May 16, 2014

Storm Water Strategy Initiative Concept Paper

Storm water plays an important role in the management of California's water resources. As the natural landscape and hydrology are modified to support California's growing population[1], there is an increased impact on water quality and supply. Consequently, pressure grows on the Water Board storm water program to draft and reissue permits, develop policies/plans and increase outputs that address water quality and supply protection. Despite the present "end of pipe"[2] regulatory framework, the State Water Board has initiated alternative, innovative, multiple-benefit solutions to storm water management. To do this effectively, though, we must make a significant and fundamental shift in how we regulate and manage storm water.

Over the next several months the Water Boards will engage with stakeholders through a collaborative process to identify and discuss storm water program issues and potential approaches to address them. The product of this collaboration will be a prioritized list of potential Water Board actions that identifies ways to expand the breadth of the storm water program to better integrate watershed management, multiple-benefit solutions, source control and improvement in regulatory program efficiency and effectiveness. It will focus on three main elements: (1) utilization of storm water as a resource (2) removal of storm water pollutants by true source control[3] and (3) improvement of overall Water Board program efficiency and effectiveness.

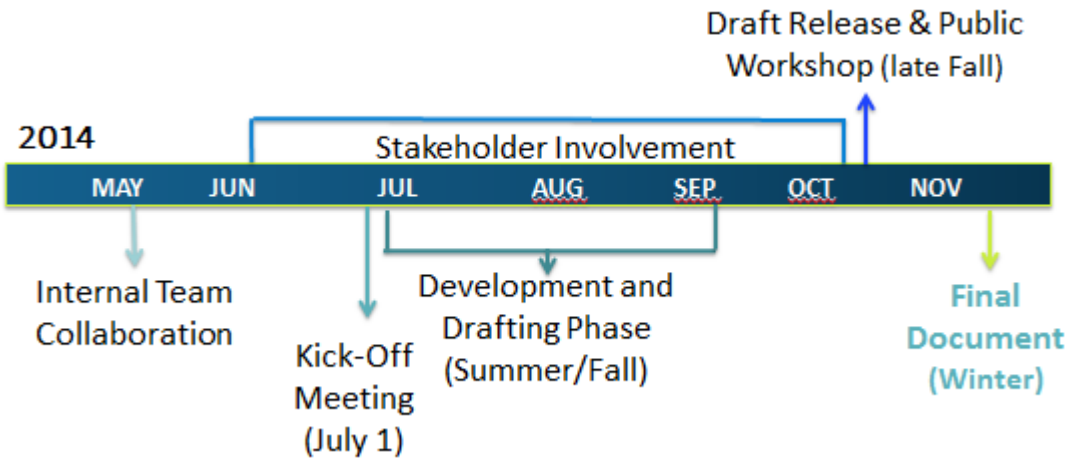

Figure 1 Timeline of strategy development

This concept paper outlines the three main elements, their associated issues/barriers and potential Water Board actions to address them. The lists of issues and actions are not prioritized. Early opportunities for

[1] California's population will cross the 50 million mark in 2049 and grow to nearly 52.7 million by 2060, according to new population projections released January 31, 2013 by the California Department of Finance.

[2] Traditional storm water management focuses on "end of pipe" management, an approach that results in high volumes of quickly moving polluted runoff that is discharged through the municipal storm sewer system or pipes into the nearest receiving water bodies.

[3] California Stormwater Quality Association (CASQA) uses the term, "true source control" as a way to encompass product substitution, bans and phase outs. See https://www.casqa.org/sites/default/files/downloads/casqa_strategicplan_may2010.pdf

implementation are incorporated through the proposed potential Water Board actions. This document is meant to provide a starting point for discussion during the stakeholder workshops and meetings and is expected to evolve as we work our way through this process (initiative phase).

After the initial stakeholder meetings and workshops, the project team will begin drafting the preliminary list of prioritized projects, taking into account the feedback and input received. A draft prioritized list will then be released in early fall, and additional stakeholder meetings and workshops will be held. The project team will then make any necessary revisions to reflect additional stakeholder feedback and propose the final list of prioritized projects to the State Water Board in early winter. The State Water Board will have the opportunity to direct the project team on the specific projects to pursue. The next phase of this project, the implementation phase, will require the development of a strategic workplan, or a series of workplans, for implementation of the highest priority projects.

Element 1: Utilize Storm Water as a Resource

Storm water is a resource and must be treated accordingly. The main objective of treating storm water as a resource is to protect and restore those watershed processes[4] that are critical to watershed health. We can identify opportunities for multiple-benefit projects and other sustainable alternatives that infiltrate and treat storm water runoff. Treating storm water as a resource can help to prevent impacts from flooding, mitigate storm water pollution, create open space, enhance fish and wildlife habitat and improve water efficiency. Incentive-driven sustainable controls must compliment traditional regulatory controls, to continue and promote the shift from "end of pipe" treatment to treating storm water as a valuable resource.

The following table (Table 1) outlines associated issues and barriers and proposes potential Water Board actions to address them:

Table 1 Associated issues and barriers and proposed potential Water Board actions.

#	ISSUES/BARRIERS	POTENTIAL WATER BOARD ACTIONS
1.1	Storm water is often not managed as a resource to maintain and restore infiltration/recharge and achieve multiple benefits, such as those attained by complete streets, park basins, etc.	• Incentivize multiple-benefit projects and best management practices (BMPs) (i.e., flood control and storm water reuse) by providing regulatory relief for project proponents, establishing standard permitting approaches or language, facilitating funding, etc. • Encourage infiltration/recharge by allowing water quality-based alternative compliance approaches in lieu of strict receiving water limitations in storm water permits • Incentivize retrofits of existing infrastructure to increase infiltration/recharge by providing

[4] Key watershed processes include processes such as: 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

		regulatory relief for project proponents, establishing standard permitting approaches or language, facilitating funding, etc. • Incentivize Green Infrastructure by providing regulatory relief for project proponents, establishing standard permitting approaches or language, facilitating funding, etc. • Use existing regulatory authority to require implementation of multiple benefit projects that treat storm water as a resource, such as retrofitting existing development with green infrastructure
1.2	Storm water is underutilized to address water supply challenges caused by drought and climate change	• Link storm water to urban water management and water use efficiency efforts • Prohibit over-irrigation in storm water permits • Establish standard permitting approaches or permit language to incentivize capture and reuse of storm water (e.g., rain barrels and cisterns)
1.3	Post construction standards often (1) do not adequately maintain and restore watershed processes critical to watershed health; (2) can be over protective in some cases and under protective in others; and (3) lack sufficient flexibility to allow for efficient and creative solutions to post construction impacts.	• Conduct statewide watershed analysis to identify dominant watershed processes and sensitivity of receiving water bodies to degradation of those processes • Utilize watershed analysis data and information to develop standard permitting approaches or permit language to include watershed process-based criteria and post construction requirements in storm water permits • Develop standard criteria or a standard process for determining when regional vs. site specific requirements are appropriate • Avoid requirements that mandate only on-site management of storm water, when such management is not necessary for maintenance or restoration of critical watershed processes
1.4	Inconsistent understanding of performance goals and requirements for post construction measures leads to ineffective implementation.	• Promote consistent and clear statewide post construction permitting approaches or permit language • Create a network of regional technical teams or other resources that assist with implementation of post construction measures by providing technical support and tools to implementing parties (e.g., Low Impact Development Initiative, Resource

		Conservation Districts, UC Davis Extension, etc.) • Develop certificate program for post-construction project and BMP designers
1.5	Municipalities face barriers that prevent municipalities from fully funding their programs.	• Partner with regulated community to support legislative changes to allow for storm water utility fees • Create and/or engage in legislative reform task force groups aimed at finding solutions to funding barrier • Identify and direct grant funds or low interest loans to fund municipal actions and projects

Element 2: Remove Storm Water Pollutants by "True Source Control"

The main objective of true source control is the elimination of categories/pollutants themselves through product bans, product substitutions, legislative phase outs and coordination with other agencies. True source control is aimed at controlling sources of storm water pollution in the environment instead of treating storm water.

The following table (Table 2) outlines associated issues and barriers and proposes potential Water Board actions to address them:

Table 2 Associated issues and barriers and proposed potential Water Board actions.

#	ISSUES/BARRIERS	POTENTIAL WATER BOARD ACTIONS
2.1	Control of some pollutants (specifically product-related pollutants) through traditional source control and treatment can be inefficient and ineffective, and may be best achieved through "true source control."	• Form federal, state, and local agency partnerships and collaboration • Establish standard permitting approaches or permit language to incentivize participation in statewide/region-wide efforts to address these sources • Collaborate with Department of Pesticide Regulation to reduce pesticide pollution through proper application procedures and alternatives to chemical use on landscapes (e.g., herbicides, fertilizers, pesticides)

Element 3: Improve Water Board Storm Water Program Overall Efficiency and Effectiveness

The main objective of program efficiency and effectiveness improvement is to increase the rate of productivity while concurrently achieving progress towards desired environmental outcomes. As California's population increases, pressure mounts on the environment, which leads to pressure on the Water Boards to produce more regulatory outputs (e.g., permit reissuances, inspections, data management, policy changes). The Water Boards seek to increase these outputs while gaining better

evidence that they are achieving the environmental outcomes of improved water quality, reliable water supply, and healthy watersheds.

The following table (Table 3) outlines associated issues and barriers and proposes potential Water Board actions to address them:

Table 3 Associated issues and barriers and proposed potential Water Board actions.

#	ISSUES/BARRIERS	POTENTIAL WATER BOARD ACTIONS
3.1	Storm water staff often reconsider and rework the same issues and topics when developing permit requirements, when these issues may not be the most critical to water quality and watershed health.	• Conduct review/analysis of existing Municipal Separate Storm Sewer System (MS4) permits to identify opportunities to improve overall approaches and, where feasible, standardize requirements • Establish standard permitting approaches or requirements for the simpler topics and interests o Develop standardized findings for MS4 permits • State Water Board addresses high priority topics and interests via statewide permit(s), petition(s) or other actions, like receiving water limitations in MS4 (and other) storm water permits, aspects of post-construction requirements (e.g., beneficial use and watershed driven requirements, applicability thresholds, etc.) o Use resolution of receiving water limitations petitions to develop a standardized approach to addressing high priority water quality problems, rather than standardizing minimum Maximum Extent Practicable (MEP) requirements
3.2	Storm water permit requirements often focus on minimum requirements or actions, rather than water quality outcomes.	• Shift from fine tuning minimum requirements of MEP to developing requirements to address and fix highest priority water quality problems with an outcome-based approach (pollutant load reduction, discharge water quality and receiving water quality) • Include permit requirements to conduct load reduction, discharge water quality, and receiving water quality data-based performance assessments
3.3	Total Maximum Daily Load (TMDL) implementation through storm water permits is challenging, due to the large number of TMDLs, limited TMDL implementation resources, and difficulty with incorporating	• Develop standard process that ensures good coordination and communication between TMDL and storm water staff • Develop standard process for TMDL staff to hand off TMDLs to storm water implementation

	TMDL implementation requirements into storm water permits.	staff once TMDL is finalized • Utilize water quality based permitting in place of new TMDLs • Develop TMDL writer guidance for storm water permit implementation requirements • Dedicate TMDL "adoption" resources to developing requirements and oversight approaches for storm water permit implementation
3.4	Feedback loops between planning, implementation, monitoring and effectiveness assessment at all levels (facility, municipality and state) are often not effectively used or missing.	• Develop a permitting strategy that will generate information (water quality, administrative, etc.) that can be used to (1) assess the effectiveness of the program at achieving environmental outcomes, and (2) modify the program to improve its effectiveness • Define iterative process "loops" to clearly link water quality monitoring data, program effectiveness assessments, and responsive actions • Develop tools municipalities can use to assess the effectiveness of their programs
3.5	The format for reported information makes it difficult to use in decision-making and program management.	• Improve existing data management systems to establish mechanisms for performance reports, enable relational data querying, enable efficient evaluation of program effectiveness, assist with program data analysis, and generate visualizations • Expand user group accessibility • Encourage centralized data collection and reporting to increase transparency
3.6	Basic program work and tasks are often inefficient because they do not include use of the latest technology.	• Remove obstacles to purchasing new technology • Develop an application for program staff and regulated community to replace paper inspection forms • Streamline and automate routine enforcement responses
3.7	Technology-based, numeric effluent limitations can be feasible and effective in some cases (e.g., sectors, circumstances, etc.) and yet are not being utilized in California today.	• Explore the piloting of technology-based numeric effluent limitations in sector-based approaches as an alternative to statewide general storm water permits • Identify the missing tools (and resources) needed to demonstrate feasibility and implement technology-based numeric effluent limitations in storm water permits. • Establish framework and schedule to demonstrate feasibility and implement technology-based numeric effluent limitations

		in storm water permits
3.8	Water quality-based numeric effluent limitations can be feasible and effective and yet are being under-utilized in California today.	• Identify the missing tools (and resources) needed to demonstrate feasibility and implement water quality-based numeric effluent limitations in storm water permits • Establish framework and schedule to demonstrate feasibility and implement water quality based numeric effluent limitations in storm water permits
3.9	Policy development and storm water permit writing are often disconnected and result in misalignment.	• Develop standard process that ensures good coordination and communication between policy/plan writing staff and storm water permitting staff
3.10	There is not always a clear understanding of cost of compliance[5] with storm water permit requirements.	• Establish a framework to identify cost of compliance with storm water permit requirements • Differentiate cost of compliance from unrelated cost of infrastructure construction and maintenance • Utilize cost information developed by other program areas
3.11	There is not always a clear understanding of environmental costs associated with inadequate storm water management.	• Inventory existing environmental cost resources • Develop tools for identifying avoided costs for storm water management • Conduct cost of compliance analysis in parallel with permit and policy work aimed at solving problems
3.12	Compliance evaluation (i.e., inspections and report review) is sometimes performed in an inconsistent manner and for different interests and purposes.	• Revive the Administrative Procedures Manual (APM) and specifically adopt new procedures for inspections and program/report review for permitted storm water facilities and MS4s • Standardize and improve forms to ensure efficient information sharing, data entry, and database access, etc. • Conduct regular training and skill-sharing events with MS4s and others

[5] State Water Board Office of Research Planning and Performance and Resource Alignment Project (RAP) December 6, 2012 meeting notes:
http://www.waterboards.ca.gov/water_issues/programs/rap/docs/sw_meetingnotes_120612.pdf

Project Team Contact Information

If you have any questions or would like more information regarding this project, please contact one of the project team members listed below. You can also visit our webpage for additional information and updates:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/strategy_initiative.shtml

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