



ATTACHMENT H:
OWP LID SIZING TOOL USER GUIDE



Solutions that move you

OWP LID Sizing Tool- User Guide

Use the Office of Water Programs online Low Impact Development (LID) Sizing Tool to select and size Stormwater Treatment Measures that meet the sizing requirements described in the MS4 permit. Access the online LID sizing tool at the following link:

<http://www.owp.csus.edu/LIDTool/>. The following steps will need to be completed for *each* Drainage Management Area (DMA).

The screenshot shows a web browser window with the URL 'www.owp.csus.edu/LIDTool/'. The page title is 'California Phase II LID Sizing Tool - v1.1'. The main content area on the left contains a welcome message and a 'START' button with a right-pointing arrow. The right side of the browser displays a satellite map of the United States and Mexico. At the bottom left, there are logos for 'OWP AT SACRAMENTO STATE Water Boards' and 'CALIFORNIA STATE PARKS'. The map interface includes a search box, map/satellite toggle, and zoom controls.

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Step 1: Select a Climate Station nearest to your project, then click **Next**.

Step 1 - Select a Climate Station and Project Name

This tool provides results based on 91 climate stations throughout California. Use the drop-down menu to choose the climate station that best represents your project site. Climate stations are also shown on the map to the right. Click on any station on the map to learn its name, years on record, 85th percentile design storm, and other information. You will be able to override the design storm on the following page.

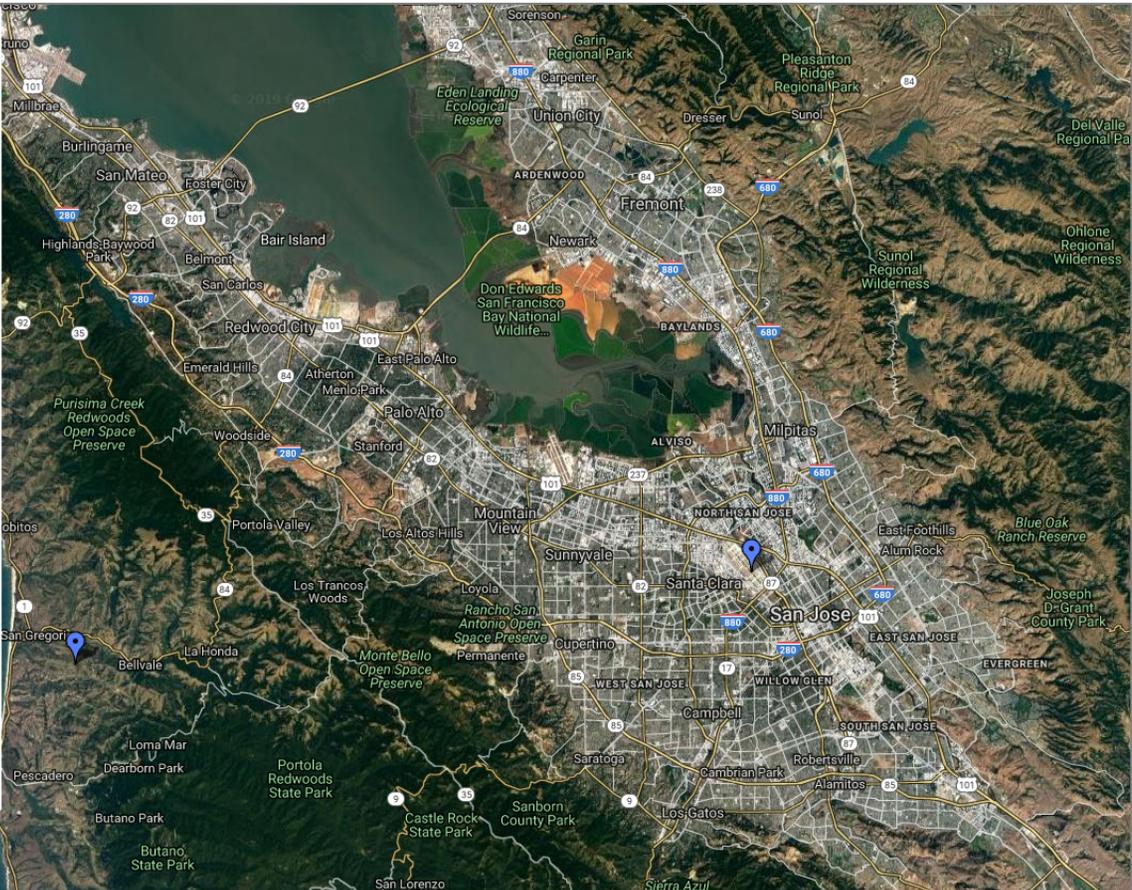
SAN JOSE ▾

If you would like to give your project a name add it to the box below.

 Project name (optional)

Stormwater and Schools +

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Step 2: Enter your project site's saturated hydraulic conductivity based on on-site field data, then click **Next**.

Step 2 - Input a saturated hydraulic conductivity

Enter your project site's saturated hydraulic conductivity based on on-site field data.

If you don't know the saturated hydraulic conductivity, check with your local regulator to see if it is acceptable to use estimates from the US Department of Agriculture Natural Resources Conservation Service (USDA NRCS). If it is, you can view the USDA NRCS hydrologic soil group on the map to the right. Click on the color covering your project location to get an estimate of the saturated hydraulic conductivity.

If you want more information on infiltration rates commonly affiliated with different soil hydrologic groups and soil textures expand the "Tables" section below.

Tables +

inches per hour

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Step 3: Type in the impervious area of the DMA, then click **Next**.

Step 3 - Input the impervious area

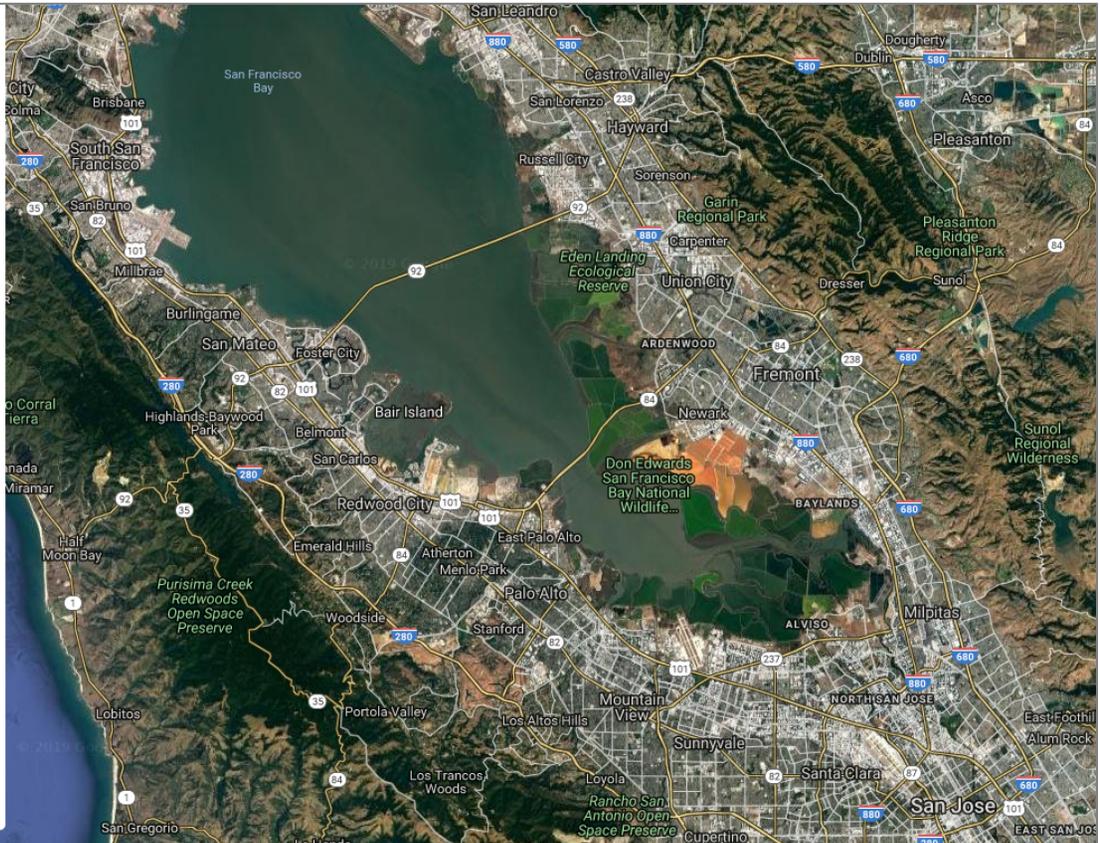
The CA Phase II NPDES [permit](#) requires that the project site be divided into discrete drainage management areas (DMAs). Runoff from each DMA must be managed using LID BMPs that meet specific sizing criteria specified in the permit. The tool assumes that the DMA consists of a 100% impervious catchment draining to a LID BMP. Input the size of the impervious catchment of the DMA of interest for your project.

You can use your own measured area or calculate an area using the measure tool below.

Measure Tool +

1000 Square Feet

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Step 4: Type in the 85th percentile design storm depth in inches. This will be auto-calculated based on the location previously selected. Click **Next**.

Step 4 - Input the Design Storm

Climate station	SAN JOSE
Saturated hydraulic conductivity	0.03 In/hr
Impervious area	1000 square feet

Select a design storm depth in inches (The 85th percentile design storm for this location is: 0.57 in)

inches

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Step 5: Type in the area (SF) devoted to each Site Design Runoff Reduction Measure selected in **Attachment E** (Site Design Runoff Reduction Measure Checklists) of VTA’s Landscaping and Design Criteria Manual. Click on the **LID BMP Types** or **Instructions for Site Design Measures** for descriptions of each type of Runoff Reduction Measure. Note the percent accomplished from the Site Design Runoff Reduction Measures. Click **Next**.

Step 5 - Site Design Measures

Climate station	SAN JOSE
Saturated hydraulic conductivity	0.03 in/hr
Impervious area	1000 square feet
Design storm	0.57 in

Site Design Measures (SDMs) must first be implemented to the extent technically feasible before implementing Storm Water Treatment Measures (SWTMs). SDMs must be sized using the 85th percentile, 24-hour storm, or another design storm as adopted by local regulators.

Site Design Measures Using a Design Storm of 0.57 Inches

LID BMP Types	Area Needed (square feet)	Area Available (square feet)	Percent Accomplished
Porous Pavement	278.00	<input style="width: 50px;" type="text" value="200.00"/>	71.94
Strip, Amended 6"	413.00	<input style="width: 50px;" type="text" value="0.00"/>	0.00
Strip, Amended 12"	168.00	<input style="width: 50px;" type="text" value="0.00"/>	0.00
Strip, Amended 18"	105.00	<input style="width: 50px;" type="text" value="10"/>	9.52
Swale, Amended 6" ²	413.00	<input style="width: 50px;" type="text" value="0.00"/>	0.00
Swale, Amended 12" ²	168.00	<input style="width: 50px;" type="text" value="0.00"/>	0.00
Swale, Amended 18" ²	105.00	<input style="width: 50px;" type="text" value="0.00"/>	0.00
Capture and Use Storage ³	43.05 cf	<input style="width: 50px;" type="text" value="0.00"/> cf	0.00
Totals			81.47

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Step 6: Select the Stormwater Treatment Measure Method used to size the Stormwater Treatment Measures selected in **Attachment D2** (Stormwater Control Plan for Regulated Projects) of VTA’s Landscaping and Design Criteria Manual. **Note:** The **Central Coast Simple Method** should not be selected, as this method is not applicable to VTA projects and is not included in the MS4 permit (2013). Click **Compare Method Results** for a comparison of sizing criteria based on the available methods. Click **Next**.

Step 6 - Select a Storm Water Treatment Measure Method

Climate station	SAN JOSE
Saturated hydraulic conductivity	0.03 in/hr
Impervious area	1000 square feet
Design storm	0.57 in
Percent accomplished by site design measures	100.00%
Percent needed	0.00%

Choose a Method:

Design Storm
This method sizes the LID BMP to treat the selected design storm.

80% Capture
This method uses continuous simulation to size the LID BMP to capture 80% of the runoff.

Bioretention Equivalent
This method uses continuous simulation to size the LID BMP to match the performance of bioretention cell with 18" of soil and 12" of gravel storage treating 4% of the impervious area.

Central Coast Simple Method
This method is similar to the Design Storm Method, except that for LID BMPs with an underdrain, any storage volume above the underdrain is not credited.

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Step 7: Type in the area (SF) devoted to each Stormwater Treatment Measure selected in **Attachment D2** (Stormwater Control Plan for Regulated Projects). Click on the **LID BMP Types** or **Instructions for Storm Water Treatment Measures** for descriptions of each type of Stormwater Treatment Measure. Note the percent accomplished from the Stormwater Treatment Measures selected. Click **Next**.

Step 7 - Use a Storm Water Treatment Measure

Climate station	SAN JOSE
Saturated hydraulic conductivity	0.03 in/hr
Impervious area	1000 square feet
Design Storm	0.57 inches
Method	Design Storm

LID BMP Types	Area Needed (square feet)	Area Available (square feet)	Percent Accomplished
Bioretention Cell - 18" Soil - 12" Gravel Storage	33.83	<input type="text" value="10"/>	29.56
Bioretention Cell - 18" Soil - 24" Gravel Storage	26.44	<input type="text" value="0.00"/>	0.00
Bioretention Cell - 18" Soil - 36" Gravel Storage	21.70	<input type="text" value="0.00"/>	0.00
Bioretention Cell - 24" Soil - 12" Gravel Storage	30.21	<input type="text" value="0.00"/>	0.00
Bioretention Cell - 24" Soil - 24" Gravel Storage	24.18	<input type="text" value="0.00"/>	0.00
Bioretention Cell - 24" Soil - 36" Gravel Storage	20.15	<input type="text" value="0.00"/>	0.00
Bioretention Cell - Soil Depth Varies⁵ - No Gravel Storage	218.00	<input type="text" value="0.00"/>	0.00
Infiltration Basin - Vegetated	356.00	<input type="text" value="0.00"/>	0.00
Infiltration Gallery	93.64	<input type="text" value="0.00"/>	0.00
Infiltration Trench	270.00	<input type="text" value="0.00"/>	0.00
Overland Flow no amendment	N/A	<input type="text" value="N/A"/>	N/A
Porous Pavement	278.00	<input type="text" value="0.00"/>	0.00
Strip, Amended 6"	413.00	<input type="text" value="0.00"/>	0.00
Strip, Amended 12"	168.00	<input type="text" value="0.00"/>	0.00
Strip, Amended 18"	105.00	<input type="text" value="0.00"/>	0.00
Swale, Amended 6"⁶	413.00	<input type="text" value="0.00"/>	0.00
Swale, Amended 12"⁶	168.00	<input type="text" value="0.00"/>	0.00
Swale, Amended 18"⁶	105.00	<input type="text" value="0.00"/>	0.00
Capture and Use Storage⁷	43.05 cf	<input type="text" value="0.00"/> cf	0.00
Site Design Measures		210.000	81.47
Totals		220.000	111.03

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Step 8: Ensure that the Total Percent Accomplished is greater than or equal to 100.00. Take a Screen Shot of this Summary and attach it to the Stormwater Control Plan (SWCP).

Step 8 - Summary

Climate station	SAN JOSE
Saturated hydraulic conductivity	0.03 in/hr
Design Storm	0.57 inches

Method	LID BMP Types	Area Needed (square feet)	Area Available (square feet)	Percent Accomplished	Volume Evaporated (acre-ft/year)	Volume Infiltrated (acre-ft/year)	Volume of Passing Through the Underdrain (acre-ft/year)	Volume Untreated (acre-ft/year)
Site Design Measure - Design Storm	Porous Pavement	278.00	200.00	71.94	-	-	-	-
Site Design Measure - Design Storm	Strip, Amended 18"	105.00	10	9.52	-	-	-	-
Design Storm	Bioretention Cell - 18" Soil - 12" Gravel Storage	33.83	10	29.56	-	-	-	-
Total LID BMP Area			220	111.02	-	-	-	-
Total Impervious Area			1000	0.00	-	-	-	-
Totals			1220.00	111.02	-	-	-	-

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