

## Chapter Five

# Long-Term Storm Water Management in New Development and Redevelopment

The City will develop, implement and enforce a program to address post-construction storm water runoff to the City from new development and redevelopment projects according to the minimum performance measures listed below. The objective is for the hydrology of a new development to mirror the pre-development hydrology of the previously undeveloped site or to improve the hydrology of a redeveloped site and reduce the discharge of storm water. The program applies to private and public development sites, including roads.

### Requirements

The minimum performance measures are:

1. Develop and adopt an ordinance or other regulatory mechanism that requires post-construction storm water controls at new development and redevelopment projects. The ordinance or other regulatory mechanism shall apply, at a minimum, to new development and redevelopment sites that discharge to the City and that disturb one acre or more or are less than one acre and are part of a common plan of development or sale. The ordinance shall require BMP selection, design, installation, operation and maintenance standards necessary to protect water quality and reduce the discharge of pollutants to the City.
2. Develop an enforcement strategy and implement the enforcement provisions of the ordinance. Procedures for enforcement of BMPs include:
  - a. Procedures that include specific processes and sanctions to minimize the occurrence of, and obtain compliance from, chronic and recalcitrant violators which shall include appropriate escalating enforcement procedures and actions.
  - b. Documentation on how the requirements of the ordinance will protect water quality and reduce the discharge of pollutants to the MEP. Documentation shall include:
    - i. How storm water BMPs were selected;
    - ii. The pollutant removal expected from the selected BMPs; and
    - iii. The technical basis which supports the performance claims for the selected BMPs.
3. Develop a new development/redevelopment program that has requirements or standard to ensure that any storm water controls or management practices for new development or redevelopment will prevent or minimize impacts to water quality.
4. Develop a new development/redevelopment program that includes a process to evaluate and encourage a Low Impact Development (LID) approach which encourages the implementation of structural BMPs, where practicable, that infiltrate, evapotranspire or harvest and use storm water from the site to protect water quality. Structural controls may include green infrastructure practices such as rainwater harvesting, rain gardens, permeable pavements, and vegetated swales. The selection and design of post-construction controls must take into consideration clogging or obstruction issues, freeze-thaw problems, effect on slope stability and groundwater, and the ability to effectively maintain the control.

5. Develop a plan to retrofit existing developed sites that are adversely impacting water quality. The retrofit plan will be developed to emphasize controls that infiltrate, evapotranspire or harvest and use storm water discharges. The plan will include the ranking of control measures to determine those best suited for retrofitting as well as those that could later be considered for retrofitting. The following will be included when developing the criteria for the retrofit plan:
  - a. Proximity to water body
  - b. Status of waterbody to protect unimpaired waterbodies
  - c. Hydrologic condition of the receiving waterbody
  - d. Proximity to sensitive ecosystem or protected area
  - e. Any upcoming sites that could be further enhanced by retrofitting storm water controls
6. Define a specific hydrologic method or methods for calculating runoff volumes and flow rates to ensure consistent sizing of structural BMPs and to facilitate plan review. Other unique or complex methodologies may be allowed.
7. Adopt and implement procedures for site plan review which incorporate consideration of water quality impacts. Prior to construction the City will:
  - a. Review SWPPPs for all new development and redevelopment sites that disturb one acre or more, or less than one acre and are part of a common plan of development to ensure that the plans include long-term storm water management measures that meet the requirements of this minimum control measure
  - b. Provide developers and contractors with preferred design specifications to more effectively treat storm water for different development types such as industrial parks, commercial strip malls, retail gasoline outlets, restaurants, parking lots, automotive service facilities, street and road construction and project located in, adjacent to or discharging to environmentally sensitive areas.
  - c. Keep a representative copy of information that is provided to design professionals; and if information is distributed to a large number of design professionals at one time, the dates of the mailings and lists of recipients.
8. Adopt and implement SOPs for site inspection and enforcement of post-construction storm water control measures. These measures will ensure adequate long-term operation and maintenance of approved storm water control measures.
  - a. The ordinance will include provisions for both construction-phase and post-construction access for the City to inspect storm water control measures on private properties that discharge to the storm sewer system to ensure that adequate maintenance is being performed. The ordinance may require private property owner/operators or qualified third parties to conduct maintenance and provide annual certification that adequate maintenance has been performed and the structural controls are operating as designed to protect water quality.
  - b. Permanent structural BMPs will be inspected at least once during installation by qualified personnel.
  - c. Inspections and any necessary maintenance must be conducted annually by either the City or through a maintenance agreement, the property owner/operator. On sites where the property owner/operator is conducting maintenance, the City shall inspect those storm water control measures at least once every five years, or more frequently as determined by the City to verify and ensure that adequate

maintenance is being performed. The City will document its findings in an inspection which includes the following:

- i. Inspection date;
  - ii. Name and signature of inspector;
  - iii. Project location; current ownership information;
  - iv. A description of the condition of the storm water control measure including the quality of: vegetation and soil; inlet and outlet channels and structures; catch basins; spillways; weirs, and other control structures; and sediment and debris accumulation in storage as well as in and around the inlet and outlet structures;
9. Provide adequate training for all staff involved in post-construction storm water management, planning and review, and inspections and enforcement. Training will be provided or made available for staff in the fundamentals of long-term storm water management through the use of structural and non-structural control methods. The training records kept will include dates, activities or course descriptions, and names and positions of staff in attendance.
10. Maintain an inventory of all post-construction structural storm water control measures installed and implemented at new development and redeveloped sites that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale. The inventory will include both public and private sector sites located within the City's service area.
- a. Each entry in the inventory will include basic information on each project, such as project's name, owner's name and contact information, location, start/end date, etc. In addition, inventory entries will include the following for each project:
    - i. Short description of each storm water control measure (type number, design or performance specifications);
    - ii. Short description of maintenance requirements (frequency of required maintenance and inspections); and
    - iii. Inspection information (date, findings, follow up activities, prioritization of follow-up activities, compliance status).
  - b. Based on inspection conducted, the City will update the inventory as appropriate where changes occur in property ownership or the specific control measures implemented at the site.



<p>2nd Year August, 2012</p>	<ul style="list-style-type: none"> <li>o Develop plan to retrofit existing developed sites that are adversely impacting water quality</li> <li>o Review all SWPPPs to ensure plans include long-term storm water management measures</li> <li>o Develop and provide preferred design specifications to more effectively treat storm water to developers and contractors</li> <li>o Inspect scheduled long-term storm water management facilities</li> <li>o Provide training for new staff involved in post-construction storm water management, planning and review, and inspection and enforcement</li> <li>o Maintain and update the inventory of all post-construction structural storm water control measures</li> </ul>	<p>Ken Klinker/ Planning/Public Works  Ken Klinker  Ken Klinker /DCSWC/Engineer Ken Klinker Ken Klinker  Ken Klinker</p>	<p>Permit requirement  Permit requirement  Permit requirement Permit requirement Permit requirement  Permit requirement</p>
<p>3rd Year August, 2013</p>	<ul style="list-style-type: none"> <li>o Review all SWPPPs to ensure plans include long-term storm water management measures</li> <li>o Provide preferred design specifications to more effectively treat storm water to developers and contractors</li> <li>o Inspect scheduled long-term storm water management facilities</li> <li>o Provide training for new staff involved in post-construction storm water management, planning and review, and inspection and enforcement</li> <li>o Maintain and update the inventory of all post-construction structural storm water control measures</li> </ul>	<p>Ken Klinker  Ken Klinker  Ken Klinker Ken Klinker  Ken Klinker</p>	<p>Permit requirement  Permit requirement  Permit requirement Permit requirement  Permit requirement</p>

<p>4th Year August, 2014</p>	<ul style="list-style-type: none"> <li>○ Review all SWPPPs to ensure plans include long-term storm water management measures</li> <li>○ Provide preferred design specifications to more effectively treat storm water to developers and contractors</li> <li>○ Inspect scheduled long-term storm water management facilities</li> <li>○ Provide training for new staff involved in post-construction storm water management, planning and review, and inspection and enforcement</li> <li>○ Maintain and update the inventory of all post-construction structural storm water control measures</li> </ul>	<p>Ken Klinker Ken Klinker Ken Klinker Ken Klinker  Ken Klinker</p>	<p>Permit requirement Permit requirement Permit requirement Permit requirement  Permit requirement</p>
<p>5th Year August, 2015</p>	<ul style="list-style-type: none"> <li>○ Review all SWPPPs to ensure plans include long-term storm water management measures</li> <li>○ Provide preferred design specifications to more effectively treat storm water to developers and contractors</li> <li>○ Inspect scheduled long-term storm water management facilities</li> <li>○ Provide training for new staff involved in post-construction storm water management, planning and review, and inspection and enforcement</li> <li>○ Maintain and update the inventory of all post-construction structural storm water control measures</li> </ul>	<p>Ken Klinker Ken Klinker Ken Klinker Ken Klinker  Ken Klinker</p>	<p>Permit requirement Permit requirement Permit requirement Permit requirement  Permit requirement</p>