

Attachment A

Glossary of Acronyms and Terms

303d listing: The 303(d) list is the priority list of impaired water bodies established under the Clean Water Act Section 303(d)(1)(A). The list is of impaired water bodies in which water quality does not meet applicable water quality standards and/or is not expected to meet water quality standards, even after the application of technology based pollution controls required by the Clean Water Act.

Adaptive Management: Adaptive Management is a structured and iterative process of directing decision-making with an aim toward addressing and reducing uncertainty over time. It's been described as "learning to manage by managing to learn."

Assessment Measures: Assessment measures are established to determine current conditions, or whether or how successfully an outcome has been achieved. Measures may be qualitative (e.g., yes / no) or quantitative (% of targeted audience reached, % reduction in a constituent level, etc.). All priority Outcomes should have at least one Assessment Measure associated with them, but some may have more than one.

Assessment Methods: Assessment methods are program activities, actions, or processes used to obtain or to evaluate assessment data or information. Depending on the particular outcome in question, numerous assessment methods may be possible.

Assessment Outcome: Outcomes are end results associated with the implementation of stormwater control measures, program activities or elements, or overall programs. They define specific measurement points to which stormwater programs can be targeted, evaluated, and periodically modified. Outcomes can be broadly categorized according to six Outcome Levels.

Barrier to Action: A barrier to action is an influencing factor that may prevent practices that are protective of water quality.

Basin Plan: Basin Plans designate beneficial uses and establish water quality objectives for waters of the State. For waters within a specified area, a basin plan designates or establishes: (1) beneficial uses to be protected; (2) water quality objectives; and (3) a program of implementation to achieve the water quality objectives (Water Code §13050).

Metrics: metrics are the expression of changes in unambiguous terms. They include a specific formulation of the outcome statement, the assignment of units of measure or assessment, and units of time.

Beneficial Use: Beneficial uses are the designated uses of a waterbody. Water Quality Control Plans (or Basin Plans) designate beneficial uses and establish water quality objectives for waters of the State.

Benthic Impairment: "Benthic" refers to the aquatic organisms living in or on the bottom of a body of water. Benthic organisms include crayfish, aquatic snails, clams, leeches, aquatic worms, certain insect

larvae and nymphs (e.g., mayflies, dragonflies), and adult aquatic insects (e.g., riffle beetles). Changes in water quality generally result in changes in the types, numbers, or diversity of the benthic community. In general, water quality "impairment" exists if a body of water does not support its designated uses. The benthic macro invertebrate community present in a body of water is periodically evaluated to determine if a benthic impairment exists.

Best Management Practices (BMP): Best management practices (BMPs) are practices designed to prevent, reduce, or eliminate discharges of pollutants and flow.

Bio-indicator: Biological indicators are species that can be used to monitor the health of an environment or ecosystem. They are any biological species or group of species whose function, population, or status can reveal what degree of ecosystem or environmental integrity is present.

Bridge to Action: A bridge to action is an influencing factor that may promote practices that are protective of water quality.

California Environmental Quality Act (CEQA): The California Environmental Quality Act is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.

California Stormwater Quality Association (CASQA): CASQA has been a leader since 1989 when the field of stormwater management was in its infancy. CASQA's represents a diverse range of stormwater quality management organizations and individuals, including cities, counties, special districts, industries, and consulting firms throughout the state. A large part of CASQA's mission is to assist water quality programs in California to learn collectively from the individual experiences of its members, to learn from the mistakes and avoid the pitfalls. In fulfilling this purpose, CASQA recommends objectives and procedures for stormwater discharges control programs which:

- Are technically and economically feasible
- Provide significant environmental benefits and protect our water resources
- Promote the advancement of stormwater management technology
- Effect compliance with State and Federal laws, regulations and policies

CASQA has multiple subcommittees providing in-depth collaboration on water quality issues statewide. The Effectiveness Assessment Subcommittee has provided input and guidance on stormwater program effectiveness assessment issues since 2004.

Causation: Causation is the act or process of causing something to happen or exist.

Certainty: Certainty refers to the confidence with which a problem condition can be stated.

Co-Occurrence: Co-occurrence describes separate outcomes occurring in sequence or within the same period of time. It does not imply any form of relationship between outcomes, but may form a basis for further exploration.

Comprehensive Planning and Assessment Strategy: A comprehensive planning and assessment strategy will typically address a wide variety of individual outcomes, but their selection will ultimately reflect the specific details, priorities, and assessment objectives of each Stormwater Management Program.

Controllability: Controllability refers to the potential for a program to prevent or eliminate an identified problem condition.

Correlation: Correlation is similar to co-occurrence except that it involves some degree of statistical support. Once sufficient sample sizes are established, outcomes can be correlated.

Dry Weather Flow: Dry weather flow refers to the flow in a drainage system from over-irrigation that occurs during periods of dry weather.

Economic Impacts: Economic Impacts are essential considerations because every problem and every proposed solution has one or more costs associated with it. These costs can be associated with capital expenditure, long term maintenance, or lost opportunity, among others.

End-State Targets: End-state Targets are specific targets established for achieving end-state conditions. End-state conditions describe a “no problem” state. Once achieved, they can be considered to represent long-term success for the particular outcome under consideration.

Effectiveness Assessment: Effectiveness assessment is the mechanism by which feedback is evaluated to enable ongoing adaptive management. It evaluates the efficacy of management measures in meeting the interim and end-state targets that include reducing the receiving water impacts; lessening MS4 contributions and source contributions that lead to receiving water impacts; changing behaviors and breaking down barriers to these changes. Effectiveness assessment identifies where management measure refinements are required, utilizing the overarching planning process of this guidance to develop and perform outcome specific and integrated assessments and prioritize management measures.

Eutrophication: Eutrophication is the process by which a body of water becomes enriched in dissolved nutrients (as nitrates or phosphates) that stimulate the growth of aquatic plant life usually resulting in the depletion of dissolved oxygen.

Facilitation Activities: Facilitation activities are those which bring about (or “facilitate”) changes in target audiences. For example, a program manager seeking to increase BMP implementation by construction site workers might rely on facilitation activities such as training and inspections. Conversely, a residential program element might be focused on education, incentives, and waste collection to encourage pesticide use reduction or picking up after pets.

Flow Control BMPs: Flow control BMPs reduce discharge that can have a detrimental effect on receiving waters. Consequently, they are often designed for a higher range of storm sizes than treatment controls. Multiuse facilities can incorporate both flow control and treatment control BMPs.

Geographic Information System (GIS): A geographic information system (GIS) integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.

Hydromodification: Hydromodification is the change in the natural watershed hydrologic processes and runoff characteristics (i.e., interception, infiltration, overland flow, and groundwater flow) caused by urbanization or other land use changes that result in increased stream flows and sediment transport. In addition, alteration of stream and river channels, such as stream channelization, concrete lining, installation of dams and water impoundments, and excessive stream bank and shoreline erosion are also considered hydromodification, due to their disruption of natural watershed hydrologic processes.

Hypothesis: A hypothesis is a supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation.

Implementation Assessment: Implementation Assessment is the evaluation of the different activities that make up stormwater programs. It consists exclusively of Level 1 Outcomes (Stormwater Program Activities).

Influencing Factor: An influencing factor is anything that affects the behaviors of an individual or group.

Interim Targets: Interim Targets define an incremental pathway toward the achievement of longer-range goals. They assist in evaluating progress towards achieving End-state Behavioral Targets.

Iterative Program Management Cycle: The Iterative Program Management Cycle broadly divides stormwater program management into three phases of activity:

1. Program planning and modification;
2. Program implementation; and
3. Effectiveness assessment.

During the program planning phase, implementation and assessment results will be reviewed to identify necessary changes or refinements for future implementation. These modifications can then be made and the next round of implementation initiated, leading again to renewed assessment and planning.

Over time, the repeated application of this process – each phase continuously informing the next – should result in the improvement of stormwater programs and the achievement of the desired results that they are designed to achieve.

Low Impact Development: Low Impact Development (LID) is a storm water management and land development strategy that emphasizes conservation and the use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely reflect pre-development hydrologic functions.

Municipal Separate Storm Sewer System (MS4): A Municipal Separate Storm Sewer System (MS4) is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is:

- Owned by a state, city, town, village, or other public entity that discharges to waters of the U.S.;
- Designed or used to collect or convey stormwater;
- Not a combined sewer; and
- Not part of a Publicly Owned Treatment Works (POTW) (sewage treatment plant).

Stormwater runoff is commonly transported through MS4s and often discharged untreated into local water bodies.

Nature: Nature describes what a problem is (e.g., elevated bacteria levels, overwatering, etc.). The nature of a receiving water condition describes its general characteristics or attributes.

Non-structural BMP: Non-structural BMPs are preventative actions that involve management and source controls. Non-structural BMPs are typically passive or programmatic and tend to focus on source control and pollution prevention; reducing pollution in runoff by reducing the opportunity for the stormwater runoff to be exposed to pollutants.

Outcome Level: The CASQA approach utilizes a series of six categories of Outcomes to establish a logical and consistent organizational scheme for assessing and relating individual Outcomes. Starting with Level 1 and moving sequentially toward Level 6, they represent a general progression of conditions that are assumed to be related in a sequence of causal relationships.

Outcome Level 1 (Stormwater Program Activities): These Outcomes, which are often defined by specific stormwater permit requirements, address a variety of stormwater program activities such as providing education to residents, inspecting businesses, conducting surveys of target audiences, and conducting receiving water monitoring.

Outcome Level 2 (Barriers and Bridges to Action): Level 2 Outcomes provide a means of gauging whether outreach, training, or other program activities are producing changes in the awareness, knowledge, or attitudes of target audiences. Examples of Level 2 Outcomes range from awareness of basic concepts (why stormwater pollution is a problem, the difference between storm drains and the sanitary sewer, what a watershed is, etc.) to very specific knowledge (e.g., how to dispose of pet waste, or how to properly install and maintain a silt fence). Level 2 Outcomes are often used to gauge progress in, or to refine approaches for, achieving Level 3 Outcomes.

Outcome Level 3 (Target Audience Actions): Level 3 Outcomes address the actions of target audiences, and whether or not changes are occurring in them over time. The major categories of target audience actions are pollutant-generating activities (PGAs); best management practices (BMPs) and supporting behaviors. Supporting behaviors include pollution reporting, public involvement, and completion of stormwater pollution prevention plans.

Outcome Level 4 (Source Contributions): Outcome Level 4 addresses two distinct but related types of change: 1) reductions in the discharge of pollutants from sources, and 2) reductions in flow rates and

volumes from sites. This latter category is generally associated with selected development and redevelopment activities, but it may also be applied to other program components.

Outcome Level 5 (MS4 Contributions): Level 5 Outcomes apply exclusively to MS4s. Level 5 conditions may be measured within the MS4, or as discharges from it. In either case, evaluation typically focuses on flow conditions, pollutant concentrations or loads, or both. Level 5 Outcomes provide a direct linkage between upstream sources and receiving waters, and as such are a critical expression of program success.

Outcome Level 6 (Receiving Water Conditions): Level 6 outcomes describe receiving water conditions. They can apply either to existing conditions or to improvements that will be sought over time through program implementation. They can include virtually any chemical, biological, or physical parameter that can be measured or assessed in receiving waters (i.e., chemical concentrations, dissolved oxygen levels, biological integrity, species diversity, eutrophication, microbiological or toxicological conditions, hydromodification, or trash). Level 6 successes are best expressed through the attainment of beneficial uses, traditionally measured as compliance with water quality objectives (WQOs).

Outfall: Outfall means a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the US and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the US and are used to convey waters of the US.

PGA-BMP Packages: PGAs and BMPs in related groupings that are focused on common target audiences or source contributions. That is, each identified PGA for a particular target audience will have one or more BMP alternatives associated with it.

Phase I Area Wide MS4 Permit: Phase I, issued in 1990, requires medium and large cities or certain counties with populations of 100,000 or more to obtain NPDES permit coverage for their stormwater discharges. Generally, Phase I MS4s are covered by individual permits. Each regulated MS4 is required to develop and implement a stormwater management program to reduce the contamination of stormwater runoff and prohibit illicit discharges.

Phase II Permit: Phase II, issued in 1999, requires regulated small MS4s in urbanized areas, as well as small MS4s outside the urbanized areas that are designated by the permitting authority, to obtain NPDES permit coverage for their stormwater discharges. Generally, Phase II MS4s are covered by a general permit. Each regulated MS4 is required to develop and implement a stormwater management program to reduce the contamination of stormwater runoff and prohibit illicit discharges.

Pollutant-generating Activity (PGA): Pollutant-generating activities (PGAs) are the behaviors that contribute pollutants to runoff (i.e., rinsing off a sidewalk or other surface with material such as sediment, trash, or vegetation on it). PGAs are not necessarily the result of current human behaviors, they may also include pollutant-generating features that may be the result of past behaviors (e.g., erosion from past road design and construction). For simplicity, the term PGA will be used to describe both the existing features and current activities in a watershed that generate pollutants.

Program Effectiveness Assessment: The methods and activities that stormwater managers use to evaluate how well their programs are working, and to identify modifications necessary to improve them.

Receiving Water Characterization: Receiving water characterization consists of three tasks: evaluating receiving water conditions, defining receiving water problems, and prioritizing receiving water problems.

Receiving Water Conditions: Receiving water conditions can include virtually any chemical, biological, or physical parameter that can be measured or assessed in receiving waters (i.e., chemical concentrations, dissolved oxygen levels, biological integrity, species diversity, eutrophication, microbiological or toxicological conditions, hydromodification, or trash).

RWQCB: There are nine Regional Water Quality Control Boards (Regional Boards). The mission of the Regional Boards is to develop and enforce water quality objectives and implementation plans that will best protect the beneficial uses of the State's waters, recognizing local differences in climate, topography, geology and hydrology. Each Regional Board has nine part-time Members also appointed by the Governor and confirmed by the Senate. Regional Boards develop "basin plans" for their hydrologic areas, govern requirements/issue waste discharge permits, take enforcement action against violators, and monitor water quality.

Section 401 Water Quality Certification: This refers to Section 401 of the Clean Water Act. Activities subject to this type of permit include any activity that would result in the placement of structures or dredged or fill materials into waters of the state, which generally encompass waters of the United States.

Section 404 Permit: This refers to Section 404 of the Clean Water Act, which establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulation (e.g. certain farming and forestry activities).

Significance: Significance is the importance or meaning of something, in this case a problem condition. Determinations of significance will normally reflect the nature, magnitude, and prevalence of the condition. Nature describes what a problem is (e.g., elevated bacteria levels, overwatering, etc.), while magnitude and prevalence address its relative severity (for example, how often or by how much a water quality objective is exceeded).

Social Impacts: Social Impacts are those related to the target audience, society at large, or other specific segments within it.

Spatial Analysis: Spatial analysis allows comparisons between watersheds or other geographic areas. Impacts of runoff and/or control measures can be evaluated based on characteristics of the geographic regions (differences in land use, geology and geomorphology, hydromorphology, etc.). The ability to

conduct spatial analysis is generally only limited by the availability of appropriate data for spatial characteristics and project budget.

Source: “Source” means anything with the potential to generate urban runoff or pollutants prior to their introduction to the MS4. A typical program broadly addresses the following source categories: residential areas, construction and development sites, commercial and industrial sources, and municipal operations. Sources may alternatively be defined by the populations associated with areas, facilities, or activities, e.g., residents, dog-walkers, mobile car washers, or restaurant employees.

Source and Impact Component: Source and impact planning and assessment address Outcome Levels 6, 5, and 4. This is the physical component of stormwater management. During planning and assessment, managers consider a variety of parameters to characterize water quality and hydrologic conditions at sources, within MS4s, and in receiving water bodies.

Source Characterization: Source characterization consists of evaluating drainage area and source contributions, defining problem drainage areas and sources, and prioritizing drainage area and source problems. Source characterization studies provide information on the types and concentration of pollutants and flow from a source type (restaurants, metal recycling facilities, etc.) or land use type (low-density residential, light industrial, commercial, etc.).

Source Contribution: Source Contribution can refer either to a source loading or to a reduction in that loading. Source loadings are the flows and pollutant loadings added by sources to a MS4. Source reductions are changes in the amounts of pollutants or reductions in flow associated with specific sources before and after control measures are employed.

Source Control BMP: Source control BMPs help keep pollutants from coming in contact with stormwater. They are extremely varied and their selection will normally be tailored to the specific source type. Examples include good housekeeping practices, pesticide use reduction and picking up after pets.

Source Identification: Source identification provides data on the specific source and/or activity that is contributed to a specific pollutant or flow (over-irrigation, un-covered dumpsters, metal architectural features, etc.)

Source Potential: Source potential describes the likelihood that a given source type will discharge flows or pollutants during wet or dry weather conditions. Since individual sources can’t be observed all the time, managers must often rely on such estimates to gauge their relative importance. See also Threat to Water Quality.

Stormwater Strategic Plan: A Stormwater Strategic Plan (SSP) helps guide the development and modification of a Stormwater Management Plan (SWMP). The purpose of the SSP is to systematically explore and define the strategies that will be considered and incorporated as a part of a SWMP, and to suggest how program managers might choose some options over others. In essence, SSP development is the process by which the strategic approach and content of a SWMP is developed.

Stormwater Management Plan: A Stormwater Management Plan (SWMP) is a detailed management plan to guide the implementation and evaluation of stormwater programs. SWMPs can take on a variety of names and forms, including Urban Runoff Management Plan (URMP) and Drainage Area Management Plan (DAMP). In some cases, a SWMP provides an overarching framework that is both strategic and operational. In others, it is accompanied by additional, more detailed operational plans which describe the programs, activities, policies, or procedures necessary to carry out higher level strategies. There is no standard division of content between strategic and operational plans, so the specific content of each must be determined on a case-by-case basis.

Stormwater Program Component: This component addresses the planning and assessment of stormwater management programs. Managers consider the identified target audiences, critical behaviors, and barriers and bridges to develop stormwater program implementation strategies for bringing about targeted changes. Other activities needed to support general program operation and to obtain feedback for evaluating success are also considered.

Supporting Behaviors: Supporting behaviors include a wide range of potential actions that are distinct from BMP implementation, but that help to form a bridge toward it. Examples include joining a watershed organization, calling a stormwater hotline, conducting employee training, or developing a Stormwater Pollution Prevention Plan (SWPPP). All of these actions are likely to facilitate the implementation of BMPs by target audiences.

Sustainability: Sustainability is the practice of exploring the interconnections among economy, society, and environment to bring about the best solutions for people and the environment now and in the future.

SWRCB: The State Water Resources Control Board (the State Water Board) was created by the California Legislature in 1967. Its mission is to ensure the highest reasonable quality for waters of the State, while allocating those waters to achieve the optimum balance of beneficial uses. The joint authority of water allocation and water quality protection enables the State Water Board to provide comprehensive protection for California's waters. The State Water Board consists of five full-time salaried Members, each filling a different specialty position. Each board member is appointed to a four-year term by the Governor and confirmed by the Senate.

Target Audience: A “target audience” consists of the people (individuals and populations) that are expected to gain knowledge or engage in the behaviors that a stormwater program is intended to elicit. BMPs and other controls are implemented by many types of third parties, so the term “target audience” is broadly defined and virtually any group of people could be a target audience, including fellow municipal staff members, the general public, elected and appointed officials, other government agencies, etc.

Target Audience Actions: Target audience actions are considered in three general categories: pollutant-generating activities (PGAs), best management practices (BMPs), and supporting behaviors. They correspond to Outcome Level 3.

Target Audience Component: The Target Audiences Component is the behavioral portion of the management approach (i.e., the actions of target audiences and the factors that influence them). It encompasses Outcome Levels 3 and 2.

Temporal Change: Temporal change is change over time. A few aspects of temporal change that should be of interest to managers are variability, trends, and changes due to program implementation.

Total Maximum Daily Load (TMDL): TMDLs are numerical calculations of the maximum amount of a pollutant that a water body can assimilate and still meet water quality standards. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point sources (waste load allocations or WLAs) and non-point sources (load allocations or LAs), background contribution, plus a margin of safety.

Treatment Control BMP: TCBMPs are controls that help remove pollutants from stormwater. They can be used in a variety of applications.

Triple Bottom Line: The phrase “the triple bottom line” (or TBL) was first coined in 1994 by John Elkington, the founder of a British consultancy called SustainAbility. He argued that companies should be preparing three separate bottom lines, often referred to as people, planet and profit. . The first is the bottom line of a company's “people account”—a measure in some shape or form of how socially responsible an organization has been throughout its operations. The second is the bottom line of the company's “planet” account—a measure of how environmentally responsible it has been. The third is the traditional measure of corporate profit—the “bottom line” of the profit and loss account. The concept of TBL is now used in a wide variety of disciplines, including environmental and resource management.

True Source Control: True Source Control focuses on the original source of a potential pollutant or on runoff by eliminating or significantly reducing the existence of the potential pollutant or runoff thereby negating the need to physically prevent contact between the two.

USEPA: The United States Environmental Protection Agency (USEPA) has ten Regional offices, each of which is responsible for the execution of the Agency's programs within several states and territories.

Water Quality Control Plan: See Basin Plan

Water Quality Objective WQO: Water Quality Objectives (WQOs) are numerical or narrative limits on constituents or characteristics of water designated to protect designated beneficial uses of the water. [California Water Code Section 13050 (h)]. California’s water quality objectives are established by the State and Regional Water Boards in the Water Quality Control Plans. Numeric or narrative limits for pollutants or characteristics of water designed to protect the beneficial uses of the water. In other words, a water quality objective is the maximum concentration of a pollutant that can exist in a receiving water and still generally ensure that the beneficial uses of the receiving water remain protected (i.e., not impaired). Since water quality objectives are designed specifically to protect the beneficial uses, when the objectives are violated the beneficial uses are, by definition, no longer protected and become impaired. This is a fundamental concept under the Porter Cologne Act. Equally fundamental is Porter Cologne’s definition of pollution. A

condition of pollution exists when the water quality needed to support designated beneficial uses has become unreasonably affected or impaired; in other words, when the water quality objectives have been violated. These underlying definitions (regarding beneficial use protection) are the reason why all waste discharge requirements implementing the federal NPDES regulations require compliance with water quality objectives. (Water quality objectives are also called water quality criteria in the CWA.)

Wet Weather Flow: Wet weather flow refers to the flow in a drainage system from rain events.