Clark County Public Works

Water Resources Program

Stormwater Needs Assessment Program Summary

March 2007

Background

In the late 1990s, Clark County initiated a Stormwater Management Program (SWMP) to reduce the harm caused to streams, wetlands, and lakes by stormwater runoff from developed areas and county roads. The program was initiated in response to state and federal mandates as represented by the county's 1999 Phase I NPDES municipal stormwater permit (NPDES permit).

In 2005, Water Resources began an effort to create a systematic, drainage basin-oriented approach to conducting many program activities, with particular emphasis on the need for developing stormwater capital improvement projects and effectively coordinating with ongoing Public Works capital planning and other local processes.

Purpose

The Stormwater Needs Assessment Program (SNAP) creates a system for Water Resources to focus activities, coordinate efforts, pool resources, and ensure the use of consistent methodologies. SNAP activities assess stream basins, identify problems and opportunities, and recommend specific actions to help meet the Water Resources mission of protecting water quality through stormwater management.

The overall goals of SNAP are to:

- Analyze and recommend the best and most cost effective mix of improvement actions to protect existing beneficial uses, and to improve lost or impaired beneficial uses.
- Inform county efforts to address the following issues related to hydrology, hydraulics, habitat, and water quality:
    - Impacts from current or past development
    - Subwatershed-specific needs
    - Potential impacts from future development

In addition to meeting NPDES permit requirements, results and products of needs assessments promote more effective implementation of other county programs and mandates. These include initiating wetland banking systems, identifying mitigation opportunities, and providing a better understanding of stream and watershed conditions for use in planning county road projects. Similar information is also needed by key county programs implementing critical areas protections under the state Growth Management Act (GMA) and working to protect and restore salmon populations and habitat under the federal Endangered Species Act (ESA).

Implementation Strategy

An implementation strategy is a plan that considers resources and overall program goals to accomplish a set of tasks to meet one or more objectives.

The underlying principal of the needs assessment strategy is that the Water Resources Program can most effectively implement the NPDES permit requirements and fulfill its mission by taking an integrated, basin-oriented approach to stormwater management.

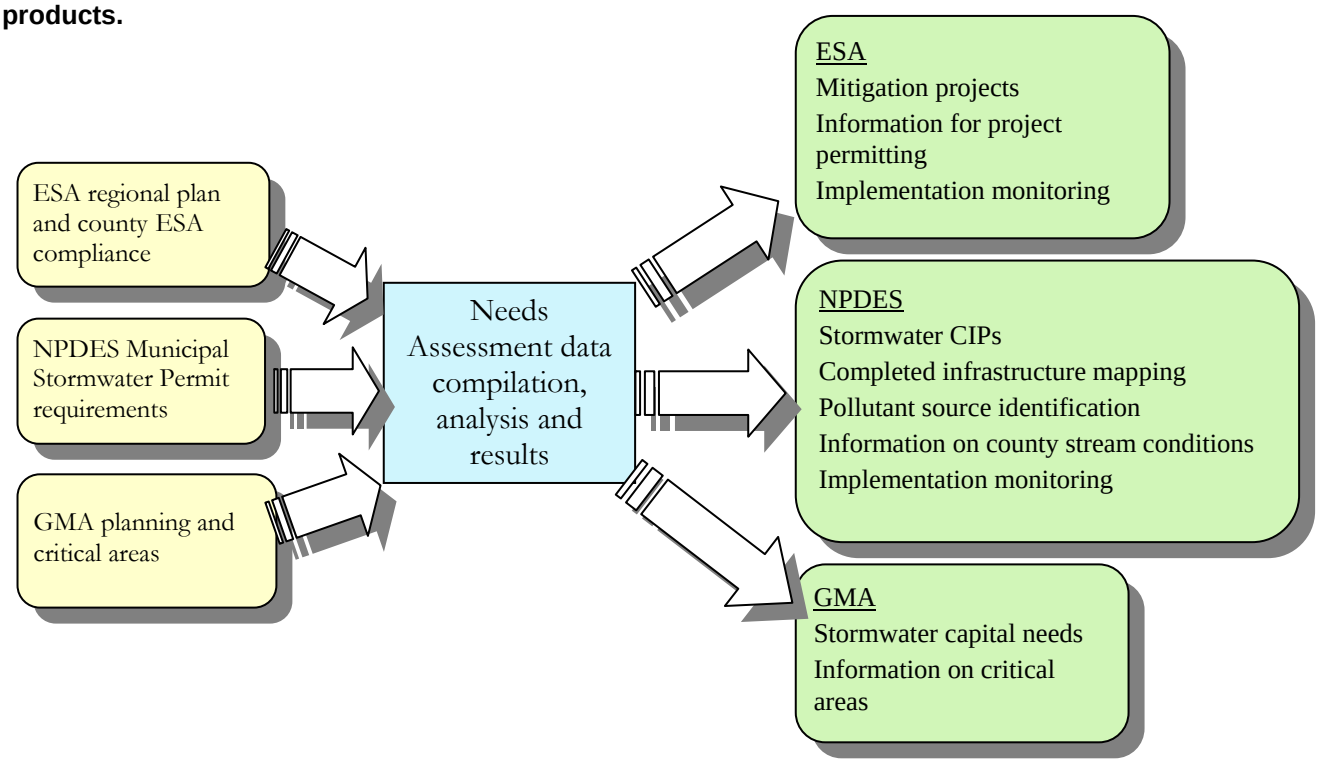
The SNAP provides a range of actions that address basic NPDES permit requirements such as completing mapping of the storm sewer system, but also includes actions such as detailed assessment of stream reaches that are needed to plan and design stormwater projects and set stormwater management strategies. The point of the strategy is to apply the assessment tools where they will most effectively provide information to identify stormwater mitigation projects and actions to improve the stormwater management program.

Overview

Regulatory Framework

In the broadest sense, needs assessments are driven by policy and information inputs from existing regulatory frameworks such as the NPDES permit, ESA, and GMA. Taking these drivers into account, the needs assessment process provides a mechanism to meet NPDES permit requirements and supplies a variety of project opportunities and information back to the regulatory frameworks.

Relationship of NPDES, ESA, and GMA to the Needs Assessment program and its products.



Programmatic Approach

Clark County's NPDES permit is updated on a five-year schedule, with a new 5-year cycle beginning in 2007. Because permit conditions, program priorities, and assessment approaches change over time, it is reasonable to conduct Stormwater Management Needs Assessment activities on a corresponding 5-year cycle.

The level of effort or analysis in each subwatershed varies depending on several factors, including the level of urbanization, local jurisdictional boundaries, and NPDES permit requirements. Initial priority for the most detailed assessment is given to rapidly developing areas where Clark County is the principal land use regulator, and areas where other organizations are conducting focused resource management activities such as TMDL implementation.

Stormwater Management Needs Assessment Program results typically fall into three general categories:

- potential stormwater capital projects
- management and policy recommendations
- natural resource information

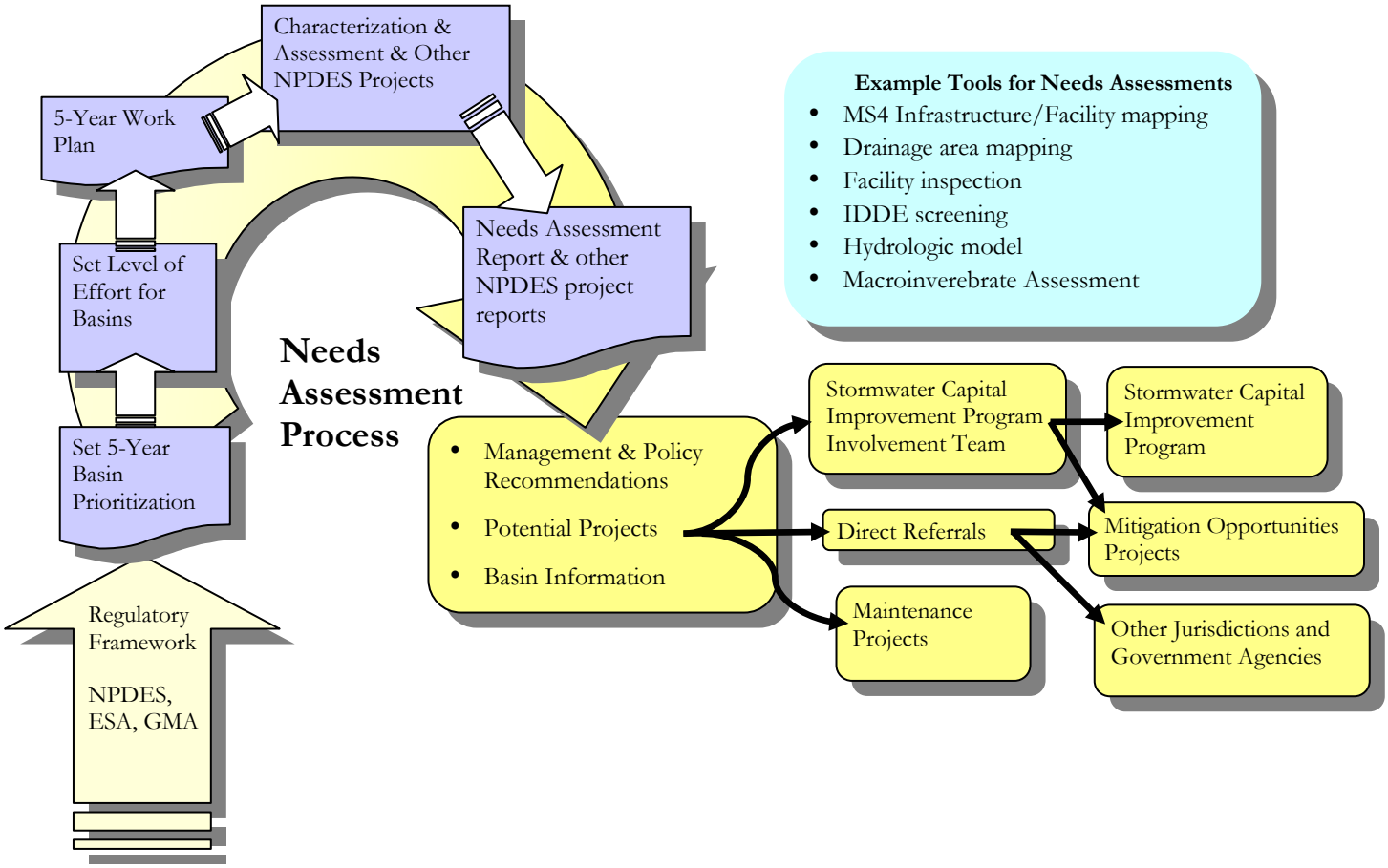
Results are presented in a Needs Assessment report for each subwatershed. Potential projects and recommended management actions are disseminated to county programs responsible for completing them, primarily the Stormwater Capital Improvement Program (SCIP), Public Works Water Resources Program, the Department of Community Development, and the county's ESA Program.

Products

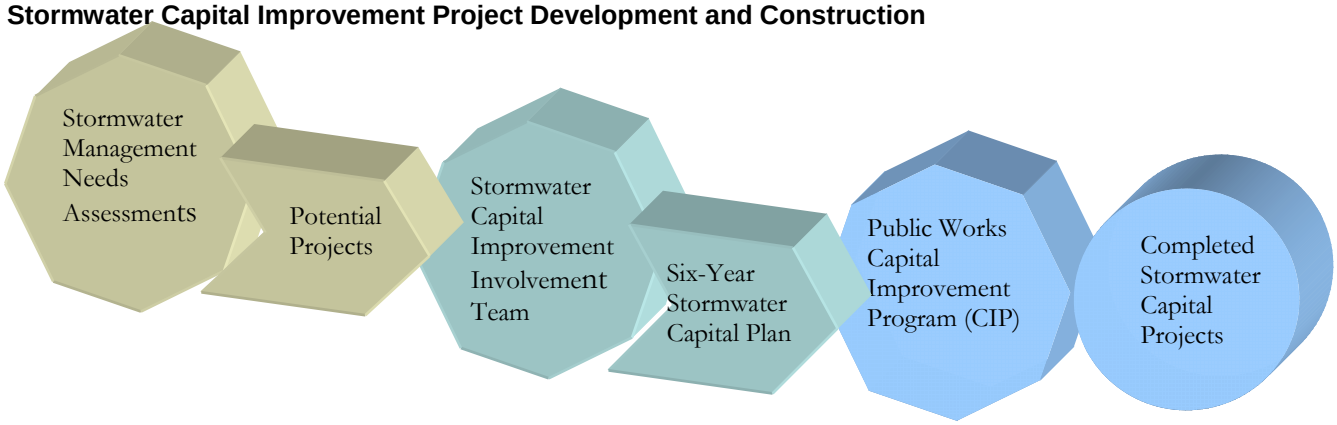
A wide range of applicable products and information result from needs assessment activities. The following list highlights some typical products:

- Completed storm sewer mapping for unincorporated Clark County and an inventory of the condition of county stormwater facilities
- Project recommendations for the SCIP
- Recommended programmatic or policy actions to improve county stormwater management through development regulations, maintenance operations, educational programs, and monitoring and evaluation activities

Overall Cycle of Stormwater Management Needs Assessment Process



Stormwater Capital Improvement Project Development and Construction



Tools

The SNAP utilizes a standardized set of tools for subwatershed assessment, including desktop mapping analysis, modeling, outreach activities, and a variety of field data collection. Though not every tool is applied in every subwatershed, the use of a standard toolbox ensures the consistent application of assessment activities county-wide.

Stormwater Management Needs Assessment Tools	
Stakeholders	Geomorphology And Hydrology Assessment
Outreach And Involvement	Riparian Assessment
Coordination with Others	Floodplain Assessment
Drainage System Inventory	Wetland Assessment
Stormwater Facility Inspection	Macroinvertebrate Assessment
Review Of Existing Data	Fish Use And Distribution
Illicit Discharge Screening	Water Quality Assessment
Broad Scale GIS Characterization	Hydrologic Modeling
Rapid Stream Reconnaissance	Hydraulic Modeling
Physical Habitat Assessment	

Using Stormwater Needs Assessment Program Results

SNAP results will be used by many departments within Clark County, and by outside agencies engaged in stream restoration and fish recovery efforts in the region:

- A List of Stormwater and Habitat Improvement Projects for the SCIP
- Identified Stormwater Facility Repair Projects
- Completed Stormwater Drainage and Facility Inventory and Inspection
- Potential Drainage Problem Abatement Projects
- Recommendations to Improve Ordinances
- Meeting NPDES Stormwater Management Program Requirements
- Supporting Transportation Program Mitigation Projects
- Establishing Partnerships to Promote Multiple-Use Restoration Projects
- Salmon Recovery Program Support by Identifying Potential Projects
- Providing the Public Information about Watershed Conditions