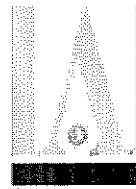


L A R R Y
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Memorandum

DATE: April 17, 2013

TO: LA Permit Group

SUBJECT: Green Streets Policy Recommendations

Cc: Sandy Mathews, LWA

The recently adopted National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer Systems (MS4) permit for the Los Angeles Region, Order No. R4-2012-0175¹ (MS4 Permit) requires Permittees that elect to participate in a Watershed Management Program or Enhanced Watershed Management Program (EWMP) to:

“Demonstrate that there are green streets policies in place and/or commence development of a policy(ies) that specifies the use of green street strategies for transportation corridors within 60 days of the effective date of the Order and have a draft policy within 6 months of the effective date of the Order.” (emphasis added)

A green streets policy is not defined within the MS4 Permit with the exception of a reference to USEPA’s *Managing Wet Weather with Green Infrastructure: Green Streets* that is cited under the Planning and Land Development provision as guidance for street and road post-construction compliance. This reference is stated below:

“(1) Development projects subject to Permittee conditioning and approval for the design and implementation of post-construction controls to mitigate storm water pollution, prior to completion of the project(s), are:

....

(g) Street and road construction of 10,000 square feet or more of impervious surface area shall follow USEPA guidance regarding *Managing Wet Weather with Green Infrastructure: Green Streets* (December 2008 EPA-833-F-08-009) to the maximum extent practicable. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects.”

¹ Adopted November 8, 2012.

In the absence of a formal MS4 Permit prescribed definition or guidance for green streets, the purpose of this technical memorandum is to summarize select green streets policies and identify a draft green street policy appropriate for the Los Angeles Permit Group consistent with the requirements of the MS4 Permit.

US EPA GREEN STREETS HANDBOOK SUMMARY

According to US EPA's *Managing Wet Weather with Green Infrastructure Municipal Handbook: Green Streets*², the functional goals of green streets are to "provide source control of stormwater, limit its transport and pollutant conveyance to the collection system, restore predevelopment hydrology to the extent possible, and provide environmentally enhanced roads."

The document details the design elements of green streets design which are summarized below:

- Street Widths: Minimize impervious cover by narrowing minimum street width requirements. Local governments should examine codes to determine if minimum streets widths can be reduced.
- Swales: Treat and convey runoff from streets using swales (versus standard curb and gutter). Local governments should ensure that codes, ordinances and standard specifications do not place swales at the bottom of the street development hierarchy with curb and gutter at the top.
- Bioretention Curb Extensions and Sidewalk Planters: Utilize bioretention areas in the form of planter boxes or curb extensions to treat runoff from streets and sidewalks. Local governments should modify standard specifications to incorporate the specifications for street bioretention areas.
- Permeable Pavement: Utilize permeable concrete, permeable asphalt, permeable interlocking concrete pavers, and grid pavers. Local governments should incorporate standard specifications for permeable pavement.
- Sidewalk Trees and Tree Boxes: Provide adequate soil volume and good soil mixture to extend the longevity and health of street trees. This can be accomplished through structural soils, root paths, "silva cells", and permeable pavement.

CITY OF SANTA MONICA GREEN STREETS

The City of Santa Monica's Urban Runoff Pollution Control Ordinance, passed in July 2010, includes language requiring "green transportation infrastructure." Green transportation infrastructure is defined as, "streets, roads and alleys that have post-construction BMPs to harvest runoff for storage and onsite use, including green streets and green alleys." The ordinance specifies that any municipal roadway reconstruction projects greater than or equal to \$500,000 shall integrate green transportation infrastructure post-construction BMPs.

² EPA-833-F-08-009, December 2008

CITY OF LOS ANGELES GREEN STREETS

The City of Los Angeles' Board of Public Works adopted a Green Street initiative in May 2007 followed by an Official Green Street Policy adopted in July 2011. In addition to the formal adoption of the initiative and policy, the City also produced a report that provides design guidelines for green streets and green alleys and standard plans that incorporate green street BMPs into City approved construction details.

The Official Green Street Policy promotes the use of the public right-of-way as a large area where infiltration BMPs can be used to collect, retain, or detain stormwater runoff. The policy formalizes the Department of Public Works' efforts to pursue funds and implement green street BMPs in Capital Improvement Projects (CIPs). While the policy primarily applies to existing streets and roadways, the guidelines and standard plans can be used for the design of new streets or improving existing streets. The key recommendations from this policy are summarized below.

- Pursue funding for green street BMPs in CIPs whenever available and incorporate green street BMPs into CIP designs whenever funding guideline permits.
- Develop and adopt green street standard plans and guidelines.
- Develop an annual list of prioritized CIPs that include green street BMPs.
- Identify opportunities to implement green street BMPs as part of TMDL implementation plans.
- Conduct monitoring, as necessary, to evaluate the effectiveness of green street BMPs.
- Incorporate the green streets policy into appropriate design manuals and guidelines.
- Incorporate information from this policy into staff meetings and in-house training sessions.

CITY OF PORTLAND GREEN STREETS

The Portland City Council adopted a citywide policy for green streets in March 2007. The goal of the policy is to promote the use of green street BMPs in private and public development. The policy applies to new development and redevelopment and defines green streets as an amenity that handles stormwater onsite through the use of vegetated facilities, provides water quality benefits, can replenish groundwater, creates attractive streetscapes, connects neighborhoods, creates parks and wildlife habitats, and provides pedestrian and bicycle access. Key elements of the policy include:

- Incorporate green street BMPs into all City of Portland funded development projects that trigger the Stormwater Management Manual requirements. If green streets cannot be incorporated into the project, or only partial management is achieved, an offsite project or management fee is required.
- Require City of Portland funded development projects that occur in the right-of-way, but do not trigger the Stormwater Management Manual requirements, to pay into a Green Street fund at 1% of the construction costs for the project.

- Develop standards and incentives to encourage incorporation of green street BMPs into private development projects.
- Establish maintenance techniques and protocols for green street BMPs.
- Conduct ongoing monitoring to evaluate the effectiveness of green street BMPs.

SUMMARY OF EXISTING GREEN STREET POLICIES

A summary of existing green street policies are provided in the table below.

City	Applicability		Implementation Mechanism		
	CIP	New development/ redevelopment	Ordinance	Council adopted policy	Design guidance
City of Santa Monica	✓	✓	✓		
City of Los Angeles	✓			✓	✓
City of Portland	✓	✓		✓	✓

RECOMMENDATIONS

The three policies reviewed represent different approaches towards a green street policy. With that in mind a green street policy should at a minimum include the following provisions:

- Purpose – state the purpose of the policy and why it is needed.
- Application – clarify the type of transportation corridor projects that are subject to the policy.
- Amenities – identify the benefits from a green street policy.
- Retrofit scope – clarify the application of the policy to retrofit projects as they typically pose implementation challenges.
- Guidance – clarify what technical guidance will be applied to the policy.
- Training – identify training required to implement the policy.

A draft policy has been developed that capture these provisions and is attached to this memorandum.

Green Street Policy

Purpose

The City of [INSERT CITY NAME] [DEPARTMENT OF PUBLIC WORKS] shall implement green street BMPs for transportation corridors associated with new and redevelopment street and roadway projects, including Capital Improvement Projects (CIPs). This policy is enacted to demonstrate compliance with the NPDES MS4 Permit for the Los Angeles Region (Order No. R4-2012-0175).

Green streets are an amenity that provides many benefits including water quality improvement, groundwater replenishment, creation of attractive streetscapes, creation of parks and wildlife habitats, and pedestrian and bicycle accessibility. Green streets are defined as right-of-way areas that incorporate infiltration, biofiltration, and/or storage and use BMPs to collect, retain, or detain stormwater runoff as well as a design element that creates attractive streetscapes.

Policy

- A. Application. The [DEPARTMENT OF PUBLIC WORKS] shall require new development and/or redevelopment streets and roadway projects and CIP projects conducted within the right-of-way of transportation corridors to incorporate green street BMPs. Transportation corridors projects are major arterials as defined in the [CITY'S] General Plan which add at least 10,000 square feet of impervious surface. Routine maintenance or repair and linear utility projects are excluded from these requirements. Routine maintenance includes slurry seals, repaving, and reconstruction of the road or street where the original line and grade are maintained.

Alternate A (without General Plan reference).

Application. The [DEPARTMENT OF PUBLIC WORKS] shall require new development and/or redevelopment streets and roadway projects and CIP projects conducted within the right-of-way of transportation corridors to incorporate green street BMPs. Transportation corridors projects are roadway projects that add at least 10,000 square feet of impervious surface. Routine maintenance or repair and linear utility projects are excluded from these requirements. Routine maintenance includes slurry seals, repaving, and reconstruction of the road or street where the original line and grade are maintained.

Alternatives to the 10,000 sf threshold:

Use other mechanism in lieu of the 10,000 sf of impervious area to determine threshold for green streets requirements. As an example, City of Santa Monica utilizes construction costs (>\$500,000) as the trigger for green street BMPs. Another option would be to establish a threshold of either the 10,000 sf impervious area or construction cost >\$500,000 whichever is smaller.

Alternatives to the major arterial:

Use another General Plan defined street classification, such as secondary arterials, and define the transportation corridor as all that type of street and larger arterials.

- B. Amenities. The [DEPARTMENT OF PUBLIC WORKS] shall consider opportunities to replenish groundwater, create attractive streetscapes, create parks and wildlife habitats, and provide pedestrian and bicycle accessibility through new development and redevelopment of streets and roadway projects and CIPs.
- C. Guidance. The [DEPARTMENT OF PUBLIC WORKS] shall use the City of Los Angeles Green Streets guidance, USEPA's *Managing Wet Weather with Green Infrastructure Municipal Handbook: Green Streets*³, or equivalent guidance developed by the [DEPARTMENT OF PUBLIC WORKS] for use in public and private developments.
- D. Retrofit Scope. The [DEPARTMENT OF PUBLIC WORKS] shall use the City's Watershed Management Program or Enhanced Watershed Management Program to identify opportunities for green street BMP retrofits. Final decisions regarding implementation will be determined by the [CITY ENGINEER] based on the availability of adequate funding.
- E. Training. The [DEPARTMENT OF PUBLIC WORKS] shall incorporate aspects of green streets into internal annual staff trainings.

³ EPA-833-F-08-009, December 2008.