prerequisite: None

Goal(s): 2 – Manage Storm Water to Preserve Watershed Processes and Achieve Desired Water Quality Outcomes

Project Objective: Develop technical guidance and permitting tools to promote statewide implementation of post-construction requirements based on watershed processes.

Scope: Develop a methodology to identify watershed-specific processes that are critical to watershed health, to be applied to all watersheds at the statewide scale. Conduct analysis to identify dominant watershed processes and sensitivity of receiving water bodies to degradation of those processes, for each watershed throughout the state. Determine post-construction management strategies necessary to protect watershed health for each dominant watershed process/receiving water type combination, and whether those strategies are best applied at the regional or site scale. Develop tools, guidance, permitting approaches, permit language, and/or policies to implement the post-construction management strategies. Identify and prioritize options such as the development of technical resource centers, dedicated web site, or workshops for promoting the implementation of post construction requirements.

Background: Many regions are expected to experience significant growth over the next two decades. Much of this growth is planned for the existing urban margins or undeveloped foothills where the potential for hydromodification could severely harm already stressed riparian habitats and natural hydrogeology. Anticipating potential impacts, the Central Coast Regional Board developed several post-construction requirements tailored to protecting watershed processes that are critical to watershed health. Post-construction requirements vary between watersheds, ensuring that sensitive watersheds receive adequate protection, while also allowing development projects to avoid implementing unnecessary storm water management strategies.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

1 Year: Produce a staff report outlining a methodology for conducting the watershed analysis at the statewide level (Region 3's efforts could serve as a foundation), results of the analysis using available data, validation using ground truthing, and recommendations for post-construction management strategies. The report will also identify options for promoting implementation of the post-construction requirements.

3 Years: Using a stakeholder process, develop tools, guidance, permitting approaches, permit language, and/or policies to implement recommended post-construction management strategies at the appropriate regional or local scale. Develop Item for State Water Board consideration of adoption.

Project 3g Establish Guidance for Storm Water Program Asset Management Planning and Cost Estimation

Priority: Low, *Assessment: Somewhat important, achievable with moderate barriers*

Prerequisite: None

Goal(s): 3 – Implement Efficient and Effective Regulatory Programs

Project Objective: Create a guidance document for local storm water permittees to develop asset management plans that assist municipalities to accurately estimate program assets.

Scope: Evaluate existing storm water asset management methods and prepare a California-specific method for developing asset management plans.

Background: The concept of an asset management plan for a watershed is a relatively new concept. An asset management plan is a long-range planning document used to provide a rational framework for understanding and planning the asset portfolio. In California, the City of San Diego has taken the lead on the concept of asset management by developing a Watershed Asset Management Plan (WAMP). The WAMP documents the current state of assets (e.g., asset inventory, valuation, condition, risk) and projects the long-range asset renewal (rehabilitation and replacement) requirements for the City's Storm Water Division. The City has developed a WAMP for each of the six watersheds in the City's jurisdiction; each WAMP identifies the assets owned and managed by the City provides an understanding of critical assets required to deliver the services, records the strategies that will be used to manage the assets, and documents the future investments required to deliver the committed services. This information is used by the City to develop more accurate and transparent cost information that can be provided to the public, which can also be used to demonstrate the need for more stable funding sources.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

1 Year: Review existing plans from City of San Diego, U.S. EPA Environmental Finance Center, and others. Develop statewide guidance document for State Water Board consideration of adoption, for storm water permittees to develop a storm water asset management plan.

Objective 4: Establish Financially Sustainable Storm Water Programs

The cost of compliance is a major issue for many storm water permittees and a significant source of contention among the regulated community, environmental advocacy groups and Water Boards. The projects captured in this objective aim to identify the costs of compliance with the municipal, industrial, and construction permitting programs. Additionally, projects within this objective will focus on making funding accessible to storm water projects. The projects are the following:

- Project 4a – Implement Senate Bill 985 – Incorporate ~~Requirements~~ Principles of Storm Water Resource Plan Guidelines into Storm W~~w~~ater Programs
- Project 4b – Eliminate Barriers to Funding Storm Water Programs and Identify Funding for Storm Water Capture and Use Projects
- Project 4c – Identify Municipal Storm Water Permit Compliance Cost
- Project 4d – Identify Industrial and Construction Storm Water Permit Compliance Cost

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Project 4a Implement Senate Bill 985 – Incorporate ~~Requirements~~ Principles of Storm Water Resource Plan Guidelines into Storm Water Programs

Priority: Very High, *Assessment: Critically important, required by statute*

Prerequisite: None

Goal(s): 1 – Change the Perspective that Storm Water is a Waste or Hazard, and Treat it as a Valuable Water Resource, 2 – Manage Storm Water to Preserve Watershed Processes and Achieve Desired Water Quality Outcomes

Project Objective: Monitor application of ~~Implement~~ Storm Water Resource Plan Guidelines pursuant to the Storm Water Resource Planning Act of 2014, and in accordance with Water Code section 10565 (Senate Bill 985, Pavley, Statutes of 2014). Modify storm water planning, permitting, and funding programs to support the priority actions identified in Storm Water Resource Plan Guidelines. ~~(Plans).~~

Scope: Implement Senate Bill 985:~~the adopted Storm Water Resource Plan Guidelines for public agencies.~~

1) Develop review criteria for Water Board staff to evaluate Storm Water Resource Plans.
~~1)~~2) Review current storm water permits, policies, plans, and funding programs to identify how to best incorporate storm water resource planning efforts.

Background: Water Code section 10563(c)(1), as amended by Senate Bill (SB) 985, requires a public agency to develop a Storm Water Resource Plan (Plan) as a condition of receiving funds from any bond approved by voters after January 2014. The intent of SB 985 was to encourage the use of storm water and dry weather runoff as a resource to improve water quality, reduce localized flooding, and increase water supplies for beneficial uses and the environment. Accordingly, the development of Plans will encourage public agencies to identify

opportunities to use existing publicly owned lands and easements to capture, treat, store, and use storm water and dry weather runoff either onsite or offsite. The Plans should prioritize projects that will assist in attaining water quality outcomes. Water Code section 10565 also requires the State Water Board to specify the types of local agencies that must be consulted in Plan development, which provides an opportunity to ensure collaboration with water supply and groundwater sustainability agencies. Resources to develop the ~~Guidelines for~~ Storm Water Resource Plan Guidelines were provided in the Governor's budget for Fiscal Year 2015/16; however, resources to review the Plans have not been proposed.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

2 Years: Monitor application of ~~Implement~~ Storm Water Resource Plan Guidelines in accordance with Water Code section 10565 (as amended by SB 985).

Ongoing: Review Storm Water Resource Plans. Work with other watershed planning efforts to incorporate the principles of Storm Water Resource Plan Guidelines in related programs.

Project 4b Eliminate Barriers to Funding Storm Water Programs and Identify Funding for Storm Water Capture and Use Projects

Priority: High, *Assessment: Critically important, achievable with moderate barriers*

Prerequisite: None

Goal(s): 1 – Change the Perspective that Storm Water is a Waste or Hazard, and Treat it as a Valuable Water Resource, 2 – Manage Storm Water to Preserve Watershed Processes and Achieve Desired Water Quality Outcomes, 3 – Implement Efficient and Effective Regulatory Programs

Project Objective: Support funding of storm water programs throughout the state.

Scope: Review funding programs including the: Integrated Regional Water Management Grants, Clean Water State Revolving Fund (Water Boards), Infrastructure State Revolving Fund (I-Bank), Bond funds (including transportation, climate change, SB 985, and Proposition 1), and evaluate opportunities for the State Water Board to support funding of storm water programs throughout the state. Potential Board actions include: (1) adopting a resolution that recognizes consistent funding sources as a key to treating storm water as resource; (2) supporting the concept that storm water is a utility and supporting efforts to amending Proposition 218; (3) engaging local elected officials and establishing regional resource centers; and (4) supporting changes to grant and loan guidelines to help meet storm water program requirements and make loans more accessible to municipalities. The State Water Board should also develop a strategy to educate the public regarding storm water funding opportunities.

Background: With California facing a fourth year of drought, storm water programs will play a larger role in providing solutions. Storm water programs in California are either not funded by fees or have fees that are inadequate to fully fund the program. The Water Boards' support for consistent funding will enable municipalities to implement effective programs that improve water quality and help mitigate drought conditions. Estimates of the cost needed for storm water programs will be informed by Projects 36, 4c, and 4d.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

6 Months: Produce a staff report summarizing the limitations of current storm water funding programs.

1.5 Years: Develop a strategy and recommendations for increasing funding for storm water programs.

Project 4c Identify Municipal Storm Water Permit Compliance Costs

Priority: Medium, *Assessment: Critically important, achievable with significant barriers*

Prerequisite: None

Goal(s): 3 – Implement Efficient and Effective Regulatory Programs

Project Objective: Develop a framework to identify cost of compliance with storm water permit requirements.

Scope: Develop a standard accounting and allocation method to estimate the Storm Water Program costs including costs for personnel, operation and maintenance, and capital improvements. The method will differentiate cost of compliance from unrelated costs of infrastructure construction and maintenance.

Background: Previous studies have shown that municipalities are not consistent in their approaches in estimating the cost of a storm water program. Different accounting and allocation methods (e.g., allocation of street sweeping to which public works program – storm water or street maintenance) are used to assign cost to a program. This creates a range in calculated program costs that varies from municipality to municipality and creates confusion as to the true cost of permit compliance. Previous work that includes cost information will be utilized where possible.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

1.5 Years: Produce a staff report outlining costs associated with storm water permits standardized estimating procedures, and a case study.

6 Months: Develop Item for State Water Board consideration of adoption.

Project 4d Identify Industrial and Construction Storm Water Permit Compliance Cost

Priority: Medium, *Assessment: Important, achievable with moderate barriers*

Prerequisite: This project may be informed by Project 5c.

Goal(s): 3 – Implement Efficient and Effective Regulatory Programs

Project Objective: Establish a procedure for Water Board staff to use in the permit development process that will estimate sector-specific costs for all new requirements in future construction and industrial storm water permits.

Scope: For some sectors and at the best management practice (BMP) level, identify the range of costs expected for a discharger to be in compliance with the requirements. This information will support the work associated with Project 5c, Sector-Specific Technology-Based Numeric Effluent Limits.

Background: The Industrial and Construction General Storm Water Permit requirements often result in unknown costs to the discharger(s), and many perceive overall program costs to be increasing. Recent staff attempts to mitigate costs include complex permit systems aimed at aligning costs and/or requirements with riskier and/or more appropriate facilities and situations. However, the missing pieces of information for decision makers are the cost of compliance.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

1.5 Years: Produce a staff report outlining costs associated with storm water permits, standardized estimating procedures and a case study.

6 Months: Develop Item for State Water Board consideration of adoption.

Objective 5: Improve and Align State Water Board Oversight of Water Board Programs and Water Quality Planning Efforts

Storm water is unique in comparison to other types of discharges and these differences are rarely accounted for in program planning, data collection or integration with other monitoring efforts. The projects captured in this objective aim to improve program oversight through a data-driven approach, and align storm water data collection with other water quality planning efforts at the Water Board. The projects are the following:

- Project 5a – Create Storm Water Program Data and Information "Open Data"
- Project 5b – Evaluate and Increase Storm Water Permit Compliance
- Project 5c – Establish Sector-specific Technology-based Numeric Effluent Limitations for Industrial and Construction Storm Water Permits
- Project 5d – Align Water Quality Statewide Planning Efforts with Storm Water Program Implementation – Pilot Project Using the Biological Integrity Plan

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Project 5a Create Storm Water Program Data and Information "Open Data"

Priority: High, *Assessment: Important, achievable with moderate barriers*

Prerequisite: None

Goal(s): 3 – Implement Efficient and Effective Regulatory Programs, 4 - Collaborate in Order to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches

Project Objective: Increase the amount and quality of data and information entered in and queried out of the Water Boards' existing data collection systems.

Scope: Integrate existing data and information reporting functions available in the Storm Water Multiple Application and Report Tracking System (SMARTS), the California Integrated Water Quality System (CIWQS) and the California Environmental Data Exchange Network (CEDEN).

The Water Boards use the above systems to collect and track information of interest to the Water Boards and stakeholders. Types of data and information collected include: permittee information (enrollment in general permit, co-permittees, type of facility, industry code, location, size, etc.), compliance evaluations (inspections, ad-hoc and annual report review, etc.), and enforcement actions (notices of violation, notices of non-compliance, formal enforcement, etc.) Create a website that improves the ability to query permittee information and improves the efficiency of assessing compliance. Additionally, improve program performance review by conducting a pilot project to test the ability of new technology (e.g., tablets, smart phones) to increase efficiency and effectiveness of data entry (e.g., inspections

and inspection reports) by collecting and transmitting inspection data directly from the field to pertinent databases. To continue the Storm Water Programs' progression towards collection of usable data and information, produce a report with recommendations for how to make further improvements to achieve open, free, and available data and information for all stakeholders.

Background: "Open data" is public data and information that can be used, modified, and shared for any purpose. The Water Boards' existing storm water data collection systems limit data-collaborative activities, thus limiting the Water Boards' ability to use data and information in daily decision making and program advancement processes. Stakeholders view this problem as multi-faceted: (1) hurdles to enter data into our existing data systems, like SMARTS, CIWQS and CEDEN; (2) obstacles to making changes to the data infrastructure to enhance openness; and (3) challenges to extracting data and information from the data systems, especially when using multiple sets of information simultaneously. The Water Boards currently have an open data project led by the Office of Information Management and Analysis (OIMA) that may be able to support the development of a web site for storm water data. The Water Boards regulate thousands of storm water sites, facilities, and municipalities; however, because of inadequate staff levels, the Water Boards are not able to assess compliance for every site, facility, and municipality. Accordingly, new methods and tools are needed to broaden the number of sites assessed for compliance.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

2 Years: Build a website for real-time connections to SMARTS, CIWQS and CEDEN reporting information for the Storm Water Program.

1 Year: Obtain permission and secure funding for the purchase of 25 field devices for Water Board storm water inspectors. Develop template to standardize inspection information/data uploaded into SMARTS through the field devices.

1 Year: Prepare a staff report with recommendations for incorporating open data concepts and collaborative activities for the Water Boards' Storm Water Program.

Project 5b Evaluate and Increase Storm Water Permit Compliance

Priority: Medium, *Assessment: Important, achievable with significant barriers*

Prerequisite: None

Goal(s): 3 – Implement Efficient and Effective Regulatory Programs, 4 – Collaborate in Order to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches

Strategy to Optimize Resource Management of Storm Water

Proposed Project List

Project Objective: Develop recommended focus areas for existing storm water permit compliance evaluation, and identify potential additional resources for conducting focused program audits and compliance inspections to deter noncompliance (through increased Water Board staff field presence). Collaborate with other state and local agencies on existing compliance efforts.

Scope: Assist Water Board Storm Water Program staff by focusing compliance evaluations on permit requirements that provide the most effective water quality outcomes. The project includes: (1) research to identify and prioritize elements of the program's permits that require additional resources to determine effective compliance strategies; (2) revisions of the Administrative Procedures Manuals to outline standard methods used by the program for audit, inspection and compliance determination procedures; and (3) collaboration within the agency and with other agencies on increasing the efficiency of the program's inspections, audits and compliance determinations. The project includes assisting the program with outreach to storm water permittees to distribute compliance evaluation results. This compliance assistance is proposed in addition to existing compliance responsibilities, and will provide additional resources for evaluating the overall effectiveness of the Storm Water Program.

Background: Significant funds are spent annually on storm water audits, inspections and compliance evaluations; however, focused compliance evaluations on key permit requirements related to effective water quality outcomes need to be identified, and will support implementing requirements developed in Storm Water Program permits. Many agencies have a program for audits, inspections, and compliance evaluations that directly overlaps with elements within the Storm Water Program's compliance determinations. This project will provide resources for conducting effective collaboration with other agencies and will identify focused compliance issues that exist across multiple programs statewide. Developing and supporting these partnerships is a crucial element for expanding Storm Water Program staff knowledge on the breadth of environmental concerns at regulated facilities (and MS4s), and it will lead to direct water quality benefits and increased efficiency of compliance determinations

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

1 Year: Develop a technical guidance document for State Water Board consideration of adoption that identifies storm water permit compliance areas to focus on, and conduct meetings to disseminate recommendations with associated Water Board storm water programs. If necessary, amend the Administrative Procedures Manual to add additional procedures for the agreed upon enforcement procedures related to the enforcement goals.

3 Months: Provide assistance to the associated Water Board storm water programs in conducting outreach through letters or meetings with permitted storm water facilities and MS4s to disseminate the goals of the outcome-oriented compliance review.

1 Year: Provide resources for developing a point of contact for facilitation between the Water Board Storm Water Program and other agencies that conduct work that overlaps the Storm Water Program and host and attend coordination meetings with other agencies and provide deliverables that assist with compliance determinations statewide. The main objective is to increase the efficiency of compliance determinations and facilitate coordination with other agencies that regulate the same permitted storm water facilities and MS4s of the Storm Water Program.

Ongoing: Provide assistance to the associated Water Board storm water programs in conducting inspections and audits of permitted storm water facilities and MS4s with specific emphasis on the identified outcome-oriented enforcement objectives.

Project 5c Establish Sector-Specific Technology-Based Numeric Effluent Limitations for Industrial and Construction Storm Water Permits

Priority: Low, *Assessment: Somewhat important, achievable with significant barriers*

Prerequisite: None

Goal(s): 3 – Implement Efficient and Effective Regulatory Programs, 4 – Collaborate in Order to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches

Project Objective: Continue the collection of pollutant discharge data for specific sectors and implement sector-specific-technology based numeric effluent limitations (NELs) as appropriate, in industrial and construction storm water permits.

Scope: Review existing effluent and BMP performance data (SMARTS), along with information about industrial and construction scenarios (e.g., high risk) where there is sufficient data to develop a technology based NEL. For each sector and pollutant, determine the control and treatment options to evaluate. Determine the scenarios (e.g., compliance storm) to evaluate. For each scenario, estimate the pollutant load and pollutant load reduction. In the review, include an analysis on how the proposed NELs relate to TMDL requirements, and include researching options for developing NELs that comply with the TMDL requirements. Provide assistance to the associated Water Board storm water programs in conducting outreach via letters or meetings with permitted storm water facilities to discuss the proposed outcomes of this project.

Background: The Water Boards have the authority to include NELs in NPDES storm water permits. Previously, data to support the development of technology-based NELs for the majority of sectors permitted and pollutants of concern did not exist. While there is not sufficient data to develop NELs across all sectors and pollutants, the Water Boards likely can identify some specific sectors and pollutants for which to develop NELs. The Water Boards can improve efficiency and water quality by evaluating opportunities where the NELs also address TMDL requirements.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

1.5 Years: Develop a staff report for public comment summarizing available data (including a data quality analysis) and suggesting sectors and pollutants for technology-based NEL development.

1 Year: Develop a technical document for State Water Board consideration, to outline source control, treatment options, and scenarios to be analyzed.

2.5 Years: Develop a staff report for public comment that estimates pollutant load reductions for each identified scenario, and proposes technology-based NELs.

1 Year: Develop item for State Water Board consideration of adoption, permit language that includes, where appropriate, technology-based NELs.

Project 5d Align Water Quality Statewide Planning Efforts with Storm Water Program Implementation – Pilot Project Using the Biological Integrity Plan

Priority: High, *Assessment: Important, readily achievable*

Prerequisite: None

Goal(s): 3 – Implement Efficient and Effective Regulatory Programs

Project Objective: Using the Draft Biological Integrity Plan being prepared by State Water Board staff as a pilot, incorporate compliance endpoints in storm water permits that further support statewide planning efforts.

Scope: Integrate storm water staff into the Biological Integrity Plan advisory groups to exchange information and use bioassessment[2] in the Storm Water Program. Review the draft bioassessment narrative developed for the Biological Integrity Plan and work with stakeholders to develop a framework for conducting biological assessments and interpreting biological data as a measure of compliance with a storm water permit.

Background: Statewide water planning efforts often identify the Water Boards' Storm Water Program as a key implementation tool or key partner; examples include the (recently approved) statewide Trash Amendment, sediment quality objectives, and groundwater sustainability planning. The Draft Biological Integrity Plan will provide Water Board staff an opportunity to be involved in the development stage of the plan and better integrate guidance on coordinating plan outcomes and storm water regulations.

[2] Bioassessment is a tool for assessing the biological integrity (ecological condition) of a waterbody.

Through SWAMP, Water Board staff has developed standard bioassessment protocols and has used them for the past 13 years to monitor the condition of California streams. Bioassessment monitoring requirements have been incorporated into storm water permits to evaluate environmental condition and assess the effectiveness of management actions. The State Water Board's Draft Biological Integrity Plan intends to promote statewide consistency in conducting bioassessments and interpreting biological data. The plan will include an implementation section describing how bioassessment should be incorporated into each Water Board regulatory program.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

2 Years: Review existing efforts, identify appropriate use of bioassessment data, and inform the implementation section of the State Water Board's Draft Biological Integrity Plan. (Expected date of State Water Board consideration of adoption of Biological Integrity Plan: Fall 2017)

Objective 6: Increase Source Control and Pollution Prevention

The projects captured in this objective aim to develop strategies to reduce storm water pollutant discharges to water bodies through the promotion of source control and other non-regulatory strategies that would reduce the exposure of pollutants to runoff. The projects are the following:

- Project 6a – Establish Statewide Framework for Urban Pesticide Reduction
- Project 6b – Identify Opportunities for Source Control and Pollution Prevention
- Project 6c – Evaluate and Implement Trash Control

Project 6a Establish Statewide Framework for Urban Pesticide Reduction

Priority: High, *Assessment: Important, achievable with moderate barriers*

Prerequisite: None

Goal(s): 4 – Collaborate in Order to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches

Project Objective: Establish statewide source control efforts for pesticides in urban storm water.

Scope: Amend the statewide Water Quality Control Plans to account for urban pesticide discharges to: (1) recognize one of the primary mechanisms for urban pesticide pollution prevention is through use management under the authority of agencies that regulate pesticide use; (2) establish a framework for working with the Department of Pesticide Regulation (DPR) and U.S. EPA Office of Pesticide Programs (OPP) to improve pesticide evaluation and mitigation processes; (3) establish a framework for coordinating pesticide/toxicity monitoring by appropriate agencies; and (4) establish minimum source control efforts for urban storm water permittees.

Background: Pesticides continue to cause impairments to urban water bodies across the state, even as "old" pesticide uses are banned and replaced by new pesticides. Some practices and structures can reduce pesticide concentrations, but practically speaking, attaining reductions necessary to meet water quality standards through engineering changes to storm water systems and municipal discharger-led changes to pesticide use practices would likely be cost-prohibitive for two reasons: (1) the pesticides of interest are widely used and cause or contribute to toxicity at very low concentrations, and (2) state law does not allow local authorities to ban or limit pesticide sales and use. Accordingly, the most effective way to reduce urban pesticide-related impairments is through managing pesticide usage via existing state and federal pesticide regulatory authorities. Previous experiences suggest that resources focused on working with pesticide regulators (i.e., DPR and U.S. EPA OPP) to implement their authority will more effectively achieve our goals, as compared to attempting to control pesticides solely by using our own regulatory authorities on municipal dischargers.

A statewide framework for urban pesticide pollution control efforts, established via an amendment to the state's Water Quality Control Plans, with a scope including the four elements listed above, could help more effectively and consistency control urban pesticides.

Regional Board staff, mainly from San Francisco Bay and Central Valley Regional Boards, in coordination with CASQA and other members of the Urban Pesticide Pollution Prevention Partnership, has invested significant efforts into working with DPR and U.S. EPA OPP with considerable success. A formal commitment by the Water Boards to implement a pollution prevention framework could strengthen these proactive efforts and relationships with pesticide regulators. A statewide plan would also encourage collective monitoring, data sharing, and education efforts by the regulated community, and establish consistent minimum pesticide source control efforts for urban storm water permittees.

This effort relates to increased use of storm water as a resource for groundwater recharge, as pesticide pollution prevention will benefit groundwater quality in areas where urban runoff is captured for groundwater recharge. Additionally, this project will contribute to the reduction and filtration of runoff, as well as conversion to sustainable landscapes that require fewer chemical inputs.

~~**Current Pilot Project(s)**: None~~

Products and Timelines:

6 Months: Develop a detailed project management and scoping plan.

1 Year: Draft staff report for a general framework to improve pesticide evaluation, establish mitigation processes, coordinate pesticide/toxicity monitoring, and establish minimum source control efforts for urban storm water permittees. This effort will include holding stakeholder meetings, approximately quarterly, during development.

6 Months: Develop Item for State Water Board consideration of adoption with proposed plan amendment language.

Project 6b Identify Opportunities for Source Control and Pollution Prevention

Priority: Medium, *Assessment: Important, achievable with significant barriers*

Prerequisite: None

Goal(s): 4 – Collaborate in Order to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches

Project Objective: Identify opportunities to control storm water pollutants through measures of pollution prevention during the pollutant life-cycle.

Scope: Identify pollutants causing water quality degradation that are still being manufactured and in use, while considering the strength of the relationship between the pollutant and impacts to aquatic life or human health. Priority will be placed on those pollutants that exhibit a strong relationship between environmental exposure and effect. Evaluate pollutants identified during the analysis that could most effectively be controlled through true source control or other life-cycle pollutant prevention measures. This will include evaluating the impacts on human health and welfare, quality of life, feasibility associated with regulated (limited) use, product bans, identification of critical steps in product life-cycles for pollution prevention management practices, and replacement products and the risks to the environment associated with replacement compounds or products. Identify potential or promising institutional controls that could be applied to better protect storm water quality, and identify codes and regulations that will affect the use of institutional controls, agencies, and departments with the legal authority to amend the regulations and codes (e.g., Department of Toxic Substances Control, Department of Pesticide Regulation). Collaborate with those agencies and departments to support development of institutional controls to protect storm water quality. Develop cooperative agreements with appropriate authorities responsible for maintaining the California Building Code, plumbing code, pesticide use regulations, and Cal Green to amend or develop codes and/or regulations that are consistent with or support the implementation of the State Water Board source control and pollution prevention-related permits, plans, and policies.

Background: ~~True s~~Source control, for the purposes of this document, means the interruption or removal of pollutants from the storm water pathway before there is any risk of exposure. This can be achieved by using alternative products, green chemistry, or by altering/limiting uses and applications. Costs associated with removing pollutants from storm water may be much greater than costs associated with source control or other life-cycle interruption or pollution prevention-based actions; however, only a few pollutants have been controlled using this tool, and as a result, site-based source control and treatment-related management practices still dominate the landscape. This effort is intended to identify where opportunities exist to control storm water pollutants through source control or other measures of pollution prevention during the pollutant life-cycle.

~~**Current Pilot Project(s):**~~

- ~~Zinc Sources in Urban Runoff Collaboration between State Water Board and Department of Toxic Substances Control~~

Products and Timelines:

3 Years: Develop study and permit language or incentives.

1.5 Years: Develop agreements, straw man language, and template permit language.

Project 6c Evaluate and Implement Trash Control

Strategy to Optimize Resource Management of Storm Water

Proposed Project List

Priority: Medium, *Assessment: Important, achievable with significant barriers*

Prerequisite: None

Goal(s): 3 – Implement Efficient and Effective Regulatory Programs, 4 – Collaborate in Order to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches

Project Objective: Evaluate current strategies and develop new methods to address the generation of trash in "hot spots", such as discharges from homeless encampments, high-use beaches, and parks adjacent to waters of the state.

Scope: Evaluate the current strategies available and being used to address trash generation in "hot spots" within the San Francisco Bay Region, Los Angeles Region, and San Diego Region. Compile strategies for determining and addressing trash generation in "hot spots" ~~that can~~ that can provide statewide guidance to region specific efforts. Establish a mechanism to determine areas that are "hot spots" and require trash controls efforts. Develop tools, guidance, permitting approaches, permit language, and/or policies to implement trash control strategies. Determine where ongoing efforts by stakeholders and non-governmental organizations can be leveraged to support the Water Boards' trash control efforts. Provide implementation support for the amendments to the Water Quality Control Plan for Ocean Waters of California to Control Trash and Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Trash Amendments), and amend the Trash Amendments, if needed.

Background: The Trash Amendments were adopted by the State Water Board in April 2015. The Trash Amendments established a statewide water quality objective for trash and implementation provisions using a land-use based compliance approach that targets high trash generating areas. The Trash Amendments will be implemented through NPDES permits, waste discharge requirements (WDRs), and waivers of WDRs. The Trash Amendments focus on necessary trash controls (e.g., structural and instructional controls) at industrial facilities and within municipal storm water systems in specific high trash generating areas. For municipalities, controlling trash is focused in five priority land uses: (1) high density residential, (2) industrial, (3) commercial, (4) mixed urban, and (5) public transportation stations. In addition to these land uses, Regional Water Boards can determine that, within a municipal service area, specific locations or land uses generate substantial amounts of trash and require additional trash controls. These areas may include schools, stadiums, and utility roads.

Significant sources of trash that adversely impact beneficial uses of a water body are often outside the jurisdiction of the municipal storm water permittee. In these cases, Regional Water Boards may implement trash control requirements in WDRs or waivers of WDRs for areas that generate trash and/or where direct dumping to a water body may occur. These areas may include high-use campgrounds, picnic areas, beach recreation areas, marinas, and/or homeless encampments. Some Regional Water Boards, like San Francisco Bay, Los Angeles, and San Diego, are already addressing sources of trash from areas deemed to be

"hot spots". During adoption of the Trash Amendments, the State Water Board directed Water Board staff to further evaluate strategies to address trash at "hot spots".

~~**Current Pilot Project(s):** None~~

Products and Timelines:

1 Year: Produce a staff report outlining existing strategies to address trash generation in "hot spots" outside of a municipality's jurisdiction.

2.5 Years: Develop tools, guidance, permitting approaches, template permit language, and/or policies to implement trash control strategies for State Water Board consideration of adoption. Leverage ongoing local efforts by stakeholders and non-governmental organizations. Provide support to all parties (Water Board staff, permittees, stakeholders) responsible for implementing the recently adopted Trash Amendments, and amend the Trash Amendments, if needed.

APPENDIX B – POTENTIAL PILOT PROJECTS

December 2015

Strategy
To
Optimize
Resource
Management of
Storm Water

Strategy to Optimize Resource Management of Storm Water

Potential Pilot Projects Identified by Interested Parties

The State Water Board received input from interested parties and Regional Water Board staff asking that specific projects be identified as pilot projects in support of one or more goals of the Storm Water Strategy. These potential projects, organized by region, are summarized in the attached table based on the information provided.

Strategy to Optimize Resource Management of Storm Water

Potential Pilot Projects Identified by Interested Parties

Region	San Francisco Bay (Region 2)				
Project	Watershed Planning Reasonable Assurance Analysis and Capitol Improvement Planning				
City	Region-wide	**County**	Multi-County	**Watershed**	San Francisco Bay Region Watersheds
Proponent	David Smith U.S.EPA			**Partners**	San Francisco Bay Region, State Water Board
Description	Develop guidance for watershed planning, reasonable assurance analysis and integration into capital improvement planning to assist both Water Board and municipalities in long term planning and compliance evaluations.				
Objectives	Supports Objective 3, establish permit pathways to assess storm water programs and meet water quality requirements.				

Region	Central Coast (Region 3)				
Project	Develop guidance on the use of dry wells for enhanced stormwater infiltration and groundwater augmentation.				
City	Gonzales	**County**	Monterey	**Watershed**	Salinas River
Proponent	Dominic Roques, Central Coast Region			**Partners**	City of Gonzales
Description	Dry wells are a key management tool for allowing storm water runoff to recharge groundwater supply. Contractor is developing engineering details and specifications for a bioretention/dry well combination design using local LID Prop 84 grant project in the City of Gonzales. The City's aquifer is currently in overdraft. Through development of the technical specifications, potential barriers to widespread use of storm water dry wells have been identified, including concerns related to groundwater contamination and requirements for dry well regulation in California.				
Objectives	Supports Objective 1, increase storm water capture and use through regulatory and non-regulatory approaches.				

Strategy to Optimize Resource Management of Storm Water

Potential Pilot Projects Identified by Interested Parties

Region	Central Coast (Region 3)				
Project	Municipal Stormwater Permitting Support Project				
City	Region-wide	**County**	Multi-County	**Watershed**	Central Coast Region Watersheds
Proponent	Dominic Roques, Central Coast Region			**Partners**	Phase II Permittees
Description	Develop technical guidance to support storm water program effectiveness analysis and adaptive management strategies. Tools and guidance includes instruction for (1) delineating urban catchments,(2) estimating baseline pollutant loads, (3) evaluating relative spatial risk and (4) quantifying load reductions associated with water quality improvement actions				
Objectives	Supports Objective 3, establish permit pathways to assess storm water programs and meet water quality requirements.				

Region	Los Angeles Region (Region 4)				
Project	Santa Clara Reach 1 Project				
City	Oxnard	**County**	Ventura	**Watershed**	Santa Clara River
Proponent	Nina Danza			**Partners**	Multiple potential partners
Description	This project would integrate levee improvements for urban flood protection, habitat restoration, recreation and storm water education and outreach with storm water capture and groundwater recharge. This project is in the conceptual stages.				
Objectives	Supports Objective 1, increase storm water capture and use through regulatory and non-regulatory approaches and Objective 2, increase stakeholder collaboration on watershed scale.				

Strategy to Optimize Resource Management of Storm Water

Potential Pilot Projects Identified by Interested Parties

Region	Los Angeles Region (Region 4)				
Project	Opportunities and Barriers to Increasing Stormwater Capture and Use				
City	Lakewood	**County**	Los Angeles	**Watershed**	Los Cerritos Channel
Proponent	California Council on Environmental and Economic Balance			**Partners**	Multiple potential partners
Description	Uses a project designed to construct an underground cistern and possible infiltration gallery and blend captured storm water with reclaimed water for irrigation, to displace potable and supplement recycled water sources to examine the regulatory and non-regulatory barriers to the capture and use of storm water in downstream pressure zones.				
Objectives	Supports Objective 1, increase storm water capture and use through regulatory and non-regulatory approaches; Objective 2, increase stakeholder collaboration on watershed scale; Objective 3, establish permit pathways to assess storm water programs and meet water quality requirements; and Objective 4, establish financially sustainable storm water programs				
Region	Central Valley Region (Region 5)				
Project	South County Agriculture Water Recycling Program				
City		**County**	Sacramento	**Watershed**	Consumnes and Sacramento Rivers
Proponent	Sacramento Regional Sanitation District (Terrie Mitchell)			**Partners**	
Description	Project will provide 50,000 acre-feet per year of recycled water and offers multiple benefits, such as groundwater recharge and storage, irrigation of agricultural and habitat lands with recycled water in lieu of continued groundwater pumping; and restoration and preservation of riparian habitat along the lower reaches of the Consumnes River				
Objectives	Supports Objective 1, increase storm water capture and use through regulatory and non-regulatory approaches.				

Strategy to Optimize Resource Management of Storm Water

Potential Pilot Projects Identified by Interested Parties

Region	Statewide				
Project	Evaluation of Zinc Sources in Urban Runoff				
City		**County**		**Watershed**	
Proponent	California Storm Water Quality Association & State Water Board			**Partners**	Department of Toxic Substances Control
Description	Project to work with the Department of Toxic Substance Control (DTSC) through their Safer Consumer Product Regulations petition process to add zinc to the DTSC Candidate Chemical List or zinc products contributing to urban runoff to the DTSC Priority Products List.				
Objectives	Supports Objective 6, increase source control and pollution prevention				

Proposal to Develop a Storm Water Program Workplan and Implementation Strategy – Including Projects for Immediate Action

DRAFT

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

June 25, 2015

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Table of Contents

List of Tables

List of Figures

Appendices

Strategy to Optimize Resource Management of Stormwater - *Appendix C*
Executive Summary

Storm water runoff from municipal separate storm sewer systems (MS4s), and to a lesser extent, industrial facilities and construction sites continues to be a major source of water quality impairment throughout the developed areas of California. Additionally, population growth, climate change and the current drought is increasing the pressure on the State to manage its water resources more effectively. These challenges represent an opportunity to redefine how California utilizes and values storm water as a water resource. Well-conceived storm water management actions can provide multiple benefits for California communities including, improved water quality, increased water supply, increased space for public recreation, increased tree canopy, enhanced stream and riparian habitat area, as well as many other benefits. This Proposal identifies the goals, challenges, and actions needed for the State Water Resources Control Board and nine Regional Water Quality Control Boards (Water Boards) to continue to improve the regulation, management and utilization of California's storm water resources.

The Water Boards have worked with an active and engaged stakeholder community over the past several decades to better regulate and manage storm water as part of our efforts to restore water quality in California's rivers and streams. Across the state, storm water programs have evolved over time from programs that were, in some cases, largely focused on public outreach and education and general control measures, to programs oriented toward specific control measures and water quality-based requirements. In the last several years, further advancements have been made, including the implementation of Total Maximum Daily Loads (TMDLs) requirements, low impact development (LID) practices, and watershed management plans that have one or multiple benefits. With the current drought, integrated approaches to storm water regulation are critical to help mitigate impacts of the drought by utilizing storm water as an important and valuable resource. This concept represents one of the pillars of this Storm Water Strategic Initiative (Initiative). Many other challenges and issues remain, and the Water Boards are committed to developing policies, plans, permits and/or guidance to guide regulation and build on existing successes throughout the state.

The combination of an urgent need to take bigger strides in protecting water quality from storm water impacts with the severe impacts of drought and climate change on California water resources compels immediate action.

In 2013, the State Water Resources Control Board (State Water Board) recognized the need to formulate a long term vision for the storm water program statewide. The California Water Action Plan, released in January 2014, further called for multiple benefit storm water management solutions and efficient permitting for multiple benefit projects. As a result, in April 2014, the Water Boards commenced the Initiative and formed a team of State and Regional Water Board staff (Initiative Team). Concurrently, the California Environmental Dialog developed a vision for managing storm water as a resource, wherein water quality improvement and water supply enhancement are complementary goals. Building on those steps, the Initiative Team released a

concept paper and met extensively with stakeholders, to understand their interests and ideas on how to proceed. The result is this Storm Water Strategic Initiative Proposal (Proposal).

Guiding principles form the foundation of this initiative and are intended to focus and guide the development of this proposal. Based on stakeholder input, the proposal includes the following, guiding principles for the Storm Water Program.

The Water Boards' Storm Water Program and overall efforts to manage storm water should:

1. Treat storm water as a valuable water resource;
2. Preserve watershed processes to achieve desired water quality outcomes;
3. Implement efficient and effective regulatory programs; and
4. Collaborate to solve water quality and pollutant problems with an array of regulatory and non-regulatory approaches.

Following the development of the guiding principles, the Initiative identified issues or barriers that inhibit the existing Storm Water Program from aligning with the guiding principles. Those issues are identified in this Proposal along with solutions to the issues, presented in Appendix A as a list or menu of projects or actions that the Water Boards can implement to evolve the Storm Water Program. The Project List includes the goals, objectives, scope, and resource needs for each project, in addition to the Initiative Team's recommendation of the priority for implementing each project. During the Initiative process, an additional effort was made to identify the projects that should receive immediate or near term support. These projects were classified as very high or high priority projects that will fast track key elements of the Storm Water Program and/or have current efforts already underway that would allow the project to move forward expeditiously. For clarity, the Initiative Team refers to these projects as the Immediate Action Projects. Eight of the projects in Appendix A. are designated as Immediate Action Projects (see Table 5.) Feedback from the stakeholders, and direction and support by the State Water Board, will guide the final content of the list of Immediate Action Projects. Implementing the Immediate Action Projects will the top priority for the next phase of the Initiative.

The next phase of Initiative will be to develop a statewide Storm Water Program Workplan and Implementation Strategy (Workplan) for the Immediate Action Projects. The Workplan will take effect upon approval by the State Water Board, and be updated regularly to include additional projects, as priority and resources allow. Stakeholder feedback on the recommendations in this Proposal will guide the content of the Workplan. The Workplan and a set of performance measures will be posted and maintained on a Water Boards web site. In order to sustain the project and achieve the vision, goals and objectives of this Initiative, the Water Boards must commit a sufficient level of storm water resource planning staff.

Strategy to Optimize Resource Management of Stormwater - *Appendix C*

1. Introduction

In 1987, the United States Congress amended the Federal Water Pollution Control Act Amendments (Clean Water Act; CWA) to include section 402(p), requiring the United States Environmental Protection Agency (U.S. EPA) to address storm water impacts to water quality (Gilbert-Miller, 2011.). Almost 30 years later, storm water runoff from municipal separate storm sewer systems (MS4s) and from some construction sites and industrial facilities continues to be a major source of water quality impairment throughout California (2010 Integrated Report.). Consequently, pressure has grown on the Water Boards Storm Water Program to develop policies/plans to guide storm water regulation, draft and reissue permits, and increase and improve efforts that address water quality problems resulting from storm water discharges.

The Water Boards have established some alternative, innovative solutions to storm water management in recent years, including integrated approaches that are coordinated through watershed efforts and encourage storm water retention for both water quality and water supply benefit. However, the challenges in regulating storm water continue to grow as California's natural landscape and hydrology is affected by development, a growing population, and the meteorological effects of climate change. The Storm Water Program must continue to evolve and promote incentive-driven approaches with multiple-benefits that achieve tangible results in terms of improved water quality and augmentation of local water supplies. In 2013, the State Water Board Members recognized that to advance the Water Boards' Storm Water Program, there needed to be an increased focus on the program and a rethinking of traditional regulatory approaches to storm water management, and therefore declared development of strategies for the Storm Water Program a priority.

The purpose of the Initiative is to direct the Water Boards' role in storm water resource management and the evolution of the Storm Water Program by a) developing guiding principles to serve as the foundation of the stormwater program into the future, b) identifying issues that inhibit the program from aligning with the guiding principles, and c) proposing and prioritizing projects that the Water Boards can implement to address those issues. This Initiative Proposal (Proposal) presents the anticipated outcomes of the Initiative, and a list of potential, strategic projects based on the stakeholder interests for consideration of the State Water Board. With direction from the State Water Board, a focused Storm Water Program Work Plan and Implementation Strategy will be developed to build on existing work performed by regional water quality control boards and local agencies, and to the extent resources are available, complete a selection of priority projects to improve the effectiveness of the Storm Water Program.

2. Background

Storm water discharges are regulated and managed as point source discharges through the issuance and implementation of National Pollutant Discharge Elimination System (NPDES) permits. The Clean Water Act initially required NPDES permits to be issued to regulate point source discharges from wastewater treatment facilities and industrial processes. In 1987 Congress expanded the Clean Water Act to include point source discharges of storm water from industrial facilities, construction sites, and MS4s.[1]

There are significant differences in the characteristics of these broad categories of point source discharges. Wastewater facilities can plan on a consistent and relatively predictable influent to a single, centralized treatment facility allowing treatment systems to be designed to optimize removal of solids, organics and other pollutants. Storm water runoff is diffuse, episodic, and varies greatly depending on magnitude and frequency of storms. Storm water runoff also contains variable pollutant loads due to accumulation during dry weather and rainfall characteristics. Beyond the natural characteristics of storm water runoff, increases in impervious surfaces due to urbanization, and the use of traditional infrastructure designed primarily for flood control, have increased the volume and velocity of runoff discharges contributing to hydromodification within watersheds. These factors contribute to the challenges of managing storm water discharges in a regulatory framework initially designed for predictable and consistent wastewater discharges.

Beginning in 1990, MS4 NPDES permits for storm water discharges were organized around basic elements of storm water management programs, as directed in 40 C.F.R. §122.26(d)(2)(iv), and provided permittees flexibility to identify, develop, and implement specific best management practices (BMPs) and institutional controls. Initial industrial and construction NPDES storm water permits also allowed permittees significant flexibility to develop Storm Water Pollution Prevention Plans that identify, develop, and implement best management practices to control pollutants.

As the Water Boards' Storm Water Program has matured, storm water permits have also evolved. Since the 2000s, the regulatory approach has included more detailed requirements that outlined the minimum level of implementation required for the permittees to meet the maximum extent practicable (MEP) and Best Available Technology Economically Achievable (BAT)/Best Conventional Pollutant Control Technology (BCT) standards for storm water. In addition, some MS4 permits now include more detail to emphasize the jurisdictional runoff management programs developed by the municipalities and introduce requirements for developing and implementing watershed-based programs within local watersheds. Construction and industrial storm water permits have minimum requirements for BMPs, training, certification,

[1] In 1990, U.S. EPA promulgated regulations that addressed medium and large MS4s, industrial facilities, and construction sites greater than 5 acres (Phase I). In 1999, these regulations were expanded to address smaller MS4s and construction sites between one and 5 acres (Phase II).

and action levels. Other specific requirements include post-construction BMP design standards and numeric limitations, consistent with wasteload allocations identified in Total Maximum Daily Loads (TMDLs) to attain established water quality objectives.

Although storm water permit requirements have progressively become more prescriptive and specific (i.e., where TMDLs and numeric effluent limits have been utilized), permits include very little detail regarding the desired outcomes of the required actions. Compliance with the permit requirements has largely been reduced to tracking reports and numbers of actions rather than tracking progress in the quality of receiving waters or discharges from the permittees. Addressing the challenges of managing storm water to protect water quality and watershed health, and at the same time, realizing the opportunities to beneficially use storm water, will require a fundamental shift in how the Water Boards implement the Storm Water Program. The Initiative builds on lessons learned and successes of previous and existing storm water permits while incorporating new approaches to water resource management.

The California Water Action Plan, released in January 2014, called for multiple benefit storm water management solutions and efficient permitting for multiple benefit projects to improve the sustainability of California's water resources. Additionally, in early 2014, State Water Board Member Tam Doduc participated in the California Environmental Dialog (CED) with a special session to consider setting a vision for a "Stormwater Strategy." The overall vision of the workgroup was to manage storm water in a manner that is beneficial to water quality and water supply (CED, 2014.). The Water Boards responded to these actions by initiating the Storm Water Strategic Initiative, the first phase of an effort to develop a Storm Water Program Work Plan and Implementation Strategy, to transition the program to better address new challenges, including drought and climate change. The Initiative is intended to guide the Water Boards' program for at least the next 10 years.

3. Collaboration, Outreach and Process

3.1. Internal Process

The Initiative was led by a multidisciplinary team composed of engineers, scientists, and geologists from the Central Coast, Los Angeles and San Diego Regional Water Boards and the State Water Board. This "Initiative Team" was guided by Executive Sponsors from the San Francisco Bay and Los Angeles Regional Water Boards and the State Water Board.

The Initiative Team held several meetings in early 2014 to discuss the concept and framework of the Initiative and identify the key elements and goals. The Initiative Team conducted extensive and focused outreach to receive input from a variety of stakeholder interest groups. To help facilitate dialogue, the Initiative Team developed and distributed a concept paper based on input from the State Water Board Storm Water Program management and the Executive Sponsors. (State Water Board, 2014.) The concept paper outlined three main elements: (1) utilization of storm water as a resource (2) removal of storm water pollutants by true source control and (3) improvement of overall Water Board program efficiency and effectiveness. The three main elements proposed to the stakeholders later evolved into the four Guiding Principles described in Section 4. The concept paper also suggested possible Storm Water Program issues and project actions designed to spur, but not limit, discussion with stakeholders.

3.2. Stakeholder Involvement Process

In summer and fall of 2014, the Initiative Team conducted over twenty stakeholder meetings. Each meeting targeted specific groups including representatives of environmental advocacy and non-profit organizations, municipal storm water permittees, industrial and construction storm water permittees, the general public, and Regional Water Board staff to gather input on how to improve the effectiveness of the Storm Water Program. The concept paper was circulated to stakeholders prior to meeting with the groups. In order to have a focused, effective discussion at the stakeholder outreach meetings, the Initiative Team met with each interest group independently. Stakeholder meetings included the following;

- California Municipal Storm Water Agencies, Oakland, May 8, 2014
- Southern California Environmental Advocacy Organizations, Santa Monica, June 25, 2014
- Southern California Municipal Storm Water Agencies, Riverside, June 26, 2014
- Interested Parties and General Public, Sacramento, July 2, 2014
- Southern California Regional Water Boards staff, Riverside, July 22,2014
- Northern California Regional Water Boards staff, Sacramento, July 23, 2014
- Northern California Environmental Advocacy Organizations, San Francisco, July 29, 2014
- Northern California Municipal Storm Water Agencies, Oakland, July 31, 2014
- Northern California Industrial and Construction Permittees, Sacramento, August 7, 2014
- U.S. Department of Defense, Sacramento, August 8, 2014,

- California Council for Environmental and Economic Balance and Wastewater and Municipal Storm Water Agencies, Fountain Valley, August 12, 2014
- Southern California Environmental Advocacy Organizations, Long Beach August 12, 2014
- Central Coast Municipal Storm Water Agencies, Monterey, August 13, 2014
- Central Coast Municipal Storm Water Agencies, San Luis Obispo, August 14, 2014
- Northern California Municipal Storm Water Agencies, Sacramento, August 14, 2014
- Southern California Interested Parties and General Public, San Diego, August 20, 2014
- Northern California Interested Parties and General Public, Sacramento, August 21, 2014
- California Urban Water Conservation Council, Sacramento, August 25, 2014
- Gateway Water Management Authority, Paramount, August 27, 2014
- U.S. Environmental Protection Agency, San Francisco, October 17, 2014.

In addition, the Initiative was highlighted through an information item at the State Water Board's July 2, 2014 Board Meeting Workshop. The State Water Board did not take an action nor provide specific direction during the workshop.

A general summary of the input received from categories of stakeholder groups is provided below. Other less prevalent topics were also discussed and noted during stakeholder group meetings, but are not summarized here.

3.2.1. Environmental Advocacy Input

Environmental advocacy representatives recognized storm water should be used as a resource, the benefits of such use can contribute to water quality and watershed health, and that storm water permits should be written to encourage this action. Environmental advocacy representatives expressed the need for storm water permits to include stricter and simpler compliance related requirements, such as numeric effluent limitations, and stricter enforcement approaches to address permit violations. Implementation of TMDL requirements was highlighted as a priority that should be conducted immediately. In addition, environmental advocacy representatives suggested that storm water permits should provide incentives to encourage green infrastructure, retrofits, and multi-benefit projects.

3.2.2. Municipal Storm Water Input

Municipalities thought that compliance costs and lack of available funding was the biggest barrier to successful storm water program implementation. Municipal representatives indicated that more funding opportunities would significantly assist their efforts to improve storm water quality. Many municipalities felt that the MS4 permits emphasize actions that do not directly improve storm water quality. The municipalities suggested that the permits should focus on improvements that will have direct and measureable benefits, such as regional infiltration or treatment systems, funding of green street projects, and related efforts. Another important issue identified by municipalities is that significant outreach to target audiences is needed. The municipalities highlighted that local leaders and elected officials must understand the importance of supporting storm water quality improvements with adequate funding.

3.2.3. Regional Water Board Staff Input

Regional Water Board staff generally stated that although statewide consistency is valued for effective storm water management, regional differences associated with climate, population, density, and significance of storm water impacts should still be recognized. For areas of improvement, regional board staff suggested that TMDL wasteload allocations and receiving water limitations should be integrated and effectively implemented in storm water permits. While regional board staff considered utilizing storm water as a resource an important issue that must be addressed, regional board staff also conveyed that identifying where infiltration and retention of storm water can and should occur and the means to encourage it is critical to supporting this Guiding Principle.

3.3. Incorporation of Stakeholder Input

The Initiative Team prepared summaries of each stakeholder meeting to memorialize the issues and projects identified during the meetings. Those issues and projects were then compiled and, where possible, combined with other similar input to form the basis of the Issue and Project Lists. These were then organized and prioritized according to the methodology presented in Section 5.

4. Guiding Principles

The guiding principles included in this document represent the fundamental values the Water Boards' Storm Water Program aspires to uphold and advance, from the perspective of the regulator as well as the regulated community and other stakeholders. Early in the development of the Initiative, the Initiative Team considered contemporary documents including the California Council for Environmental and Economic Balance report titled "A Clear Path to Cleaner Water, Implementing the Vision of the State Water Board for Improving Performance and Outcomes at the State Water Boards", a letter from the California Environmental Dialogue to Mr. Tom Howard, State Water Board, and considered policy related direction from the State Water Board's Executive Office to draft the guiding principles for the concept paper. The Initiative Team used the draft principles during the stakeholder meetings to better understand stakeholder interests, and refine and expand the recommendations into the guiding principles presented here.

Guiding Principle 1: The Water Boards' Programs Treat Storm Water as Valuable Water Resource.

Why Is This Guiding Principle Important?

Storm water is a valuable resource and a critical element of local sustainability. Past land development practices increased impervious areas and compacted soils, resulting in less storm water infiltrating and more surface runoff. Traditional MS4s and infrastructure were designed to rapidly convey storm water from the landscape into receiving waters and eventually the ocean, bays, and estuaries. Under predevelopment conditions, storm water would infiltrate and recharge the water table rather than being discharged to surface waters. As a result of land use impacts, groundwater characteristics and flow regimes can be altered, reducing available groundwater supplies as well as base flow for perennial streams during dry periods. This paradigm needs to shift. Capturing and using storm water as a resource can provide multiple benefits such as offsetting drought related impacts through additional recharge and aquifer storage, mitigating storm water pollution, creating open space, enhancing fish and wildlife habitat, supporting watershed processes, and improving water use efficiency while mitigating the adverse effects of flood flows.

Guiding Principle 2: The Water Boards' Storm Water Programs Preserve Watershed Processes to Achieve Desired Water Quality Outcomes.

Why Is This Guiding Principle Important?

In California, pollutants in storm water from urban areas are a primary cause of impairment of our rivers, lakes, reservoirs, estuaries, and ocean. Urbanization causes changes in the natural landscape and hydrology resulting in increased loads of pollutants, increased toxicity, changes in stream flow magnitude and frequency, changes in the seasonality of various discharges,

physical changes to stream, lake, and wetland habitats, changes in the energy dynamics of food webs, sunlight, and temperature, and biotic interactions between native and exotics species. Management of storm water to maintain watershed processes within natural ranges can avoid these impacts. Restoring key watershed processes,[2] such as through retrofitting of the existing urban environment, can help mitigate the damage done by past land development practices.

Guiding Principle 3: The Water Boards Implement Efficient and Effective Regulatory Programs.

Why Is This Guiding Principle Important?

Improving the efficiency and effectiveness of the Water Boards' Storm Water Program increases Water Board productivity while concurrently achieving progress towards desired environmental outcomes. As external stakeholders must focus on environmental outcomes, the Water Boards need to support such outcomes through regulatory and funding programs. Implementing a more efficient and sustainable storm water program would allow staff to work on other important program issues staff and is a critical key to success of this effort. As California's population increases, pressure mounts on the environment, which leads to pressure on the Water Boards to produce better regulatory results (e.g., updated permits, inspections, improved data management, policy changes). The Water Boards seek to increase these results while gaining better evidence that they are achieving the environmental outcomes of improved water quality, reliable water supply, and healthy watersheds.

Guiding Principle 4: The Water Boards Collaborate to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches.

Why Is This Guiding Principle Important?

While standard regulatory approaches such as issuing permits can be effective, other less common regulatory and source control approaches can play an important role in reducing pollutant discharges and protecting water quality. For example, removing pollutants before they become entrained in storm water can be more effective than traditional treatment based management practices. Not enough resources have been applied to source control related techniques such as product replacement, product substitutions, and incorporating green chemistry toward the removal of pollutants prior to exposure with storm water. Supporting and where possible, implementing these concepts of true source control through the Water Boards' Storm Water Program can appreciably improve storm water quality and represent a considerable cost savings in comparison to treatment based management practices. Few materials that are commonly reported in storm water are evaluated from a lifecycle perspective, that is what actions, processes, or handling techniques are causing high pollutant levels in storm water and what actions behaviors or processes could be altered to reduce the exposure.

[2] Key watershed processes include overland flow, rilling and gullying, infiltration and groundwater recharge, interflow (i.e., shallow groundwater flow), evapotranspiration, delivery of sediment and organic matter to waterbodies, and chemical/biological transformations.

True source control would necessitate extensive collaboration with industries and require those agencies with appropriate authorities to take action as well in order to achieve success.

5. Methodology

The following is a stepwise process to identify, organize, and prioritize the primary issues facing the Storm Water Program, and develop potential projects to address those primary issues. While the process was largely undertaken by the Initiative Team, stakeholders and Initiative Executive Sponsors provided input at key points in the process. The methodology is shown graphically in Figure 1 and described in more detail below.

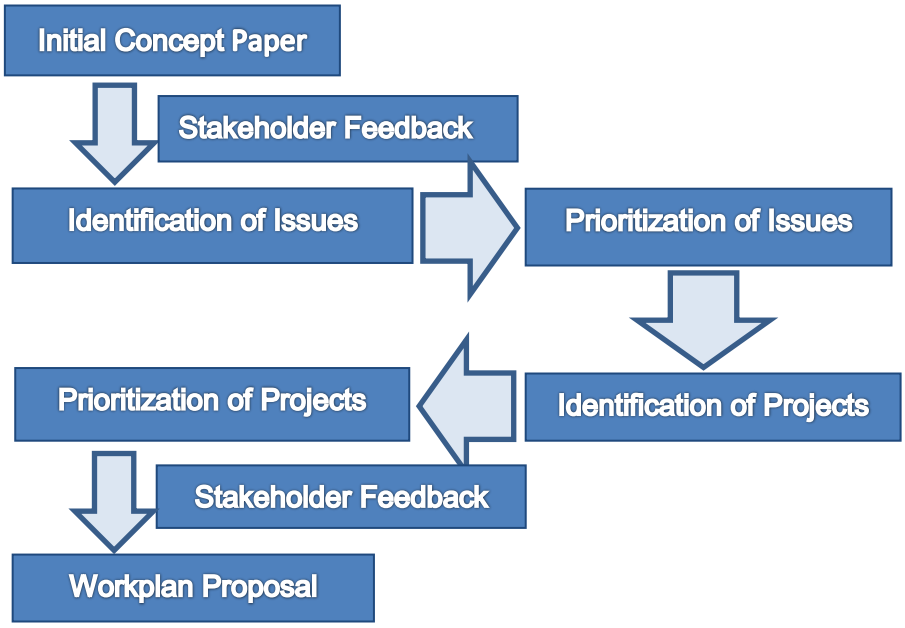

Figure 1. Storm Water Strategic Initiative Methodology Flowchart

5.1. Identification and Prioritization of Issues Facing the Storm Water Program

Following development of the guiding principles, the Initiative Team began the initial process of identifying factors that impede the pursuit and attainment of the guiding principles' objectives. These factors became a preliminary list of storm water program "issues." The issues were organized according to guiding principles and assembled in a preliminary concept paper document that was circulated widely amongst stakeholders. The process the Initiative team used to solicit stakeholder feedback on the preliminary list of issues is described in Section 3.

In response to stakeholder input, the Initiative Team modified its previously developed list of issues to clarify the descriptions of the issues and capture stakeholder perspectives. Stakeholders also identified new storm water program issues, which the team added to the issues list. The resulting issues list, due to its comprehensiveness, had substantial overlap between many of the various issues. The team minimized these redundancies by combining

those issues that were similar. The resulting list addressed all issues raised by stakeholders and included a concise description of each issue.

The Initiative Team then prioritized the issues based on a series of criteria designed to assess the importance resolving the issue in order aligning the Storm Water Program with the guiding principles. The following criteria were used to assess each issue:

- Will addressing the issue protect and restore watershed processes?
- Will addressing the issue utilize storm water as a resource?
- Will addressing the issue reduce pollutant discharges and improve water quality?
- Will addressing the issue result in management of pollutants from a more holistic and efficient point of view, by addressing them earlier in their life-cycle?
- Will addressing the issue improve internal and/or external program efficiency and/or effectiveness?

A numeric score was assigned based on the strength of the issue's alignment with the each of the criterion. Scoring was conducted collectively by the Initiative team. In almost all cases, the Initiative team was able to reach a unanimous decision on final scores. The issues' numeric scores for each criterion were then summed to calculate a single score for each issue. Based on these scores, the issues were furthered characterized as very high, high, medium, or low priority.

5.2. Identification and Prioritization of Projects to Address Issues Facing the Storm Water Program

Upon prioritization of the issues, the Initiative Team undertook an effort to identify and describe projects to address the issues. Since the issues identified were numerous and broad-ranging, the team focused on developing projects that addressed all high and medium priority issues, though projects addressing low priority issues were developed in some cases. Projects were developed using a variety of methods. Many were projects the team had previously identified during its experience implementing the Storm Water Program at the Water Boards. Other projects were identified by the Water Board management team. Still others were designed to build upon and bolster existing stakeholder and Water Board efforts.

Prior to project prioritization, each project was described in a consistent level of detail to facilitate the prioritization process and ensure comparability between projects. The project descriptions include (1) the priority of implementing the project, (2) the issues the project addresses, (3) goals and objectives, (4) project scope, (5) background information, (6) proposed work products, and (7) proposed timelines and resource needs.

Once the projects were identified and fully described, the Initiative Team prioritized the projects in the same manner as the prioritization of the Storm Water Program issues. Again, projects were scored using a series of criteria, and the totaled scores were used to identify a priority level for the project. The following criteria were used:

- Does the project address one or more high priority issue(s)?
- Is the project likely to be effective in addressing the issue(s)?
- Is the project likely to be efficient in addressing the issue(s)?

- Does the project have Permittee and/or stakeholder support?
- Do the Water Boards have the authority to implement the project? Is the issue wholly within the Water Boards' control, or can the Water Boards indirectly or collaboratively address the issue?
- Can the project be done with existing resources (internal), or are external resources needed?
- Does the project leverage other efforts/resources?
- Are there significant barriers to project implementation? If so, are they technical, policy, legal or funding barriers?

Similar to the prioritization of issues, the projects were sorted into very high, high, medium, and low priority based on their summed criteria scores. Some projects were recommended as "Immediate Action Projects". The Initiative Team and Executive Sponsors find that these Immediate Action Projects are ready to begin immediately, provided Water Board resources are available. Immediate Acton Projects meet the criteria of requiring little to no build-up time or effort in order to begin.

6. Issues and Projects List

This section presents the results of the Initiative process in the form of the Issue and Project Lists.

6.1. Issues

The stakeholder process identified approximately 40 issues that are barriers to effective storm water management and water quality protection. These issues were, in many cases, an articulation of the barriers to effective storm water management. In some cases, the issues reflected ongoing and long term challenges to the Storm Water Program, while others reflected more recent challenges. For some issues, limited effort has already been completed to address an issue, while in other cases little to no work has been done. For ease of presentation and to facilitate the review of the issues, seven overarching issue topic statements have been developed to show commonalities between related issues. Additionally, the issue topic statements are shown linked to the Guiding Principle most closely addressed by it. Once categorized, the issues were prioritized according to the methodology described in Section 5.

A complete list of the issues and the results of the issue prioritization is presented in Table 1.

Strategy to Optimize Resource Management of Stormwater - *Appendix C*

Table 1. List of Issues organized by Guiding Principle and Topic

Guiding Principle 1: The Water Boards' Programs Treat Storm Water as Valuable Water Resource		
Storm water policy and management actions should optimize the use of storm water as a resource.		
ID	Issues Needing to Be Addressed to Achieve the Guiding Principle	Priority
1	Storm water should be managed as a resource to maintain and restore infiltration/recharge and achieve multiple benefits such as flood control, drought and climate change preparedness, water supply augmentation, groundwater recharge, water quality improvement, habitat restoration/protection, and recreational opportunities.	High
2	Determining the value of storm water and developing a credit program for infiltration in permits can be an effective means to meet water quality outcomes.	High
3	Greater collaboration between the Water Boards storm water program and related intra/inter-agency programs is beneficial to remove barriers and inconsistency in code related to storm water capture, infiltration, and use.	High
4	Water Boards need to identify and address how storm water retention, storage and infiltration projects could potentially affect water supplies, water rights and associated legal implications from retention, storage and infiltrating projects.	Medium
5	Greater incentives are needed to broaden the acceptance and implementation of Low Impact Development (LID), such as green streets, green parking lots, bioretention features, green roofs, and native landscaping practices for the general public.	Medium
6	Storm water interests should be better aligned with other larger environmental interests to optimize synergistic effects.	Medium
Consistent and widespread messaging is needed to broaden the understanding of the value of storm water.		
ID	Issues Needing to Be Addressed to Achieve the Guiding Principle	Priority
7	The Water Boards should be actively involved in developing focused and consistent messaging through public (including industrial and commercial) outreach and education regarding improving storm water needs.	Medium
8	Water Board should communicate the importance of storm water as a resource to elected officials, especially local government officials.	Low

Guiding Principle 2: The Water Boards' Storm Water Programs Preserve Watershed Processes to Achieve Desired Water Quality Outcomes		
Storm water permits should provide accountability and support water quality outcomes.		
ID	Issues Needing to Be Addressed to Achieve the Guiding Principle	Priority
9	Storm water permit requirements should focus on water quality outcomes instead of minimum requirements or actions. This lack of focus sometimes results in prioritizing resources for actions with fewer water quality benefits. Therefore, a more flexible, yet accountable, regulatory approach is needed to allow for multi-benefit projects and other customized actions to achieve accountability and water quality outcomes.	High
10	Post construction standards should be revised to adequately maintain and restore watershed processes critical to watershed health because current standards are either over protective in some cases and under protective in others.	High
11	Storm water regulations and incentives should be used together to achieve desired outcomes. Incentives are needed to allow for alternative approaches to storm water management, such as watershed restoration.	High
12	Existing development should be retrofitted for storm water management.	High
13	The performance goals and requirements for post construction measures should be consistent in order to lead to effective implementation during the planning, design, and construction phase.	High
14	Water Board resources should be increased to provide adequate oversight (inspection, report review, audits and enforcement) for the storm water program.	Medium
15	Compliance evaluation (i.e., inspections and report review) should be performed in a consistent manner.	Low
16	Storm water staff should not limit themselves to reworking the same issues when developing permit requirements, but rather focus on issues essential to water quality and watershed health.	Low

Guiding Principle 3: The Water Boards Implement Efficient and Effective Regulatory Programs		
Storm water program funding barriers need to be addressed.		
ID	Issues Needing to Be Addressed to Achieve the Guiding Principle	Priority
17	The Water Boards assist municipalities, especially disadvantaged and environmental justice communities, in removing barriers that prevent them from fully funding their programs.	High
18	Access to local and state funding opportunities needs to be broadened, especially for disadvantaged and environmental justice communities, and non-competitive grant funding opportunities need to be identified.	Medium
19	Better cost estimates are needed for newer storm water strategies.	Low
20	A clear and consistent understanding of cost of compliance with storm water permit requirements should be established.	Low
21	Environmental costs associated with inadequate storm water management should be quantified.	Low
Storm water programs need effective reporting and assessment methods.		
ID	Issues Needing to Be Addressed to Achieve the Guiding Principle	Priority
22	Feedback loops between planning, implementation, monitoring and effectiveness assessment should be applied at all levels (facility, municipality and state).	High
23	Methodologies, tools, and measures for storm water program effectiveness should be improved to support adaptive management and provide data that can be acted upon to improve storm water program effectiveness.	Medium
24	Consistent report submittals into a relational database will benefit Water Board decision-making and program management.	Medium
25	Basic Water Board program work and tasks will be more efficient with the use of the latest technology (e.g. tablets for inspectors).	Low
26	Water Board databases should be updated and improved to be more user-friendly.	Low

Guiding Principle 3: Continued		
Storm Water policy and permits should be periodically updated to reflect the continually improving understanding and management of storm water.		
ID	Issues Needing to Be Addressed to Achieve the Guiding Principle	Priority
27	Policy development and storm water permit writing need greater connectivity and alignment.	High
28	Better optimization of (compliance) design storms is needed for specific water quality outcomes (e.g. TMDLS).	High
29	MS4 permits should include schools (automatically).	Medium
30	Total Maximum Daily Load (TMDL) implementation through storm water permits should be carefully addressed, due to the large number of TMDLs, limited TMDL implementation resources, and challenges with incorporating TMDL implementation requirements into storm water permits.	Medium
31	Water quality-based numeric effluent limitations can be feasible and effective and should be utilized in storm water permits.	Medium
32	Permits need to better clarify specific elements that are enforceable including: enrollment, deadlines, and timely BMP implementation. Stricter enforcement of these elements is needed.	Medium
33	Technology-based, numeric effluent limitations (NELs) can be feasible and effective in some cases (e.g., sectors, circumstances, etc.) and should be utilized in storm water permits.	Medium
34	Post construction standards should be more flexible to allow for efficient and creative solutions to post construction impacts.	Medium
35	Permit writing tools are needed for more consistent storm water permits.	Low
36	A unified approach to assessing compliance with receiving water limitations, such as identifying standard points of compliance, needs to be established.	Low
37	Some Phase I and Phase II permit requirements are redundant with other programs.	Low
Guiding Principle 4: The Water Boards Collaborate to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches		
True source control should be efficiently and effectively supported as a solution for applicable storm water pollutants.		
ID	Issues Needing to Be Addressed to Achieve the Guiding Principle	Priority
38	Control of some pollutants (specifically product-related pollutants) can be efficient and effective achieved through “true source control.”	High
39	Long term institutional and industry connections are needed to implement effective true source control.	Medium
40	Since MS4s' authority for true source control is limited, the State should play a key role or lead the effort.	Medium

6.2. Projects

Upon completion of the Issue List, proposed projects were developed to address the issues and ultimately progress the Storm Water Program toward attainment of the guiding principles. Proposed projects were identified during both the stakeholder outreach meetings and internal staff deliberation. Project descriptions were developed for each project and include:

- **Project Title**
- **Priority Rank:** Project priority rank based on scored criteria; see Section 5 for the scoring criteria.
    - **Assessment:** Explanation of prioritization based on two summary criteria: 1) how important is completing the project for the Storm Water Program to align with the guiding principles, and 2) how achievable is the project, do the Water Boards have the needed authority and resources to complete the project?
- **Issues:** A list of the Issue ID numbers (see Table 1) that the project will address.
- **Goal:** A goal is identified for each project and usually associated with the issue(s) the project addresses.
- **Objective:** An action item(s) is identified to support the goal.
- **Scope:** A scope of work is outlined to accomplish the objective.
- **Background:** Information, including barriers, regarding the issues and project is provided. Previous and/or current information is also identified to assist in developing the project scope.
- **Product and Timelines:** For each major task, the resulting product is identified and estimate of the timeline and required resources is provided. Resource estimates are given in terms of both staff resource allocations and contract or non-staff funds. Staff resources allocations are estimated as high, medium, and low staff resource allocations, which correspond to greater than three personnel years (PYs), one to three PYs, and less than one PY, respectively. Contract or non-staff resources are estimated as none, some, or substantial resource needs.

The complete Project List with full project descriptions is included as Appendix A. A summary of the Project List including project title, resource allocation estimates, and the timeline is presented in Table 2.

In many cases, a single project that addressed multiple issues could be identified. This approach reduced the number of projects and also provided for more comprehensive projects. A summary of the issues and the project identified to address the issue(s) is shown in Table 3. A review of the table demonstrates that most projects address multiple issues.

Table 2. Project Titles Organized by Guiding Principle and Issue Topic

PROJECT NUMBER	PROJECT TITLE	RESOURCE NEEDS* (Staff/Contract)	TIMELINE
The Water Boards' Programs Treat Storm Water as Valuable Water Resource			
1	Support Storm Water Capture and Use		
1a.	Storm Water Capture and Use Goal	Low / $	2 years
1b.	Barriers to Storm Water Capture and Use	Medium / $$	3 years 3 months
1c.	Increase Storm Water Capture and Use through Regulatory Approaches	Low / $	1.5 years
2	Stakeholder Collaboration to Promote Storm Water as a Resource	Low / $	2 years 3 months and ongoing**
3	Monetary Value of Storm Water	Medium / $	4 years
4	Senate Bill 985 Storm Water Resource Plan Implementation	Medium / $	2 years and ongoing**
The Water Boards' Storm Water Programs Preserve Watershed Processes to Achieve Desired Water Quality Outcomes			
5	Alternative Compliance Approaches for Municipal Storm Water Permit Receiving Water Limitations	Medium / $$	3 years
6	Watershed-Based Compliance and Management Guidelines and Tools	Medium / $$$	3 years 6 months
7	Post-Construction Requirements for Watershed Health	Medium / $$$	4 years

PROJECT NUMBER	PROJECT TITLE	RESOURCE NEEDS* (Staff/Contract)	TIMELINE
The Water Boards Implement Efficient and Effective Regulatory Programs			
8	Funding for Storm Water Programs	Medium / $	4 years and ongoing**
9	Municipal Storm Water Program Compliance Cost	Low / $$	1 year 6 months
10	Industrial and Construction Storm Water Permitting Compliance Cost	Low / $$	1 year 6 months
11	Storm Water Program Asset Management Planning and Cost Estimation	Low / $$	1 year
12	Municipal Storm Water Program Monitoring and Effectiveness Assessment	Medium / $$	3 years
13	Storm Water Program Data and Information “Open Data” Project	Medium / $$	4 years
14	Storm Water Permit Compliance Evaluation	Medium / $	2 years 3 months and ongoing**
15	Standardized Minimum Control Measures for Specific Municipal Program Elements	Medium / $	1 year 6 months
16	Statewide Regulatory Framework for Municipal Storm Water	Medium / $	5 years and ongoing**
17	Training and Information-Sharing for Water Board Staff and the Regulated Community	Low / $	Ongoing
18	Sector-specific Technology-based Numeric Effluent Limitations for Industrial and Construction Storm Water Permits	Medium / $	6 years

PROJECT NUMBER	PROJECT TITLE	RESOURCE NEEDS* (Staff/Contract)	TIMELINE
19	Trash Control	Medium / $	3 years 6 months
20	Alignment of Water Quality Statewide Planning Efforts with Storm Water Program Implementation – Pilot Using the Biological Integrity Plan	Low / $	2 years
The Water Boards Collaborate to Solve Water Quality and Pollutant Problems with an Array of Regulatory and Non-Regulatory Approaches			
21	True Source Control and Pollution Prevention	Low / $$$	4 years 6 months
22	Urban Pesticide Reduction	Medium / $	2 years

***** Resources estimates (Staff/Contract) are presented using the following categories:

Staff

- Low – Less than one person working full time for the project duration
- Medium – One to three people working full time for the project duration
- High – More than three people working full time for the project duration

Contract

- $ – Less than $100,000 contract for external resources anticipated
- $$ – $100,000 to $500,000 contract for external resources anticipated
- $$$ – Greater than $500,000 contract for external resources anticipated

Note - Resources represent average for each project over time and include estimated resources used for task being worked on in parallel, as a result these estimates differ from those task specific resource allotments described in Appendix A.

****** Ongoing indicates that the project will require a continuous but limited staff effort to sustain the results of the project.

Table 3. Summary of Issues being addressed by each Project

	ISSUES																																						
PROJECTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Project 1a.																																								
Storm Water Capture and Use Goal	x		x		x	x	x	x																			x													
Project 1b.																																								
Barriers to Storm Water Capture and Use	x			x																																			
Project 1c.																																								
Increase Storm Water Capture and Use through Regulatory Approaches	x				x				x	x	x	x																												
Project 2																																								
Stakeholder Collaboration to Promote Storm Water as a Resource	x		x		x	x	x																																
Project 3																																								
Monetary Value of Storm Water	x	x	x	x							x						x	x																						
Project 4																																								
Senate Bill 985 Storm Water Resource Plan Implementation	x				x	x						x	x																											
Project 5																																								
Alternative Compliance Approaches for Municipal Storm Water Permit Receiving Water Limitations	x	x			x				x	x	x		x														x								x	x				
Project 6																																								
Watershed-Based Compliance and Management Guidelines and Tools	x								x	x						x																								
Project 7																																								
Post-Construction Requirements for Watershed Health									x	x																														
Project 8																																								
Funding for Storm Water Programs	x																x	x		x																				
Project 9																																								
Municipal Storm Water Program Compliance Cost																				x																				
Project 10																																								
Industrial and Construction Storm Water Permitting Compliance Cost																			x	x																				
Project 11																																								
Storm Water Program Asset Management Planning and Cost Estimation																			x	x																				

ISSUES

PROJECTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Project 12 Municipal Storm Water Program Monitoring and Effectiveness Assessment																						x	x	x		x										x				
Project 13 Storm Water Program Data and Information "Open Data" Project															x							x	x		x	x														
Project 14 Storm Water Permit Compliance Evaluation											x			x																										
Project 15 Standardized Minimum Control Measures for Specific Municipal Program Elements																													x			x			x					
Project 16 Statewide Regulatory Framework for Municipal Storm Water					x											x											x	x		x	x		x		x	x				
Project 17 Training and Information-Sharing for Water Board Staff and the Regulated Community	x		x	x	x		x		x	x	x		x									x	x				x	x		x	x	x	x					x		
Project 18 Sector-specific Technology-based Numeric Effluent Limitations for Industrial and Construction Storm Water Permits																																	x							
Project 19 Trash Control															x	x																								x
Project 20 Alignment of Water Quality Statewide Planning Efforts with Storm Water Program Implementation – Pilot Using the Biological Integrity Plan									x					x		x																								
Project 21 True Source Control and Pollution Prevention						x																																x		x
Project 22 Urban Pesticide Reduction						x																x																x	x	x

7. Project Prioritization and Recommendations

This section presents the prioritized Project List and the Initiative Team's recommendations for Immediate Action Projects. Scores were assigned to each project as described in Section 5, and based on the scores the project was further delineated as very high, high, medium, or low priority. The results of this process are shown in Table 4. Several of the projects were further identified as high priority projects that are ready to begin immediately, and therefore the Initiative Team included them as Immediate Action Projects, described further in Section 7.1.

Table 4. Project Prioritization Results

PROJECT NUMBER	PROJECT TITLE
Very High Priority	
1a.*	Storm Water Capture and Use Goal
1c.	Increase Storm Water Capture and Use through Regulatory Approaches
4*	Senate Bill 985 Storm Water Resource Plan Implementation
High Priority	
1b.*	Barriers to Storm Water Capture and Use
5*	Alternative Compliance Approaches for Municipal Storm Water Permit Receiving Water Limitations
6*	Watershed-Based Compliance and Management Guidelines and Tools
7	Post-Construction Requirements for Watershed Health
8*	Funding for Storm Water Programs
12	Municipal Storm Water Program Monitoring and Effectiveness Assessment
13*	Storm Water Program Data and Information “Open Data” Project
16	Statewide Regulatory Framework for Municipal Storm Water
17*	Training and Information-Sharing for Water Board Staff and the Regulated Community
20	Alignment of Water Quality Statewide Planning Efforts with Storm Water Program Implementation – Pilot Using the Biological Integrity Plan
22*	Urban Pesticide Reduction

PROJECT NUMBER	PROJECT TITLE
Medium Priority	
2	Stakeholder Collaboration to Promote Storm Water as a Resource
3	Monetary Value of Storm Water
9	Municipal Storm Water Permitting Compliance Cost
10	Industrial and Construction Storm Water Permitting Compliance Cost
14	Storm Water Permit Compliance Evaluation
15	Standardized Minimum Control Measures for Specific Municipal Program Elements
19	Trash Control
21	True Source Control and Pollution Prevention
Low Priority	
11	Storm Water Program Asset Management Planning and Cost Estimation
18	Sector-specific Technology-based Numeric Effluent Limitations for Industrial and Construction Storm Water Permits

* Recommended Immediate Action Projects

7.1. Immediate Action Projects and Recommendations

During the Initiative process, an additional effort was made to identify the projects that should receive immediate or near term support. These projects were classified as very high or high priority and will fast track key elements of the Storm Water Program and/or have current efforts already underway that would allow the project to move forward expeditiously. For clarity, the Initiative Team deemed it appropriate to form a subset of the Project List containing only the projects meeting the above criteria, and denote those projects the Immediate Action Projects (see Table 5). The Immediate Action Projects includes Projects 1, 4, 5, 6, 8, 13, 17, and 22 and if those projects are implemented immediately, as recommended, significant portions, if not the entire project, will be completed by 2018. Table 5 summarizes the Immediate Action Projects and estimates the resources and time needed to complete the projects. While staff strongly supports all eight of these projects, implementation will be dependent on available resources, and it may not be possible to simultaneously pursue all eight Immediate Action Projects. Tables 6a and 6b present two conceptual scenarios for project implementation based on available staff and contract fund resources. These hypothetical scenarios present two year project resource expenditures for the following scenarios: (a) unlimited staff resources and $200,000 of contract funds in the first year are available to implement all Immediate Action Projects and (b) four full time staff and $200,000 of contract funds in the first year are committed. See Section 8 for a further discussion of resource needs and alternatives for making resources available.

Projects not included as Immediate Action Projects may also be high priority projects, but the lack of current efforts to pursue the projects makes the implementation of these projects less time sensitive. As the Water Boards take action on the recommended projects and the Storm Water Program evolves, it will be necessary to readdress the Project List and prioritization rankings. Section 9 outlines the necessary steps to maintaining the relevance of the Project List through the Storm Water Program Workplan and Implementation Strategy effort.

Table 5. Summary of Immediate Action Projects

PROJECT NUMBER	PROJECT TITLE	TOTAL RESOURCES* (Staff/Contract)	TIMELINE
1a.	Storm Water Capture and Use Goal	1 PY / $50	2 years
1b.	Barriers to Storm Water Capture and Use	3 PY / $150k	3 years 3 months
4	Senate Bill 985 Storm Water Resource Plan Implementation	2 PY / $0	1 year and ongoing**
5	Alternative Compliance Approaches for Municipal Storm Water Permit Receiving Water Limitations	3 PY / $250k	3 years
6	Watershed-Based Compliance and Management Guidelines and Tools	4 PY / $500	6 years 9 months
8	Funding for Storm Water Programs	4 PY / $0	4 years and ongoing**
13	Storm Water Program Data and Information "Open Data" Project	3 PY / $100k	3 years
17	Training and Information-Sharing for Water Board Staff and the Regulated Community	0.5 PY / $0	Ongoing**
22	Urban Pesticide Reduction	2 PY / $0	2 years

* Estimates of the total staff and contract resources in Personnel Year (PY) and dollar amounts, respectively, needed to complete the project.

** Ongoing indicates that the project will require a continuous, but limited staff effort to sustain the project results.

8. Next Steps

8.1. Future Stakeholder Involvement

Stakeholder input is invaluable to the Initiative process and is especially important to the review of both this Proposal and for the ongoing development of a Storm Water Program Work Plan and Implementation Strategy. Stakeholder input during the release of the Proposal draft will shape the final Guiding Principles and the content and prioritization of the Issue and Project Lists. Additionally, stakeholder input regarding opportunities to collaborate or leverage other efforts will increase mutual interest and buy-in by more parties, and can substantially enhance and extend the available Water Boards resources towards more efforts and projects. The Water Boards will establish a long term, committed process for immediate and ongoing stakeholder input and collaboration.

The projects presented in Appendix A contain sufficient detail for the State Water Board to identify and prioritize the projects that the Water Boards will support in the near and long term. However, most of the projects in Appendix A will need further development before they can be implemented. In most cases this step will include:

- Project scope and products will be more clearly articulated;
- Specific tasks and milestones will be identified; and
- Budget and resource needs will be more accurately estimated (including information about external resources)

Thus, during the development of the Storm Water Program Workplan and Implementation Strategy, the Water Boards will actively engage the various stakeholders to provide input regarding scope, budget, and opportunities for collaboration to ensure that the project goals are met. Following selection of projects, Water Board staff will continue to include stakeholder involvement in the development and subsequent updates to the Storm Water Program Workplan and Implementation Strategy.

8.2. Resources

The Water Boards have currently assigned four Executive Sponsors and six team members each committing between 5 and 50 percent of their time to this Initiative effort. These staff resources were redirected from their existing duties with the expectation that work beyond this phase of the Initiative would require substantial, long-term commitment of additional resources to evaluate, implement, and sustain the projects and other strategic planning work for the storm water program.

In order for the specific projects proposed in this Proposal to be successful and the ongoing tasks associated with strategic planning to be sustained, the Water Boards will need to dedicated additional resources to the effort. The resource need estimates for each project are identified in this proposal. These estimates will be refined as additional information becomes available during the public process and consideration of the proposal.

To provide necessary staff resources, the Water Board may select from four general alternatives:

1. Redirect existing resources from other parts of the Water Boards organization to form a permanent team dedicated to storm water resource planning;

2. Request additional resources through the Budget Change Proposal process and then, if approved, raise fees or seek other funding to support the new positions;

3. Not redirect or assign new resources permanently but continue to support the effort with existing, temporary “teams” of staff and contract resources as has been done in the past; and/or

4. Extend the duration and deadline for each project commensurate with the level of resources dedicated.

The most efficient team structure will include some staff resources allocated to Regional Water Boards to provide balance and guidance for project outcomes that are readily implementable across the state. It is also important to note that Alternative 3, redirecting existing staff as part of a temporary team, presents a challenge in that existing storm water staff are responsible for core regulatory tasks (permit writing, inspections, compliance evaluations, enforcement, etc.), so only a limited amount of these resources can be used for a short period without adversely affecting the Storm Water Program.

In order to better inform the decision on the number of resources committed to the Initiative, and specifically the amount of resources needed to make significant progress on the Immediate Action Projects by the year 2018, two conceptual scenarios are presented in Tables 6 and 7. In the first scenario, unlimited staff resources and $200,000 of discretionary contract funds for the first year are available to implement the Immediate Action Projects (Table 6). The second scenario assumes four full time staff and $200,000 of discretionary contract funds in the first year are available to implement some of Immediate Action Projects (Table 7). These two scenarios are proposed as examples of maximum and minimum staff resource allocations, respectively. The scenarios should be used as a high level estimate of the progress on the projects in comparison to the resources committed over a two year period, not as a recommendation of the projects to prioritize. Comparing the two scenarios, the second approach results in fewer projects implemented during the first year, longer project durations, and higher future resource needs.

Table 6. Conceptual maximum resource allocation scenario.

PROJECT NUMBER	PROJECT TITLE	Year 1 Staff Resources	Year 1 Contract Funds	Year 2 Staff Resources	Year 2 Contract Funds	Future Staff Resources	Future Contract Funds
1a.	Storm Water Capture and Use Goal	0.5	$50,000	0.5			
1b.	Barriers to Storm Water Capture and Use	0.75	$75,000	1.5	$75,000	0.75	
4	Senate Bill 985 Storm Water Resource Plan Implementation	2					
5	Alternative Compliance Approaches for Municipal Storm Water Permit Receiving Water Limitations	1	$175,000	1	$75,000	1	
6	Watershed-Based Compliance and Management Guidelines and Tools			1.75	$250,000	2.25	$250,000
8	Funding for Storm Water Programs	0.75		1.5		1.75	
13	Storm Water Program Data and Information "Open Data" Project	1	$100,000	1		1	
17	Training and Information-Sharing for Water Board Staff and the Regulated Community	0.25		0.25		0.25	
22	Urban Pesticide Reduction	2		2			
Total Yearly Resource Needs		8.25	$400,000	9.5	$400,000	7	$250,000
Projected Yearly Resource Availability		8.25	$200,000	9.5	$0	-	-
Yearly Resource Balance		0	($200,000)	0	($400,000)	7	($250,000)

Table 7. Conceptual minimum resource allocation scenario.

PROJECT NUMBER	PROJECT TITLE	Year 1 Staff Resources	Year 1 Contract Funds	Year 2 Staff Resources	Year 2 Contract Funds	Future Staff Resources	Future Contract Funds
1a.	Storm Water Capture and Use Goal	0.5	$50,000	0.5			
1b.	Barriers to Storm Water Capture and Use	0.75	$75,000	1	$75,000	1.25	
4	Senate Bill 985 Storm Water Resource Plan Implementation	2					
5	Alternative Compliance Approaches for Municipal Storm Water Permit Receiving Water Limitations			1	$175,000	2	$75,000
6	Watershed-Based Compliance and Management Guidelines and Tools					4	$500,000
8	Funding for Storm Water Programs	0.75		1.5		1.75	
13	Storm Water Program Data and Information "Open Data" Project					3	$100,000
17	Training and Information-Sharing for Water Board Staff and the Regulated Community					0.25	
22	Urban Pesticide Reduction					4	
Total Yearly Resource Needs		4	$125,000	4	$250,000	16.25	$675,000
Projected Yearly Resource Availability		4	$200,000	4	$75,000	-	-
Yearly Resource Balance		0	$75,000	0	($175,000)	16.25	($675,000)

8.3. Storm Water Program Workplan and Implementation Strategy

The next phase of work will be to implement the Immediate Action Projects by developing a Storm Water Program Workplan and Implementation Strategy (Workplan). Based on feedback from the stakeholders, and direction and support by the State Water Board, the Workplan will include one or more detailed workplan(s) with developed project scopes, timelines, resource needs, and a careful consideration of the most effective integration of project outcomes into the Water Boards' Storm Water Program. The Workplan will be presented to the State Water Board for approval and, if necessary, allocation of needed resources.

The Water Boards will report progress on future Workplan updates and project outcomes, at least, every two years. Regular review of the Workplan will be needed to add or remove projects and support a sustained effort to react to the needs and opportunities facing the Storm Water Program. Project priority ranking will likely be reassessed during each Workplan update cycle. The newly prioritized list will be presented to the State Water Board during the subsequent Workplan progress report. The updated Workplan will propose action on high priority projects, and the State Water Board will determine if resources exist to implement the proposed projects.

The Workplan is intended to support the evolution of the Storm Water Program for, at least, the next ten years. The Workplan development and updates will be led by the Storm Water Program staff, governed by both the Storm Water Program Roundtable and the Deputy Management Committee (DMC), and prioritize collaboration with other related Water Board programs including basin planning, TMDLs, SWAMP, enforcement, water rights, funding, and groundwater management. Outputs, outcomes and products related to Workplan activities will be integrated with the overall Storm Water Program planning and performance reporting system (cite http://www.waterboards.ca.gov/about_us/performance_report_1314/regulate/) via the existing management and governance systems within the Water Boards.

The Initiative Team recommends that, in addition to implementing projects identified through the Initiative, storm water strategic planning must be made a regular part of the activities for the Water Boards. The team recommends that overall program planning be given a high priority and that a specific commitment of resources be assigned to strategic storm water planning to ensure strategic project implementation. This recommended minimum level of support will sustain the type of planning activities that will continue to direct the evolution of the Storm Water Program, and lead to multiple-benefits solutions to storm water management that achieve tangible results in terms of improved water quality and increased water supply.

9. References

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