



To: San Pablo Avenue Green Stormwater Spine Technical Advisory Group, LID Leadership Group
From: Joshua Bradt, Project Manager
Date: June 25, 2013
Subject: MODEL GREEN STREETS ORDINANCE MEMORANDUM

The EPA-funded portion of the San Pablo Avenue Green Stormwater Spine project includes the development of a Green Streets Policy/Model Ordinance. The objective of this task is to promote wider implementation of Green Infrastructure measures by municipal governments in the San Francisco Bay region. The strategy is to create a policy that requires the use of LID measures in all capital improvement projects within the public right-of-way. While public streets and right-of-ways represent the greatest impervious land use under municipal jurisdiction, the use of LID measures as a standard element of stormwater management and street design is not yet established. Rather, municipal use of LID has mostly occurred in on lot-level development and redevelopment projects and as stand-alone demonstration retrofit projects in the right-of-way. Integrating an LID requirement with conventional street & sidewalk improvement projects will promote greater use of these sustainable measures (whose beneficial impacts accumulate with increased usage), and provide significant cost savings compared to the current stand-alone nature of demonstration retrofit projects.

SFEP staff has drafted the attached Model Ordinance, using language extracted from various existing public agency policies and other model ordinance templates from across the country. This memorandum describes the methodology used to create the draft and provides a brief overview of typical ordinance elements in outline format.

Methodology

Web-Search/Compilation: SFEP staff conducted web searches looking for municipal policies and ordinances mandating “Green Infrastructure”, “Green Streets”, and/or “Low Impact Development” measures. Staff also contacted the managers of two Countywide Clean Water Programs to ask if they knew of similar efforts to develop model ordinances. The results of the search produced a good number of technical manuals, existing LID policies, and various model ordinances, the most promising of which were downloaded in PDF format.

Downloaded polices and reference materials include:

- *Integrating LID into Local Codes: A Guidebook for Local Governments*, AHBL for Puget Sound Partnership, July 2012
- *Green Infrastructure Case Studies: Municipal Policies for Managing Stormwater with Green Infrastructure*, EPA Office of Wetlands, Oceans, and Watersheds, August 2010

- *Incorporating Low Impact Development into Municipal Stormwater Programs* Fact Sheet, EPA, April 2009
- *Missouri Guide to Green Infrastructure: Integrating Water Quality into Municipal Stormwater Management*, Missouri Department of Natural Resources, May 2012
- *A Low Impact Development (LID) Model Ordinance and Guidance Document* (presentation for Philadelphia LID Symposium), Trinkaus Engineering/Ecosite, Inc., 2011
- *Smart Growth/Smart Energy Tool Kit: Model LID By-Law*, Commonwealth of Massachusetts, no date
- *LID Manual for Michigan: A Design Guide for Implementers and Reviewers*, Southeast Michigan Council of Governments Information Center, 2008
- *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development*, New Hampshire Department of Environment Services, October 2008
- *Permitting Green Infrastructure: A Guide to Improving Municipal Stormwater Permits and Protecting Water Quality*, Jeffrey Odefey for American Rivers, January 2013
- *Urban Forestry Best Management Practices for Public Works Managers: Ordinances, Regulators, and Public Policies* Report, APWA Press, no date
- *Green Infrastructure for Los Angeles: Addressing Urban Runoff and Water Supply through Low Impact Development*, City of Los Angeles, April 2009
- *Green City Clean Waters: Program for Combined Sewer Overflow*, Philadelphia Water Department, June 2011
- ***Complete and Green Streets Policy (Ordinance No. 798-11), City of Cleveland, 2012***
- ***Low Impact Development Standards Ordinance (No. 2008-0063), County of Los Angeles, 2008***
- *Drought-Tolerant Landscaping Requirement Ordinance (No. 2008-0064), County of Los Angeles, 2008*
- ***Green Streets: Design Guidelines and Review Process (SDOT Director's Rule 2-07, DPD Director's Rule 11-2007), City of Seattle, 2007***
- *LID Amendments to Los Angeles Municipal Code* (amending various municipal codes), City of Los Angeles, 2011
- ***Green Streets Resolution, City of Portland, 2007***
- ***Exhibit A: Green Streets Policy, City of Portland, 2007***
- ***San Francisco Better Streets Plan Implementation Ordinance* (amending various municipal codes), City and County of San Francisco, 2010**
- ***Development Standards Plan: Low Impact Development Designs and Practices for Urban Storm Drainage Management, City of Salinas, July 2007***

Analyses of Materials: SFEP staff reviewed the downloaded documents to determine which of the policies were most compatible with the objective. Most of the policies and stormwater management plans focused on LID requirements for new and redevelopment projects in relation to area and impervious surface change criterion. In the Bay Area, Provision C3 of the Municipal Regional Permit already mandates these measures, which are presumably enforced by Bay Area municipal governments. Otherwise, the existing LID policies specific to the public realm most often appeared in cities with combined sewer stormwater and sanitary sewer systems (i.e. Portland, Seattle, Philadelphia, and San

Francisco). These municipalities are particularly interested in LID measures as a means of reducing stormwater runoff volumes which exacerbate combined sewer overflows. The majority of cities with LID policies for the public realm also had attendant stormwater, watershed, or street-improvement management plans or guidelines already in place.

Model Ordinance Structure & Elements: Staff reviewed both the above referenced materials as well as general municipal code structures and language to develop the draft model ordinance outlined below. The bolded materials listed above were the primary documents used to develop the model ordinance language. In the writing of the model ordinance, staff kept a few critical pointers in mind:

- Keep ordinance simple, direct & understandable
- Complicated ordinances hard to enforce, lead to disregard
- Provide provisions in text that will draw on other sources of expertise in evaluating applications beyond municipal staff (Conservation Districts, State departments: Caltrans, etc.)

ORDINANCE ELEMENTS (DRAFT OUTLINE)

1. TITLE
2. FINDINGS
 - a. *Outline why ordinance is necessary*
 - b. *Summarize function and benefit of green stormwater treatment facilities*
 - c. *Summarize economic, sustainable, social, environmental benefits of green streets*
3. PURPOSE
 - a. *Function and objective of ordinance*
4. DEFINITIONS & ABBREVIATIONS
 - a. *More definition = less “gray areas” for subjective interpretation & higher program success*
5. APPLICABILITY
 - a. *Establish what portion or portions of lands the ordinance will apply to*
 - b. *Options for defining lands include specific areas (set distance) or variable areas*
 - c. *Who must abide by ordinance?*
 - d. *Circumstantial criteria*
 - e. *Exemptions?*
6. REGULATED ACTIVITIES
 - a. *Establish what activities are permitted (by right) and which will require further review and/or permitting*
 - b. *Means must be outlined to provide for uses not specifically y listed (who determines, who enforces)*
7. ENFORCEMENT
 - a. *A procedure must be established for fines & penalties (if ordinance is violated)*
8. LOW IMPACT DESIGN STANDARDS

DRAFT Model Green Streets Ordinance

ARTICLE I. TITLE, FINDINGS, PURPOSE

Section 1.01 Title

This ordinance shall be known as the “<Insert City Name> Green Streets Ordinance” and may be so cited.

Section 1.02 Findings

<Insert City Name> finds that:

- Land development, including its attendant roadways and sidewalks, results in increased impervious cover in local watersheds which alter natural hydrologic responses contributing to: increased storm water runoff rates and volumes, increased flooding, accelerated erosion of stream channels, increased sediment transport and deposition, and increased nonpoint source pollutant loading to receiving water bodies and the San Francisco Bay.
- <Insert City Name> is required by state and federal government through its National Pollutant Discharge Elimination System (NPDES) Permit (**NPDES Permit No. CA0049981, Regional Board Order No. R3-2004-0135**) to reduce stormwater pollution, protect groundwater, and develop and manage programs that respond to water quality requirements.
- The public right-of-way constitutes a significant proportion of the impervious cover within the City boundary, contributing greatly to stormwater runoff volumes, rates, and non-point source pollutants.
- Paved space on many of the City’s streets is more than is needed for the safe and efficient movement of transit, bicycles, and automobiles.
- Low Impact Development (LID) is an emerging strategy that emphasizes conservation and the use of distributed small-scale stormwater controls to mimic pre-development hydrology to mitigate the negative impacts of development and urbanization. LID measures include the use of open-space preservation, vegetation and landscaping, rainwater harvesting, and permeable surfaces to capture, detain, filter, and infiltrate stormwater runoff.
- Green Streets (streets designed with the use of LID measures) are recognized as an effective way to reduce impacts from urbanization and provide the benefits of:
 - Replenishing groundwater supplies
 - Improving the quality of surface water runoff
 - Stabilizing natural stream characteristics
 - Reducing stormwater runoff peak volumes and local flooding
 - Increasing open space and park-like features
 - Increasing pedestrian safety and community livability.

- Green Streets can provide cost-effective solutions to stormwater management when practiced at a watershed scale, such that LID facilities can cumulatively reduce runoff volumes to the extent that the need to enlarge existing piped infrastructure is off-set.
- Green Streets approaches foster unique and attractive streetscapes that protect and enhance neighborhood livability and integrate, rather than separate, the built and natural environments.
- Green Streets approaches encourage the planting of landscapes and vegetation. City landscapes and trees contribute environmental benefits such as reduced summer air temperatures, reductions in global warming through carbon sequestration, air pollution screening, and wildlife corridors, in addition to stormwater reduction.
- When planned on a neighborhood scale, Green Streets can serve as urban greenways or pathways and provide a preferred means of connecting neighborhoods and parks/recreation areas in ways that are attractive to pedestrians and bicyclists.
- Streets that support and invite multiple uses, including safe, active, and ample space for pedestrians, bicycles, and public transit, are more conducive to the public life of an urban neighborhood and efficient movement of people and goods than streets designed primarily to move automobiles.
- Decisions regarding the design and use of the City's limited public street space should prioritize space for pedestrians, bicycles, and public transit over space for automobiles.
- Adopting and implementing the standards, criteria, and procedures contained in this ordinance (and to be further developed) will significantly reduce many of the deleterious effects of stormwater runoff and contribute to the protection and preservation of the public health, safety, and welfare and to protect natural resources

Section 1.03 Purpose

It is the purpose of this ordinance to establish minimum requirements for planning, designing, implementing and maintaining LID facilities as a standard element of public right of way improvements. The Green Streets Ordinance mandates the use of street/sidewalk best management practices that incorporate sustainable water management techniques. These measures when integrated with pedestrian-oriented and multi-modal street elements will improve the quality of life, economic well-being, and environmental health in <Insert City Name>.

This ordinance seeks to meet that purpose through the following objectives:

- Minimize storm water runoff generated by the public right-of-way in order to reduce flooding, siltation, in-stream water temperatures, and accelerated erosion of natural channels;
- Maintain the ecological integrity of stream channels (and the San Francisco Bay);
- Minimize discharges of nonpoint source pollution caused by storm water runoff from the public right-of-way which otherwise degrade local water quality;

- Minimize the total annual volume of surface water runoff which flows from the public right-of-way or City-funded development projects to not exceed the pre-development hydrologic regime to the maximum extent practicable;
- Ensure management controls are properly maintained and pose no threat to public safety;
- Meet the requirements of its National Pollutant Discharge Elimination System (NPDES) Permit **(NPDES Permit No. CA0049981, Regional Board Order No. R3-2004-0135-update to MRP)** that allows the discharge of storm water from the municipal separate storm sewer systems.

In furtherance of the Green Streets Ordinance, the City recognizes that its streets constitute a large portion of the City's public space. Implementation of the Green Streets Ordinance will ensure that such streets will continue to be:

- Corridors for various modes of transportation, with a particular emphasis on pedestrians and transit priorities;
- Organizers of the City's development pattern and how individuals perceive such a pattern; and
- An integral component of City's stormwater management infrastructure.

ARTICLE II: DEFINITIONS & ABBREVIATIONS

Section 2.01 Definition of Terms

The following terms, phrases, words and derivatives shall have the meaning defined below:

1. **"Accelerated Erosion"** means erosion caused by development activities that exceeds the natural processes by which the surface of the land is worn away by the action of water, wind, or chemical action.
2. **"Best Management Practice"** means any kind of procedure, facility, feature, control or device designed to minimize the quantity of pollutants that enter the stormwater drainage infrastructure.
3. **"Channel"** means a natural or artificial watercourse with a definite bed and banks that conducts continuously or periodically flowing water.
4. **"Detention"** means the temporary storage of storm runoff in a storm water management practice with the goals of controlling peak discharge rates and providing gravity settling of pollutants.
5. **"Flow-based Treatment Control BMPs"** means structural treatment controls designed to convey, treat or infiltrate the maximum flow rate produced by a rain event equal to two times the 85th percentile hourly rainfall intensity based on local rainfall records. Examples of flow-based treatment control BMPs include vegetated swales and buffer strips.
6. **"Green Infrastructure"** means the use of Low Impact Development measures in the public right-of-way or in open space areas.
7. **"Green Street"** means the use of Low Impact Development features to retrofit public streets and sidewalks.

8. **“Hotspot”** means an area where land use or activities generate highly contaminated runoff, with concentrations of pollutants in excess of those typically found in storm water.
9. **“Hydrologic Soil Group (HSG)”** means a Natural Resource Conservation Service classification system in which soils are categorized into four runoff potential groups. The groups range from A soils, with high permeability and little runoff production, to D soils, which have low permeability rates and produce much more runoff.
10. **“Impervious Cover”** means those man-made or modified surfaces that prevents or substantially reduces the entry of water into the underlying soil (e.g., building rooftops, pavement, sidewalks, driveways, etc), resulting in surface runoff in greater quantities and/or at an increased rate relative to pre-development conditions.
11. **“Infiltration”** means the process of percolating storm water into the subsoil.
12. **“Land Disturbance Activity”** means any activity which changes the volume or peak flow discharge rate of rainfall runoff from the land surface. This may include the grading, digging, cutting, scraping, or excavating of soil, placement of fill materials, paving, construction, substantial removal of vegetation, or any activity which bares soil or rock or involves the diversion or piping of any natural or man-made watercourse.
13. **“Low Impact Development (LID)”** means the principles and techniques used in designing sites (starting from site layout, and grading and compaction phases of construction) that disturb only the smallest area necessary, minimize soil compaction and imperviousness, preserve natural drainages, vegetation, and buffer zones, and utilize on-site, lot sized storm water treatment techniques. LID sites reduce and compensate for development’s impact(s) on hydrology and water quality.
14. **“Maximum Extent Practicable (MEP)”** is generally a result of emphasizing pollution prevention and source control best management practices (BMPs) as the first lines of defense in combination with structural treatment control BMPs where appropriate serving as additional lines of defense. The MEP approach is an ever evolving, flexible, and advancing concept, which considers technical and economic feasibility. MEP is defined by what is required in the NPDES Permit, EPA guidance, and current applied and available methods and financially feasible technology.
15. **“Nonpoint Source Pollution”** means pollution from any source other than from any discernible, confined, and discrete conveyances, and shall include, but not be limited to, pollutants from agricultural, silvicultural, mining, construction, subsurface disposal and urban runoff sources.
16. **“Off-Site Facility”** means a storm water management measure located outside the subject property boundary described in the permit application for land development activity.
17. **“On-Site Facility”** means a storm water management measure located within the subject property boundary described in the permit application for land development activity.
18. **“Recharge”** means the replenishment of underground water reserves.
19. **“Storm Water Management”** means the use of structural or non-structural practices that are designed to reduce storm water runoff pollutant loads, discharge volumes, peak flow discharge rates and detrimental changes in stream temperature that affect water quality and habitat.
20. **“Storm Water Runoff”** means flow on the surface of the ground, resulting from precipitation.
21. **“Storm Water Treatment Practices (STPs)”** means measures, either structural or nonstructural, that are determined to be the most effective, practical means of preventing or reducing point source or nonpoint source pollution inputs to storm water runoff and waterbodies.
22. **“Volume-based Treatment Control BMPs”** means structural treatment controls designed to capture, treat or infiltrate the volume produced by the local 24-hour, 85th percentile storm event or 80% of the volume of annual runoff. Examples of volume-based treatment control

BMPs include extended detention basins, infiltration basins and trenches, and bioretention basins. Numerically the volume will vary as a function of geographic location and long term rainfall statistical data.

23. **“Urban Runoff”** means surface water flow produced by storm and non-storm events, including flow from residential, commercial, or industrial activities involving the use of potable and non-potable water.

Section 2.02 Acronyms and Abbreviations

The following acronyms and abbreviations shall represent the agencies, organizations, practices, and terms listed below:

BASMAA	Bay Area Stormwater Management Agencies Association
CASQA	California Stormwater Quality Association
Caltrans	California Department of Transportation
GI	Green Infrastructure
LID	Low Impact Development
BMP	Best Management Practice
EPA	Environmental Protection Agency
MRP	Municipal Regional Permit
NPDES	National Pollutant Discharge Elimination System
MEP	Maximum Extent Practicable

ARTICLE III. GENERAL PROVISIONS

Section 3.01 Applicability

Whenever the City of <Insert City Name> undertakes a capital improvement project involving the planning, construction, reconstruction, or repaving of a public right-of-way, such project shall include the incorporation of Low Impact Development (LID) stormwater facilities, to the maximum extent practicable and feasible. The ordinance requirement shall also apply to all such privately-funded improvement projects to the public right-of-way. For the purpose of compliance with this ordinance, the term “public right-of-way” shall be understood to include all publically-owned:

- streets
- roads
- highways
- sidewalks
- alleyways
- public spaces

Emergency maintenance and repair projects are exempt from the LID requirements as are other circumstances detailed in Section 3.03 of this ordinance.

Section 3.02 Maintenance

All projects governed by the Green Streets Ordinance shall include provisions for ongoing maintenance of the improvements. The City shall establish a level of service for the routine, ongoing operations and maintenance needs of all LID facilities within the public right-of-way to ensure long-term proper functioning. Supplemental maintenance arrangements may be utilized to reduce the costs to the City for ongoing maintenance, such as maintenance agreements with willing adjacent property owners, volunteer stewardship organizations, and/or private developer entities who have used the off-site LID option to fund or implement LID treatment in the public right-of-way.

Section 3.03 Limitations and Exemptions

This section describes the Limitations of implementing this Ordinance in certain circumstances as well as Exemptions to the Ordinance:

A. Limitations

1. **Street and Road Resurfacing Projects** – Green Streets measures on street and road resurfacing projects and other roadway maintenance projects conducted by <Insert City Name> shall be limited to minimal LID improvements that do not require disturbance to the sub base, curbs and sidewalks or other elements outside the scope of a project of maintenance resurfacing. This may include the use of permeable paving. If no LID measure is feasible within the resurfacing project area, then the City shall identify an off-site LID opportunity area within the public right-of-way and apply 5% of the resurfacing project cost towards the identified off-site project. The City may aggregate or “bank” the 5% off-site LID encumbrances from several repaving projects to more rapidly accumulate the funds for implementing the selected off-site LID project.

B. Exemptions

–Exemptions to be considered include, but are not limited to, the following items:

1. **Technical Infeasibility** – When, as determined by the Director of Public Works, the on-site LID requirements are technically infeasible, the infeasibility shall be demonstrated in the submitted LID Plan and reviewed in consultation with other appropriate Departments. The technical infeasibility may result from conditions that may include, but are not limited to:
 - a. Locations where seasonal high groundwater is within ten feet of surface grade;
 - b. Locations within 100 feet of a groundwater well used for drinking water;
 - c. Brownfield Development sites or other locations where pollutant mobilization is a documented concern;
 - d. Locations with potential geotechnical hazards;
 - e. Locations with severe topographic or natural resource constraints; or
 - f. Locations where existing structures and utility conflicts do not allow for implementation of Green Street elements

- g. Locations where inclusion of Green Street elements could result in threats to the safety and welfare of pedestrians, cyclists, or motorists
- 2. **Financial hardship to the project sponsor** – Financial hardship exists when compliance with the Green Streets Ordinance policies and guidelines constitute a minimum of twenty (20) per cent of the total project cost, but in no event more than one million dollars
- 3. **Emergency Maintenance and Repair Projects**
- 4. **Miscellaneous Small Repairs, Replacements, and Improvements** – small projects are those that are less than one block in length or are limited to a site-specific defect or improvement, including:
 - a. Repair and Replacement of:
 - i. Sidewalks
 - ii. Driveways
 - iii. Pedestrian trails
 - b. Tree Planting
 - c. Installation of Utility pole(s), utility pole(s), traffic signal pole(s), traffic control sign(s), and fire hydrants

ARTICLE IV. TECHNICAL GUIDANCE & STANDARDS

Section 4.01 Design Guidelines

It is highly desirable that the City use appropriate staff from various Departments and Divisions to develop its own technical design standards, specifications, and guidance documents to ensure consistent and meaningful compliance with this ordinance. Until such time, the following resources shall be used to incorporate required Green Street measures to projects in the public right-of-way:

- A. Green Street design elements are based on guidelines contained in the following documents or organization policies: <add City-generated Watershed and/or Stormwater Management Plans, Open Space Plans, Development Guidelines, and Climate Action Plans>; California Stormwater BMP Handbook: New & Redevelopment (CASQA, 2003), Bay Friendly Landscape Guidelines, Provision C3 Guidance Manual (Clean Water Program); Regional Bioretention Soil Guidance and Model Specification (BASMAA, 2010), Green Streets: Managing Wet Weather with Green Infrastructure Municipal Handbook (EPA, 2008), Start at the Source (BASMAA, 1999), Using Site Design Techniques to Meet Development Standards for Stormwater Quality (BASMAA, 2003), and other guidelines that may be developed.
- B. Additional Green Street-compatible design criteria for the public right-of-way include pedestrian, bicycle, and transit design elements based on guidelines contained in the following documents or organization policies: <add City-generated pedestrian, bicycle, and/or transit Master Plans>; Main Streets: Flexibility in Design & Operations (Caltrans,

2005), Pedestrian Accessibility Guidelines for Highway Projects (Caltrans Design Information Bulletin #82-04, 2010), and other guidelines that may be developed.

Section 4.02 Green Streets Performance Criteria for Stormwater Management

Unless determined to be exempt, the following performance criteria shall be addressed for storm water management at all new and reconstruction projects in the public right-of-way:

- A. **Control Peak Flow** – All site designs shall establish storm water management practices to control the peak flow rate of storm water discharges associated with specified design storms and reduce the generation of storm water.
- B. **Minimize Impervious Cover** – All site designs shall also use LID measures to minimize the amount of impervious cover and directly connected impervious surfaces in areas of new right-of-way and open space improvements and reconstruction. These measures should seek to utilize pervious areas for storm water treatment and to infiltrate (where appropriate) storm water runoff from driveways, sidewalks, rooftops, parking lots, and landscaped areas to the maximum extent practical to provide treatment for both water quality and quantity.
- C. **Site Design Feasibility** – Storm water management practices for a site shall be chosen based on the physical conditions of the site. The factors that should be considered include the following:
 - Topography
 - Maximum Drainage Area
 - Depth to Water Table
 - Soils
 - Slopes
 - Terrain
 - Hydraulic head
 - Location in relation to environmentally sensitive features or ultra-urban areas
- D. **Priority Order of Approaches** – The City recognizes that individual site conditions present an array of design opportunities and constraints, which to a great extent determine project objectives and best management practice alternatives. However, the priority order (or hierarchy) of Green Street stormwater management approaches shall be:
 1. Infiltration
 2. Bioretention
 3. Capture and Reuse
 4. Evapotranspiration

- E. **Stormwater Facility Sizing** – To the extent feasible, on-site stormwater management techniques shall be properly sized to maximize treatment and/or minimize runoff leaving the site. It is understood that there is limited space available in the public right-of-way and it may not be feasible to install adequately-sized treatment systems. However, the preferred methods for LID stormwater facility sizing shall be:
1. **Volume Hydraulic Basis** – Treatment systems whose primary mode of action depends on volume capacity shall be designed to treat stormwater runoff equal to:
 - a. The maximized stormwater capture volume for the area, on the basis of historical rainfall records, determined using the formula and volume capture coefficients set forth in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998), pages 175-178 (e.g. approximately the 85th percentile 24-hour storm runoff event; or
 - b. The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology set forth in Section 5 of the California Stormwater Quality Association's Stormwater Best Management Practice Handbook, New Development and Redevelopment (2003), using local rainfall data.
 2. **Flow Hydraulic Design Basis** – Treatment systems whose primary mode of action depends on flow capacity shall be sized to treat:
 - a. 10 percent of the 50-year peak flow rate;
 - b. The flow of runoff produced by a rain event equal to or at least two times the 85th percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depths; or
 - c. The flow of runoff resulting from a rain event equal to or at least 0.2 inches per hour intensity.
 3. **Combination Flow and Volume Design Basis** – Treatment systems that use a combination of flow and volume capacity shall be sized to treat at least 80 percent of the total runoff over the life of the project, using local rainfall data.
- F. **Conveyance Issues** – All storm water management practices shall be designed to convey storm water to allow for the highest removal of pollutants and highest reduction in flow velocities. This shall include, but not be limited to:
1. Maximizing of flow paths from inflow points to outflow points
 2. Protection of inlet and outfall structures
 3. Elimination of erosive flow rates, velocities and volumes
 4. Providing of under-drain systems, where applicable

- G. **Hot Spots** – Storm water discharges from land uses or activities with higher potential pollutant loadings, known as “hotspots”, may require the use of specific structural BMPs and pollution prevention practices.

- H. **Environmentally Sensitive Areas** – Storm water discharges to critical areas with sensitive resources (i.e., cold water fisheries, shellfish beds, swimming beaches, recharge areas, water supply reservoirs) may be subject to additional performance criteria, or may need to utilize or restrict certain storm water management practices.