**Santa Ana Region MS4 Permit Program**

**Template for  
Low Impact Development:   
Guidance and Standards for Transportation Projects**

**Insert Project Name**

**Prepared for/by:**

**Insert Owner/Developer Name**

**Insert Address**

**Insert City, State, ZIP**

**Insert Telephone**

**Prepared by (if prepared by Consultant):**

**Insert Consulting/Engineering Firm Name**

**Insert Address**

**Insert City, State, ZIP**

**Insert Telephone**

**Insert Address**

### Project Certification

This report has been completed in compliance with the *Low Impact Development: Guidance and Standards for Transportation Projects*, prepared to comply with the Santa Ana Region MS4 Permit requirements applicable to Transportation Projects. The signatory of this document attests to the technical information contained herein and the date upon which recommendations, conclusions, and decisions have been based. I find this report to be complete, current, and accurate:

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Agency: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Section 1: Introduction

### Overview

The federal Clean Water Act (CWA) establishes requirements for the discharge of urban runoff from Municipal Separate Storm Sewer Systems (MS4) under the National Pollutant Discharge Elimination System (NPDES) program. On January 29, 2010, the Santa Ana Regional Water Quality Control Board (RWQCB) issued Permit Order No. R8-2010-0033 (“MS4 Permit”) to authorize the discharge of urban runoff from MS4 facilities in Riverside County within the Santa Ana Region MS4 Permit area.

The MS4 Permit requires development of a standard design and post-development Best Management Practices (BMP) guidance to guide application of Low Impact Development (LID) BMPs to the maximum extent practicable (MEP) on streets, roads or highways under the jurisdiction of the Permittees used for transportation of automobiles, trucks, motorcycles, and other vehicles. The Santa Ana Region MS4 Permit Program prepared the *Low Impact Development: Guidance and Standards for Transportation Projects* (“Guidance”) to provide direction to Transportation Project owners and operators regarding how to address MS4 Permit requirements for public works Transportation Projects within their jurisdiction.

The LID-based BMP techniques contained within this document are based on information provided by a variety of sources, including the *Design Handbook for Low Impact Development Best Management Practices* prepared by the Riverside County Flood Control and Water Conservation District, Environmental Protection Agency's (USEPA) Municipal Handbook, *Managing Wet Weather with Green Infrastructure: Green Streets*, and the *Low Impact Development Manual for* *Southern California* prepared for the Southern California Stormwater Monitoring Coalition, in cooperation with the State Water Resources Control Board, by the Low Impact Development Center. This Guidance also provides links and references to other sources of information regarding the application of LID-based BMPs to Transportation Projects (Section 6). This referenced material should be used by the project owner/operator as appropriate to support the use of this template during the project design phase.

This template was prepared to provide a tool for project proponents to (1) determine the applicability of the Guidance to a proposed Transportation Project; (2) provide a process for evaluating the feasibility of using LID-based techniques in the proposed project; and (3) establish a template for documenting the project evaluation process and the decisions made regarding the feasibility to incorporate LID-based BMPs into the design of the project. Users should review the Guidance before applying this template to a proposed project.

### Guidance Applicability

Table 1.1 summarizes the applicability of the Guidance to Transportation Projects. If the Guidance applies to the proposed project, this template should be used to evaluate the feasibility of incorporating LID-based BMPs into the project design. Figure 1-1 illustrates the process for completing the template. Refer to this figure as needed to ensure that all steps are completed.

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| **Table 1.1. Transportation Project Guidance Applicability** |
| **The Transportation Project Guidance applies to the following projects:**   * Public Transportation Projects in the area covered by the Santa Ana Region MS4 Permit, which involve the construction of new transportation surfaces or the improvement of existing transportation surfaces (including Class I Bikeways and sidewalks). |
| **The Transportation Project Guidance does not apply to the following projects that are either exempt or covered by other MS4 Permit requirements:**   * Transportation Projects that have received CEQA approval by the effective date of this Guidance * Emergency Projects, as defined by this Guidance (see Section 2 of the Guidance) * Maintenance Projects, as defined by this Guidance (see Section 2 of the Guidance) * Dirt or gravel roads * Transportation Projects that are part of a private new development or significant redevelopment project and required to prepare a Water Quality Management Plan (WQMP) * Transportation Projects subject to other MS4 Permit requirements, e.g., California Transportation Department (Caltrans) oversight projects, cooperative projects with an adjoining County or an agency outside the jurisdiction covered by the Santa Ana Region MS4 Permit |

**Figure 1-1. Process to Complete Transportation Project BMP Template**

**Determine Guidance Applicability**If Category 1 or 2 Project, Guidance is not Applicable; document in Project File  
(Section 1)

**Evaluate Applicability**

**Complete for all Category 3 & 4 Projects**

* **Section 2** - Project Information
* **Section 3** – Regulatory Requirements & Site-Specific Characteristics
* **Section 4** – Infrastructure & Project-Specific Characteristics

**Describe and Characterize Proposed Project**

**Class I Bikeway and Sidewalk Projects – Table 5.4**

* Drain to Pervious Surfaces
* Minimum Width
* Tree Wells
* Permeable Pavement

**Category 3 or 4 Projects (other than Class I Bikeway or Sidewalk Projects) - Table 5.3**

* 1 - Minimum Road Width
* 2 - Drainage Swales
* 3 – Infiltration Basins
* 4 - Bioretention
* 5 - Sidewalk Trees and Tree Boxes
* 6 - Permeable Pavement

**Conduct Feasibility Analysis on Potentially Applicable LID BMPs (Section 5)**

**Complete Source Control Checklist (Section 6)**

**Incorporate Appropriate Source Controls**

**Complete Project Summary**

**(Section 7)**

**Complete Project Documentation**

**Incorporate Documentation into Project File**

**Complete Project File**

# Section 2: Project Information

The purpose of this section is to provide general project information and a description of the proposed project. The description should have sufficient detail to identify the project location, project boundaries and size, and, if classified as a Category 3 Project, the basis for the subcategorization (Capacity vs. Non-Capacity Roadway Improvement Project or non-adjoining Class I Bikeway or Sidewalk Project).

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| **Table 2.1 - Project Characteristics** | | | | | | | | |
| Project Name | | |  | | | | | |
| Project Owner/Operator (Agency) | | |  | | | | | |
| Project Contact Name: | | |  | | | | | |
| Mailing Address: |  | | | E-mail Address: | |  | Telephone: |  |
| Project Category | | Check the box for the applicable Project Category *(See Table 2-1 in Guidance*  Category 3 – Existing Transportation Project  Category 4 – New Transportation Project | | | | | | |
| **Check the appropriate boxes below, based on the Project Category checked above** | | | | | | | | |
| Category 3 | | Roadway Capacity Improvement Project | | | Lane additions  Bridge project  Grade separation project  Other project type | | | |
| Non-Capacity Roadway Improvement Project | | | Shoulder improvements  Parking lane improvements  Turn pocket addition  Signal project that adds a turn lane  Horizontal alignment correction (improve sight distance)  Grade separation project  Passing lane addition  Turn out addition  Other project type | | | |
| Class I Bikeway or sidewalk | | | Improvement to existing Class I Bikeway or sidewalk  Other project type | | | |
| Category 4 | | New road project  New bridge project  New Class I Bikeway or sidewalk project | | | | | | |
| Project Schedule: | | | | | | | | |

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| **Table 2.2 - Project Description** | | | | | | |
| General Project Description: | | | | | | |
| Project Area (ft2): |  | Project Length (ft): | |  | Coordinates of the approximate center of the project: | Latitude:  Longitude: |
| **For Category 3 & 4 projects, complete the information below.** | | | | | | |
| Describe how the existing surface footprint will be modified, if applicable | | |  | | | |
| Describe how the capacity of the existing transportation surface (if any) will be improved | | |  | | | |
| For a Class I Bikeway or sidewalk project, describe how the existing surface will be improved | | |  | | | |

## Section 3: Regulatory Requirements & Site-Specific Chararacteristics

Describe the regulatory requirements and site-specific characteristics associated with the project site that can influence the selection of LID-based BMPs. Attach supporting information, as needed.

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| **Table 3.1 – Regulatory Requirements & Site-Specific Characteristics** | |
| **Regulatory Requirements** | |
| Consult Local Implementation Plan(s) to document pollutants of concern based on impaired waters listings or TMDL implementation requirements. |  |
| Document any known CEQA conditions, Multi-Species Habitat Conservation Plan, California Fish & Game Code Section 1600, CWA Section 401, or CWA Section 404 requirements |  |
| **Site-Specific Characteristics** | |
| Drainage Area (ft2) |  |
| Existing Site Impervious Area (ft2) |  |
| Expected Post-Project Impervious Area (ft2) |  |
| Hydrologic Soil Group\*  *Describe hydrologic soil group and associated infiltration characteristics, if known* |  |
| Expected Infiltration Characteristics *Describe known infiltration characteristics based on soil group or soil test data (attach if such data are available)* |  |
| Natural Sediment Load Characteristics  *Describe local sediment characteristics that could impact selection or functionality of BMPs* |  |
| Depth to Groundwater  *Determine depth to groundwater, if known (provide source of information* ) |  |
| \* See soils section of the Flood Control District’s Hydrology Manual http://floodcontrol.co.riverside.ca.us/downloads/planning/Hydrology%20Manual%20-%20Complete.pdf | |

## Section 4: Infrastructure & Project-Specific Characteristics

Describe the existing infrastructure and project-specific characteristics associated with the project site that can influence the selection of LID-based BMPs. Attach supporting information, as needed; insert N/A for any element that is not applicable to the proposed project.

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| **Table 4.1 - Infrastructure & Project-Specific Characteristics** | |
| **Programmatic & Funding Restrictions** | |
| Project Funding  *Provide information regarding project funding* | Project Budget: |
| Funding Source: |
| Are there any limitations or restrictions on the use of dedicated funds:  Yes; if this box checked, explain limitations    No |
| Programmatic Constraints  *Identify any programmatic or regulatory constraints, e.g., Americans with Disabilities Act; need for emergency access, etc.* | Does the project require compliance with other programmatic, regulatory, or code requirements that may affect application of BMPs?  Yes; if this box checked, explain limitations    No |
| **Impaired Waters & TMDL Requirements** | |
| Regulatory Constraints  *Describe applicable BMP specific requirements to address impaired water related concerns* | Identify the MS4 Local Implementation Plan(s) consulted:  Does the applicable LIP(s) identify any BMP requirements that need to be implemented in the project area:  Yes; describe the BMP requirements and how they have been addressed in the project design:  No |
| **Right-of-Way (ROW)** | |
| ROW Constraints  *Describe potential ROW constraints to BMP implementation* |  |
| **Drainage Connectivity** | |
| Connectivity Constraints  *Based on drainage features of the project site, describe potential constraints to BMP implementation* |  |

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| **Table 4.1 - Infrastructure & Project-Specific Characteristics** | |
| **Utilities** | |
| Utility Constraints  *Identify any utility-related constraints* | Does the project have any utility constraints that that may affect application of BMPs?  Yes; if this box checked, explain constraints    No |
| **Resource Availability** | |
| Irrigation Water  *Describe availability of irrigation water to support BMPs that require establishment of landscaping* |  |
| Power  *Describe availability of power to support use of an irrigation system* |  |
| **Estimated Road Use** | |
| Vehicle Load  *Describe the expected vehicle loads, e.g., H-20 truck loads, that will use the transportation surface after project completion* |  |
| Maximum Allowable Speed (MAS)  *Describe expected speed of vehicles on completed transportation surface; if variable, provide the MAS for different project elements* |  |
| Roadside Parking Requirements  *Describe any minimum requirements associated with design of roadside parking areas* |  |
| Capacity Design (Average Daily Traffic, ADT). Is the ADT ≥ 25,000? | Yes  No |

## Section 5: BMP Feasibility Analysis

### Section 5.1 - Overview

Projects categorized as a Category 3 or Category 4 shall incorporate the following site design BMP principles to the maximum extent feasible:

* Conservation of natural areas to the extent feasible
* Minimization of the impervious footprint
* Minimization of disturbances to natural drainage
* Design and construction of pervious areas to receive runoff from impervious areas
* Use of landscaping that minimizes irrigation and runoff, promotes surface infiltration, and minimizes the use of pesticides and fertilizers

The extent to which these design principles may be incorporated into a project through the use of BMP techniques depends on the project type and the project-specific feasibility analysis. This section provides a stepwise approach for evaluating the feasibility to incorporate LID-based BMPs into a proposed project. Table 5.1 identifies the BMPs required for evaluation in relation to the project category or type. Based on the box checked the project reviewer is directed to the appropriate table for subsequent analyses. Table 5.2 provides sources for BMP planning and design information that may be considered for use in Transportation Projects. Table 5.3 provides a checklist for LID BMP feasibility analysis for Category 3 or 4 projects, and Table 5.4 provides a similar checklist applicable to Class I Bikeway or Sidewalk Projects analysis.

### Section 5.2 – BMP References

To support completion of the feasibility analyses for each LID-based BMP in Table 5.3, Table 5.2 provides sources for BMP design information that may be considered for use in Transportation Projects. These information sources are intended to guide decision-making with regards to making feasibility determinations about the efficacy of incorporating LID-based BMPs in the project design. Additional general information regarding the use of LID-based BMPs in Transportation Projects may be found in Section 6.C of the Guidance.

The resource information provided in Table 5.2 does not represent an exhaustive list of source material regarding LIP-based BMPs; in fact, new information regarding how to design LID-based BMPs is regularly published. In addition, this information is not to be used as a substitute for development of engineering designs appropriate to the project site.

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| **Table 5.1 - LID BMP Evaluation Requirements** | |
| **Check the appropriate box. The LID BMPs listed within each category must be included in the feasibility analysis** | |
| **Category 3 or 4 (other than a Class I Bikeway or sidewalk project)**   * 1 - Minimum Road Width * 2 - Drainage Swales * 3 – Infiltration Basins * 4 - Bioretention * 5 - Sidewalk Trees and Tree Boxes * 6 - Permeable Pavement | **Class I Bikeway or Sidewalk Project**   * Drain to Pervious Surfaces * Minimum Width * Use of Tree Wells * Permeable Pavement |
| * If the Category 3 or 4 box was checked above, complete the feasibility analysis for each of the LID BMPs in Table 5.3 * If the Class I Bikeway or Sidewalk project box was checked, complete Table 5.4 | |

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| **Table 5.2 – BMP Design Information** | | | | | | |
| **LID-based BMP Information Source** | **Minimum Street Width** | **Drainage Swales** | **Infiltration Basins** | **Bioretention** | **Sidewalk Trees & Tree Boxes** | **Permeable Pavement** |
| *Riverside County Flood Control and Water Conservation District Design Handbook for Low Impact Development Management Practices*  <http://rcflood.org/NPDES/LIDBMP.aspx> | -- | -- | Section 3.1 | Section 3.5 | Section 3.5, p. 51 | Section 3.3 |
| *Low Impact Development Manual for Southern California: Technical Guidance and Site Planning Strategies* <http://www.casqa.org/LID/SoCalLID/tabid/218/Default.aspx> | -- | pp. 137-138 | -- | pp. 68-84 | p. 711 | pp. 83-113 |
| *U. S. EPA Municipal Handbook: Green Streets, Managing Wet Weather with Green Infrastructure2* <http://water.epa.gov/infrastructure/greeninfrastructure/upload/gi_munichandbook_green_streets.pdf> | pp. 2-4 | -- | -- | -- | -- | -- |
| *County of San Diego, Low Impact Development Handbook: Stormwater Management Strategies* <http://www.sdcounty.ca.gov/dplu/docs/LID-Handbook.pdf> (General Information)  <http://www.sdcounty.ca.gov/dplu/docs/LID-Appendices.pdf> (Fact Sheets) | Fact Sheet 14, 15 | -- | -- | Fact Sheets 15, 19 | -- | pp. 46-51, Fact Sheets 8, 9, 10 |
| *County of Los Angeles Low Impact Development Standards Manual. January 2009.* <http://dpw.lacounty.gov/wmd/LA_County_LID_Manual.pdf> | -- | -- | -- | -- | pp. 49-521 | pp. 53-57 |
| *City of Santa Barbara Storm Water BMP Guidance Manual* <http://www.santabarbaraca.gov/Resident/Community/Creeks/Storm_Water_Management_Program.htm> | -- | Section 6.6.2 | -- | Section 6.6.1 | Section 6.9.21 | Section 6.8 |
| *Caltrans Treatment Control BMP Technology Report* <http://www.dot.ca.gov/hq/env/stormwater/annual_report/2008/annual_report_06-07/attachments/Treatment_BMP_Technology_Rprt.pdf> | -- | p. D-5 | -- | pp. B-11 – B-12 | pp. B-7 – B-10 | -- |
| *Evaluation of Best Management Practices for Highway Runoff Control*: *Low Impact Development Design Manual for Highway Runoff Control*  <http://www.coralreef.gov/transportation/evalbmp.pdf> | -- | Section 14 | -- | Section  5 | -- | Section 10 |
| 1 Information focuses on design of planter boxes  2 Handbook provides information on all LID types except Infiltration Basins, but information is general in nature | | | | | | |

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| **Table 5.3 – LID BMP Feasibility Analysis**  **1 – Minimum Road Widths** | |
| 1.a - Does the project need to meet jurisdictional code or General Plan requirements for minimum road widths? | Yes; if checked, describe requirements    No |
| 1.b – Based on the findings of 1.a., determine if this BMP can be applied to the project. If applicable, describe how it was incorporated into the project design. | Applicable, describe design features incorporating this BMP; include in Table 7.1    Not Applicable, describe basis for decision (e.g., project requirements, traffic or pedestrian safety concerns) |

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| **Table 5.3 – LID BMP Feasibility Analysis**  **2 – Drainage Swales** | |
| 2.a – Are there any programmatic constraints that prevent the use of this BMP, *e.g., Americans with Disabilities Act; need for emergency access, funding restrictions, etc.? See Section 3.b of the Guidance.* | Yes; if checked, provide basis for finding and STOP; this BMP is infeasible    No; BMP is potentially feasible, continue to 2.b |
| 2.b - Considering grade and need for drainage connectivity, is there sufficient ROW for proper swale installation? | No; if checked, provide basis for finding    Yes |
| 2.c - Can drainage swales be sized large enough to capture site run-on and redirect it into the drainage system? | No; if checked, provide basis for finding    Yes |
| 2.d - Are existing soil characteristics sufficient to support infiltration such that nuisance or vector conditions are not created by any ponded water that may occur? | No; if checked, provide basis for finding    Yes |
| * If “No” is checked for 2.b, 2.c, or 2.d, then STOP - this BMP is infeasible; attach appropriate documentation support as needed * If “Yes” is checked for 2.b, 2.c, and 2.d, then this BMP is potentially feasible, continue on to 2.e and 2.f | |
| 2.e - Are irrigation water and power available to support vegetation in swale during dry periods? | No; if checked, provide basis for finding    Yes |
| 2.f - If irrigation water and power are not available, can the site support native vegetation that does not require irrigation? | No; if checked, provide basis for finding    Yes |
| * If “No” is checked for 2.e and 2.f, this BMP is infeasible * If “Yes” is checked for 2.e or 2.f, then this BMP is potentially feasible; continue to 2.g | |
| 2.g – Are there any special maintenance, equipment, or experience requirements associated with the implementation of this BMP? | Yes; if checked, provide basis for finding and determine whether the findings prevent implementation of this BMP    No |
| 2.h – If this BMP is implemented, will there be any one-time capital costs incurred, e.g., for new equipment required to maintain the BMP, that impacts project funding? | Yes; if checked, provide basis for finding and determine whether the findings prevent implementation of this BMP    No |
| 2.i – Is there long-term funding available to maintain this BMP? | Yes  No |
| * If any of the findings from 2.g, 2.h or 2.i prevent the use of this BMP, then this BMP is infeasible; attach appropriate documentation as needed * If the findings from 2.g., 2.h, and 2.i do not prevent implementation of this BMP, then the BMP is feasible; incorporate into Table 7.1 | |

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| **Table 5.3 – LID BMP Feasibility Analysis**  **3 – Infiltration Basins** | |
| 3.a – Are there any programmatic constraints that prevent the use of this BMP, *e.g., Americans with Disabilities Act; need for emergency access, funding restrictions, etc.? See Section 3.b of the Guidance.* | Yes; if checked, provide basis for finding and STOP; this BMP is infeasible    No; BMP is potentially feasible, continue to 3.b |
| 3.b - Do appropriate soil conditions exist at the project site to allow effective infiltration consistent with a drawdown period, not to exceed 72 hours? | No; if checked, provide basis for finding    Yes |
| 3.c - Is there at least 10 feet separation between the planned basin invert and the measured groundwater elevation? | No; if checked, provide basis for finding    Yes |
| 3.d- Is there at least 100 feet separation from the proposed basin(s) and any known water supply wells? | No; if checked, provide basis for finding    Yes |
| 3.e - Is the underlying soil and/or groundwater free from any known contamination? | No; if checked, provide basis for finding    Yes |
| 3.f - Is there sufficient space to size or place an infiltration basin that:   * Has slopes that are no steeper than 4:1, and * Is located at least 100 feet from bridge structures? | No; if checked, provide basis for finding    Yes |
| 3.g - For a project area that has high vehicular traffic (25,000 or more average daily traffic), can the planned infiltration basin meet the MS4 Permit’s pretreatment of runoff requirements? | No; if checked, provide basis for finding    Yes |
| 3.h - Can an infiltration basin be incorporated into the site plan in a manner that does not create traffic or pedestrian safety concerns? | No; if checked, provide basis for finding    Yes |
| 3.i - Does inclusion of an infiltration basin detract from the aesthetics of the roadway or project area that cannot be mitigated? | No; if checked, provide basis for finding    Yes |
| * If “No” is checked for any of the above questions (3.b – 3.i), this BMP is infeasible * If “Yes” is checked for all of the above (3.b - 3.i), then this BMP is potentially feasible; continue to 3.j | |
| 3.j – Are there any special maintenance, equipment, or experience requirements associated with the implementation of this BMP? | Yes; if checked, provide basis for finding and determine whether the findings prevent implementation of this BMP    No |
| 3.k – If this BMP is implemented, will there be any one-time capital costs incurred, e.g., for new equipment required to maintain the BMP, that impacts project funding? | Yes; if checked, provide basis for finding and determine whether the findings prevent implementation of this BMP    No |
| 3.l – Is there long-term funding available to maintain this BMP? | Yes  No |
| * If any of the findings from 3.j, 3.k or 3.l prevent the use of this BMP, then this BMP is infeasible; attach appropriate documentation as needed * If the findings from 3.j., 3.k, and 3.l do not prevent implementation of this BMP, then the BMP is feasible; incorporate into Table 7.1 | |

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| **Table 5.3 – LID BMP Feasibility Analysis**  **4 – Bioretention** | |
| 4.a – Are there any programmatic constraints that prevent the use of this BMP, *e.g., Americans with Disabilities Act; need for emergency access, funding restrictions, etc.? See Section 3.b of the Guidance.* | Yes; if checked, provide basis for finding and STOP; this BMP is infeasible    No; BMP is potentially feasible, continue to 4.b |
| 4.b - Is there sufficient ROW to consider curb extensions? | No; if checked, provide basis for finding    Yes |
| 4.c - Is there sufficient ROW to consider sidewalk planters? | No; if checked, provide basis for finding    Yes |
| 4.d – Is there sufficient space to consider using the road median for bioretention? | No; if checked, provide basis for finding    Yes |
| * If “No” is checked for 4.b, 4.c and 4.d, then STOP - this BMP is infeasible; attach appropriate documentation support as needed * If “Yes” is checked for 4.b, 4.c or 4.d, then this BMP is potentially feasible, continue on to 4.e | |
| 4.e – Can the site be designed so that median, curb extensions or sidewalk planters tie into the existing drainage at the project site? | No; if checked, provide basis for finding    Yes |
| * If “No” is checked for 4.e, then STOP - this BMP is infeasible; attach appropriate documentation support as needed * If “Yes” is checked for 4.e, then this BMP is potentially feasible, continue on to 4.f and 4.g | |
| 4.f - Are irrigation water and power available to support bioretention area or sidewalk planters? | No; if checked, provide basis for finding    Yes |
| 4.g - If irrigation water and power are not available, can the site support native vegetation that does not require irrigation? | No; if checked, provide basis for finding    Yes |
| * If “No” is checked for 4.f and 4.g, then STOP - this BMP is infeasible * If “Yes” is checked for 4.f or 4.g, then this BMP is potentially feasible; continue on to 4.h | |
| 4.h – Based on anticipated traffic capacity and MAS applicable to the project site, are there any traffic or pedestrian safety concerns that prevent application of this BMP? | Yes; if checked, provide basis for finding    No |
| * If “Yes” is checked for 4.h this BMP is infeasible * If “No” is checked for 4.h, then this BMP is potentially feasible; continue to 4.i. | |
| 4.i – Are there any special maintenance, equipment, or experience requirements associated with the implementation of this BMP? | Yes; if checked, provide basis for finding and determine whether the findings prevent implementation of this BMP    No |
| 4.j – If this BMP is implemented, will there be any one-time capital costs incurred, e.g., for new equipment required to maintain the BMP, that impacts project funding? | Yes; if checked, provide basis for finding and determine whether the findings prevent implementation of this BMP    No |
| 4.j – Is there long-term funding available to maintain this BMP? | Yes  No |
| * If any of the findings from 4.i, 4.j or 4.k prevent the use of this BMP, then this BMP is infeasible; attach appropriate documentation as needed * If the findings from 4.i, 4.j, and 4.k do not prevent implementation of this BMP, then the BMP is feasible; incorporate into Table 7.1 | |

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| **Table 5.3 – LID BMP Feasibility Analysis**  **5 – Sidewalk Trees and Tree Boxes** | |
| 5.a – Are there any or programmatic constraints that prevent the use of this BMP, *e.g., Americans with Disabilities Act; need for emergency access, funding restrictions, etc.? See Section 3.b of the Guidance.* | Yes; if checked, provide basis for finding and STOP; this BMP is infeasible    No; BMP is potentially feasible, continue to 5.b |
| 5.b - Is there sufficient ROW to incorporate sidewalk trees or tree boxes into the project site? | No; if checked, provide basis for finding    Yes |
| * If “No” is checked for 5.b, then STOP - this BMP is infeasible; attach appropriate documentation support as needed * If “Yes” is checked for 5.b, then this BMP is potentially feasible, continue on to 5.c and 5.d | |
| 5.c - Are irrigation water and power available to support vegetation in the bioretention area or sidewalk planters? | No; if checked, provide basis for finding    Yes |
| 5.d - If irrigation water and power are not available, can the site support native vegetation that does not require irrigation? | No; if checked, provide basis for finding    Yes |
| * If “No” is checked for 5.c and 5.d, then STOP - this BMP is infeasible * If “Yes” is checked for 5.c or 5.d, then this BMP is potentially feasible; continue on to 5.e | |
| 5.e – Based on anticipated traffic capacity and MAS applicable to the project site, are there any traffic or pedestrian safety concerns that prevent application of this BMP? | Yes; if checked, provide basis for finding    No |
| * If “Yes” is checked for 5.e this BMP is infeasible * If “No” is checked for 5.e, then this BMP is potentially feasible; continue to 5.f | |
| 5.f – Are there any special maintenance, equipment, or experience requirements associated with the implementation of this BMP? | Yes; if checked, provide basis for finding and determine whether the findings prevent implementation of this BMP    No |
| 5.g – If this BMP is implemented, will there be any one-time capital costs incurred, e.g., for new equipment required to maintain the BMP, that impacts project funding? | Yes; if checked, provide basis for finding and determine whether the findings prevent implementation of this BMP    No |
| 5.h – Is there long-term funding available to maintain this BMP? | Yes  No |
| * If any of the findings from 5.f, 5.g or 5.h prevent the use of this BMP, then this BMP is infeasible; attach appropriate documentation as needed * If the findings from 5.f, 5.g and 5.h do not prevent implementation of this BMP, then the BMP is feasible; incorporate into Table 7.1 | |

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| **Table 5.3 – LID BMP Feasibility Analysis**  **6 – Permeable Pavement** | |
| 6.a – Are there any or programmatic constraints that prevent the use of this BMP, *e.g., Americans with Disabilities Act; need for emergency access, funding restrictions, etc.? See Section 3.b of the Guidance.* | Yes; if checked, provide basis for finding; STOP, this BMP is infeasible    No; BMP is potentially feasible, continue to 6.b |
| 6.b - Does the planned road project include any of the listed types of impervious surfaces (check all that apply)? | Roadside parking/parking lane  Driveways  Sidewalks, walkways  None of the above |
| * If “none of the above” is checked in 6.b, then STOP – BMP is infeasible * If any box other than “none of the above” is checked, BMP is potentially feasible; continue to 6.c | |
| 6.c – Will any of the transportation surfaces checked in 6.b be subject to high traffic volume or heavy traffic loads that prevent the use of permeable pavement? | Yes; if checked, provide basis for finding    No |
| 6.d – Do the underlying soils at the project site provide adequate infiltration capacity for use of this BMP while not causing structural concerns? | No; if checked, provide basis for finding    Yes |
| * If “Yes” is checked for 6.c or “No” is checked for 6.d, then STOP - this BMP is infeasible; attach appropriate documentation support as needed * If “No” is checked for 6.c and “Yes” is checked for 6.d, then this BMP is potentially feasible for all impervious surface types checked in 6.b; continue to 6.e * If “Yes” is checked for 6.c and 6.d and “sidewalks, walkways” was checked in 6.b, then this BMP is potentially feasible for sidewalk or walkway elements of the project; continue to 6.e | |
| 6.e – Are there any special maintenance, equipment, or experience requirements associated with the implementation of this BMP? | No; if checked, provide basis for finding and determine whether the findings prevent implementation of this BMP    Yes |
| 6.f – Will the BMP maintain an adequate service life (at least 5 years) such that the BMP is economically feasible? | No; if checked, provide basis for finding and determine whether the findings prevent implementation of this BMP    Yes |
| 6.g – If this BMP is implemented, will there be any one-time capital costs incurred, e.g., for new equipment required to maintain the BMP, that impacts project funding? | Yes; if checked, provide basis for finding and determine whether the findings prevent implementation of this BMP    No |
| 6.h – Is there long-term funding available to maintain this BMP? | Yes  No |
| * If any of the findings from 6.e, 6.f, 6.g or 6.h prevent the use of this BMP, then this BMP is infeasible; attach appropriate documentation as needed * If the findings from 6.e, 6.f, 6.g and 6.h do not prevent implementation of this BMP, then the BMP is feasible; incorporate into Table 7.1 | |

|  |  |
| --- | --- |
| **Table 5.4 – LID BMP Feasibility Analysis – Class I Bikeway and Sidewalks** | |
| 1 - Has the Class I Bikeway or sidewalk been designed to sheet-flow runoff onto adjacent permeable areas in a manner that will maximize opportunities for infiltration and filtration, while not channelizing or causing erosion? | Yes; if checked, provide basis for finding, incorporate BMP into Table 7.1    No; if checked, provide basis for finding; continue on to Question 2. |
| 2 - Has the Class I Bikeway or sidewalk been designed using the minimum width possible, given expected usage and considering public safety? | Yes; if checked, provide basis for finding; incorporate BMP into Table 7.1; continue on to Questions 3 and 4.    No; if checked, provide basis for finding; continue on to Questions 3 and 4. |
| 3 - If trees are incorporated into the design of the Bikeway or sidewalk, have tree boxes been used? | Yes; if checked, provide basis for finding; incorporate BMP into Table 7.1    No; if checked, provide basis for finding |
| 4 - Do the underlying soils at the project site provide adequate infiltration capacity for use of some type of permeable pavement? | No; if checked, BMP is infeasible; provide basis for finding    Yes; if checked, continue on to Question 5 |
| 5 – Are there any project funding or programmatic constraints that prevent the use of permeable pavement in the project design, *e.g., Americans with Disabilities Act; need for emergency access, funding restrictions, etc.*? | Yes; if checked, BMP is infeasible; provide basis for finding    No; if checked, continue on to Question 6 |
| 6 – Are there any maintenance requirements, including long-term funding, that prevent the use of permeable pavement in the project design? | Yes; if checked, BMP is infeasible; provide basis for finding    No; if checked, include permeable pavement in the project design and incorporate the BMP into Table 7.1 |

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# Section 6: Source Control BMPs

Section 6 identifies source control BMPs potentially applicable to the proposed project. If this is strictly a road project, then only Part 1 needs to be filled out. Part 2 needs to be filled out if the road project includes bike path or sidewalk features adjoining or non-adjoining the road surface, or if the proposed project is only a Class I Bikeway or sidewalk project. The project reviewer should evaluate the applicability of each source control BMP and identify the agency responsible for implementing the BMPs once the project is constructed.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 6.1 - Source Control BMPs** | | | | |
| **Source Control BMP** | **Check One** | | **If not Included, Provide Basis** | **If Included, Agency Responsible for Implementation** |
|  | **Included** | **Not Included** |  |  |
| **Part 1: Category 3 or 4 Projects (other than Class I Bikeway or sidewalk projects)** | | | | |
| Irrigation System and Landscape Maintenance |  |  |  |  |
| Sweeping of Transportation Surfaces adjoining curb and gutter |  |  |  |  |
| Drainage Facility Inspection and Maintenance |  |  |  |  |
| MS4 Stenciling and Signage |  |  |  |  |
| Landscape and Irrigation System Design |  |  |  |  |
| Protect Slopes and Channels |  |  |  |  |
| **Part 2: Class I Bikeway and Sidewalk Projects** | | | | |
| Public Education Program |  |  |  |  |
| Use of Signage |  |  |  |  |
| Installation and Maintenance of Trash Bins and Pet Waste Collection Bags |  |  |  |  |

# Section 7: Project Summary

Table 7.1 summarizes and documents (a) applicability and use of LID-based BMPs in the project design; (b) applicable source control BMPs, and (c) known regulatory requirements that impacted the project design. Fill out the information relevant to the project type and provide supporting information where needed. Continue to Section 8 on the following page for the steps to follow for applicable projects to appropriately size proposed BMP(s).

| **Table 7.1 – Project Summary (Category 3 & 4 Projects)** | | |
| --- | --- | --- |
| **Category 3 or Category 4 Project (other than Class I Bikeway or sidewalk projects)**  Summarize the LID BMPs incorporated into the project design (based on the findings of the Table 5.3 - LID BMP Feasibility Analysis). For each LID BMP checked:   * Describe briefly how the LID BMP was incorporated; and * Provide references to attachments or design plans (e.g., sheet numbers) where needed to support description | Minimum Road Width | |
| Drainage Swales | Maintenance Responsibility: |
| Infiltration Basins | Maintenance Responsibility: |
| Bioretention | Maintenance Responsibility: |
| Sidewalk Trees and Tree Boxes | Maintenance Responsibility: |
| Permeable Pavement | Maintenance Responsibility: |
| **Class 1 Bikeway and Sidewalk Projects**  Summarize the LID BMPs incorporated into the project design (based on the Table 5.4 - LID BMP Feasibility Analysis). For each BMP checked:   * Describe briefly how the LID BMP was incorporated; and * Provide references to attachments or design plans (e.g., sheet numbers) as needed to support description | Drain to Pervious Surfaces | |
| Minimum Width | |
| Use of Tree Wells | Maintenance Responsibility: |
| Permeable Pavement | Maintenance Responsibility: |
| **Regulatory Requirements**  Document design elements that address any known regulatory requirements (see Table 3.1); if none, check the N/A box. | Design elements affected by regulatory requirements  Describe:  N/A | |
| **Source Control BMPs**  Summarize the applicable source controls and the agency responsible for implementation |  | |
| **Documentation**  List all attachments that support this project summary |  | |

# Section 8: BMP Sizing for Applicable Green Streets Projects

*NOTE:* ***All*** *documentation and analyses used in this section shall be provided in Appendix A, Project BMP Sizing Documentation.*

The following steps are used to size previously selected BMPs (e.g. LID and Treatment Control) for **Category 3 and 4** projects:

1. Delineate drainage areas tributary to proposed BMP locations and compute imperviousness.

2. Using the information provided in Table 5.2 above, look up the recommended sizing method for the BMP selected in each drainage area and calculate target sizing criteria (e.g., Design Capture Volume).

3. Using the information provided in Table 5.2 above, appropriately design your BMP(s) per the provided guidance links.

4. Attempt to provide the calculated sizing criteria for the selected BMPs.

5. If sizing criteria cannot be achieved, document the constraints that override the application of BMPs, and provide the largest portion of the sizing criteria that can be reasonably provided given constraints.

If BMPs cannot be sized to provide the calculated volume for the tributary area, it is still essential to design the BMP inlet, energy dissipation, and overflow capacity for the full tributary area to ensure that flooding and scour is avoided. It is strongly recommended that BMPs which are designed to less than their target design volume be designed to bypass peak flows.

For those **Category 4** projects that cannot meet the sizing criteria, notification to the Santa Ana Regional Water Quality Control Board – Inland Stormwater Unit is required. Notification must include a cover letter justifying why your **Category 4** project cannot meet the sizing criteria and needs to include the feasibility analysis used to reach that conclusion. A copy of this notification must also be included in Appendix A, below.

# Appendix A: Project BMP Sizing Documentation