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Chapter 1 - Introduction

The purpose of this Directors' Rule is to state the City's interpretation of the requirement to implement "green stormwater infrastructure to the maximum extent feasible" (GSI to MEF), and to define steps for evaluating and reporting compliance with this requirement for **Roadway, Trail, and Sidewalk Projects**. According to Seattle Municipal Code (SMC) 22.805.020.F, the following types of projects are required to implement GSI to MEF:

- Any Single-Family residential (SFR) project
- All other projects (Parcel-Based, Roadway, Trail, and Sidewalk) with:
 - \circ $\,$ 7,000 square feet or more of land-disturbing activity, or
 - 2,000 square feet or more of new plus replaced impervious surface.

"Green stormwater infrastructure" means a drainage control facility that uses infiltration, evapotranspiration, or stormwater reuse. Examples of green stormwater infrastructure include permeable pavement, bioretention facilities, and green roofs. (SMC 22.801.080) Although infiltration basins, trenches, and drywells utilize infiltration for flow control, they are not considered green stormwater infrastructure per Section 4.4 of Stormwater Manual Volume 3.

Projects must implement GSI to MEF to infiltrate, disperse, and retain drainage water on site without causing flooding, landslide, or erosion impacts.

In addition to complying with this Directors' Rule, projects must also comply with the standards and requirements presented in the Stormwater Code (SMC 22.800 – 22.808) and Stormwater Manuals¹. More detailed design information about GSI is available in Chapter 4 of Directors' Rule 2009-005 SPU / 17-2009 DPD (Stormwater Manual Volume 3).

Definitions relevant to this rule are provided in the Stormwater Code, in Appendix E to this Directors' Rule, and in Appendix A to Stormwater Manual Volume 3.

Note: This Directors' Rule is specific to Roadway, Trail, and Sidewalk Projects. Refer to Directors' Rule DWW 201.1 SPU / 15-2012 DPD for information on Single-Family Residential and Parcel-Based Projects and the GSI to MEF Requirement.

Director's Rule DWW-201.2 (SPU) / 16-2012 (DPD) Requirements for GSI to MEF for Roadway, Trail, and Sidewalk Projects

 ¹ Vol. 1 - Source Control Technical Requirements Manual (2009-003 SPU / 15-2009 DPD Directors' Rule)
 Vol. 2 - Construction Stormwater Control Technical Requirements Manual (2009-004 SPU / 16-2009 DPD Directors' Rule)

Vol. 3 - Stormwater Flow Control and Water Quality Treatment Technical Requirements Manual (2009-005 SPU / 17-2009 DPD Directors' Rule)

Vol. 4 - Stormwater Code Enforcement Manual (2009-006 SPU / 18-2009 DPD Directors' Rule)

Chapter 2 - GSI to MEF Rule

According to SMC 22.805.020.F, the following types of projects are required to meet the GSI to MEF requirement:

- All Single-Family residential (SFR) projects
- All other projects (Parcel-Based, Roadway, Trail, and Sidewalk²) with:
 - o 7,000 square feet or more of land-disturbing activity, or
 - 2,000 square feet or more of new plus replaced impervious surface.

The City of Seattle interprets the GSI to MEF requirement as follows:

- Mitigate the GSI to MEF target, constrained only by the:
 - o physical limitations of the site,
 - o practical considerations of engineering design, and
 - reasonable considerations of financial costs and environmental impacts.

The GSI to MEF target if defined as follows:

- For Single-Family Residential Projects only, all but 1,500 square feet of new plus replaced impervious surface.
- For all other projects (Parcel-Based, Roadway, Trail, and Sidewalk) requiring GSI to MEF, 100 percent of the new plus replaced impervious surface.

Applicants shall evaluate, select, and calculate sizing for GSI best management practices (BMPs), evaluate and determine feasibility, and provide the required documentation of compliance, all in accordance with this Directors' Rule.

The City recognizes that projects present variable opportunities and constraints and that, due to feasibility limitations, <u>not all projects will be able to mitigate the</u> <u>entire GSI to MEF target</u>. GSI reporting and feasibility analysis as described in this Directors' Rule allows the applicant to meet the GSI to MEF requirement by incorporating GSI to MEF into the project and documenting the specific opportunities and constraints that exist. This Directors' Rule is designed to provide appropriate flexibility for the applicant, with a required process and target to facilitate an evaluation. Ultimately, it is the responsibility of the applicant to use professional judgment and expertise to produce projects that meet the GSI to MEF requirement as explained in this Directors' Rule.

² If the total new plus replaced impervious surface **in the roadway** exceeds 5,000 square feet, the entire project is a Roadway Project and all of the requirements of SMC 22.805.060 apply.

Use Table 1 to evaluate GSI BMPs in the order shown. The applicant is solely responsible for selecting, designing, and constructing GSI BMPs that are appropriate to the project, considering all potential impacts on and off the site.

GSI Ev	aluation Category		Flow Control Basins ^a	Non-Flow Control Basins ^b	Non-Flow Control Basins ^b	Stormwa Vol. 3	ter Manual Section
Category	Green Stormwater Infrastructure Type	GSI BMPs	All Impervious	PGIS ^c	Non-PGIS c	Flow Control	Water Quality ^d
1	Runoff Reduction	Retain Existing Trees	\checkmark	\checkmark	\checkmark	4.4.2	N/A
	Methods	Dispersion	\checkmark	\checkmark	\checkmark	4.4.3 / 4.4.4	N/A
		Plant New Trees	\checkmark	\checkmark	\checkmark	4.4.2	N/A
2	Infiltrating and Reuse Facilities	Bioretention Cells (without underdrain)	√e	\sqrt{f}	Х	4.4.5	5.8.5
		Rainwater Harvesting	NA	NA	NA	4.4.6	N/A
		Permeable Pavement Facilities g (with storage reservoir / overflow)	\checkmark	\checkmark	Х	4.4.7	5.8.5
3	Impervious Surface	Green Roofs	NA	NA	NA	4.4.8	N/A
	Reduction Methods	Permeable Pavement Surfaces g Up to 2% slope	\checkmark	\checkmark	Х	4.4.7	5.8.5
		Permeable Pavement Surfaces ^g 2%-5% slope	\checkmark	√ h	Х	4.4.7	NA
		Bioretention Cells (with detention)	\checkmark	\checkmark	Х	4.4.5	NA
4	Non Infiltrating	Bioretention Cell/Planter	√i	√i	Х	4.4.5	5.8.5
	Facilities	Detention Cisterns for Single-Family Projects	NA	NA	NA	4.6.6	N/A

Table 1.Evaluating Green Stormwater Infrastructure BMPsRoadway, Trail, and Sidewalk³ Projects Only

 $\sqrt{}$ Evaluation required for Roadway, Trail, and Sidewalk Projects except as noted below

X Evaluation not required for Roadway, Trail, or Sidewalk Projects

NA - Not applicable to Roadway, Trail, or Sidewalk Projects

^a Flow Control Basins include: Wetland, Creek, Public Combined Sewer System, Small Lake, Capacity-Constrained System. Refer to Chapter 2.3 for of Stormwater Manual Volume 3 for further guidance.

^b Non-Flow Control Basins include: Designated Receiving Water. Refer to Chapter 2.3 for of Stormwater Manual Volume 3 for further guidance.

^c PGIS: Pollution generating impervious surface. Refer to SMC 22.801.170 for further guidance.

^d For Roadway Projects subject to the minimum requirements for water quality treatment, Table 1 identifies GSI BMPs that are also capable of meeting water quality treatment performance requirements in addition to flow control performance requirements.

^e Minimum bioretention cell size top area in right-of-way is 500 sf (including pre-settling area). Evaluation only required and installation only allowed when contributing area is sufficient to warrant minimum bioretention cell size in right-of-way.

f Minimum bioretention cell size top area in right-of-way is 500 sf (including pre-settling area). Evaluation only required and installation only allowed when contributing area is sufficient to warrant minimum bioretention cell size in right-of-way and the PGIS directed to the cell is 2,000 sf or greater.

^g For use of permeable pavement in the right-of-way, refer to CAM #2215 for reference.

^h Evaluation not required for those areas with greater than 2% slope and the project triggers water quality treatment. Rationale: permeable pavement surfaces with greater than 2% slope do not meet the water quality treatment performance standard.

¹ Evaluation not required for Trail or Sidewalk projects.

³ Projects conducted within the public right-of-way where the total new plus replaced impervious surface in the roadway exceeds 5,000 square feet, the entire project is considered a Roadway Project.

For Roadway, Trail, and Sidewalk Projects, Table 1 also identifies which BMPs shall be evaluated based on the project type, impervious surface type, and receiving water basin/drainage system into which the project discharges (refer to Chapter 2.3 of Stormwater Manual Volume 3 for further explanation of these terms).

The GSI to MEF requirement sizing factors and credits mitigate small storms (e.g., the 1-year recurrence interval storm). The basis for the GSI to MEF requirement sizing factors and credits provided in Appendix D of this Directors' Rule.

Note: Roadway projects may be subject to flow control and water quality performance standards in addition to the GSI to MEF requirement. Such projects shall use GSI to MEF to meet the minimum flow control and water quality treatment requirements per SMC 22.805.080.B and SMC 22.805.090.B. Refer to Chapter 7 of this Directors' Rule for more information on evaluating the GSI to MEF requirement with other performance standards.

Chapter 3 - GSI to MEF Reporting

For projects required to install GSI to MEF, the applicant shall provide the following with the project application for drainage review and approval⁴:

- A completed GSI to MEF Requirement Calculator (Appendix A, Figure A.1) or alternatively, calculate and report the impervious surface mitigated using Tables D.1 – D.4 in Appendix D to this Directors' Rule.
- 2. If the GSI to MEF target is not achieved (per Figure A.1), then additional submittal documentation regarding feasibility is required. See Chapters 4-6 of this Directors' Rule for additional reporting requirements.

⁴ The following land disturbing activities are not required to provide GSI to MEF installation or reporting because it has been determined that GSI installation for these activities is not considered feasible: 1) road maintenance practices including pothole and square cut patching, overlaying existing asphalt or concrete or brick pavement with asphalt or concrete without expanding the area of coverage, shoulder grading, reshaping or regrading drainage ditches, crack sealing, and vegetation maintenance; 2) maintenance, repair, or installation of underground or overhead utility facilities, such as, but not limited to, pipes, conduits and vaults, and that includes replacing the ground surface with in-kind material or materials with similar runoff characteristics.

In addition, for Roadway Projects that only disturb land between existing or proposed curbs, GSI to MEF is not considered feasible, and no GSI to MEF Requirement Calculator submittal is required. These Roadway Projects need only include a statement in the drainage report that GSI to MEF is not feasible for projects contained between the curbs.

Chapter 4 - Evaluating Feasibility: Engineering Limitations

Engineering design conditions may limit the type and amount of GSI that can be implemented for a project. Appendix B of this Directors' Rule, as well as the Stormwater Manual Volume 3, Sections 4.3 and 4.4, includes examples of engineering limitations to the implementation of GSI. Limitations on the use of GSI are based on the need to protect private and public property, protect infrastructure, and achieve facility effectiveness.

If the applicant determines that including additional GSI is not feasible due to practical engineering design limitations and therefore the project does not meet the GSI to MEF target, then the applicant shall provide, at a minimum <u>in addition</u> to the reporting requirements in Chapter 3, the following additional submittal documentation:

- 1. A completed GSI to MEF Requirement Feasibility Checklist (see the tables provided in Appendix B⁵) or a narrative description and rationale with substantial evidence sufficient to explain and justify the applicant's conclusion that the proposed GSI mitigation is the maximum extent feasible for the project and that additional GSI is infeasible based on engineering limitations. If the project encounters engineering limitations not specifically identified in Appendix B, the applicant must document the additional engineering limitations that apply in the space provided in the Appendix B checklists, or provide additional supporting documentation.
- 2. If the project does not achieve the GSI to MEF target and the project application is not signed and stamped by a professional engineer, a signed statement by the applicant certifying that the project design implements GSI to MEF is required.

⁵ Appendix B of this Directors' Rule summarizes limitations primarily derived from the Stormwater Manual Volume 3 that may limit applicability of each GSI BMP on a site. Refer to the appropriate sections in the Stormwater Manual Volume 3 for more detail on site considerations and for the design requirements for GSI. All sizing provided in this rule and Stormwater Manual Volume 3 assumes that an overflow conveyance system is included in the design.

Chapter 5 - Evaluating Feasibility: Physical Limitations of the Site

Urban environments present demands on space that may limit the type and amount of GSI that can be implemented for a project. Examples of physical site limitations that may restrict use of GSI include, but are not limited to: historical designation, vehicular and pedestrian access, utility conflicts, and intended public use of the right-of-way.

If the applicant determines that including additional GSI is not feasible due to physical site limitations and therefore the project does not meet the GSI to MEF target, then the applicant shall provide, at a minimum <u>in addition to the reporting</u> requirements in Chapter 3, the following additional submittal documentation:

- 1. A completed GSI to MEF Requirement Feasibility Checklist (see the tables provided in Appendix B) or a narrative description and rationale with substantial evidence sufficient to explain and justify the applicant's conclusion that the proposed GSI mitigation is the maximum extent feasible for the project and that additional GSI is infeasible based on physical site limitations. If the project encounters physical site limitations not specifically identified in Appendix B, the applicant must document the additional physical site limitations that apply in the space provided in the Appendix B checklists, or provide additional supporting documentation.
- 2. If the project does not achieve the GSI to MEF target and the project application is not signed and stamped by a professional engineer, a signed statement by the applicant certifying that the project design implements GSI to MEF is required.

Chapter 6 - Evaluating Feasibility: Financial Costs

The City has identified several project situations where specific GSI BMPs are not considered to be financially feasible. Those situations are included in the GSI to MEF Requirement Feasibility Checklist presented in Appendix B. For other situations, if the applicant determines that including additional GSI to meet the GSI to MEF requirement is not economically feasible using reasonable consideration of financial costs, even when engineering design limitations and physical limitations of the site would allow greater GSI use, then the applicant shall provide, at a minimum in addition to the reporting requirements in Chapter <u>3</u>, the following additional submittal documentation:

- 1. A narrative description and rationale with substantial evidence sufficient to explain and justify the applicant's conclusion that the proposed GSI mitigation is the maximum extent feasible and that additional GSI is economically infeasible.
- 2. A detailed cost estimate of constructing the project as proposed (i.e., including the level of GSI that is considered cost feasible for the project). The detailed cost estimate must include the following:
 - Breakdown of project costs into subtotals for demolition, site preparation, site paving, landscaping, and utilities, as applicable.
 - Itemization of the proposed GSI measures.
 - If permeable pavement would be feasible but for cost considerations, documentation of the difference in unit and total cost between the conventional surface and GSI approach (e.g., the difference in cost between permeable concrete relative to standard concrete).
- 3. A detailed cost estimate of constructing the project with additional GSI BMPs beyond what the applicant considers a feasible cost (i.e., beyond the proposed design itemized in item 2 above). That is, provide the additional cost the project would incur if the project were to use GSI to meet the GSI to MEF target.
- 4. Street Improvement Plan or Utility Plan construction cost as determined by SDOT or capital improvement project cost as determined by applicable city department.
- 5. If applicable, building/project valuation construction cost as determined by DPD.
- 6. If the project does not achieve the GSI to MEF target and the project application is not signed and stamped by a professional engineer, a signed statement by the applicant certifying that the project design implements GSI to MEF is required.

Chapter 7 - Evaluating GSI to MEF Requirement with Other Performance Standards

Roadway Projects may be subject to flow control and water quality performance standards in addition to the GSI to MEF requirement. Such projects shall use GSI to MEF per SMC 22.805.080.B and SMC 22.805.090.B to meet the minimum flow control and water quality treatment requirements. And, if necessary after applying GSI to MEF, shall use additional non-GSI BMPs to meet the applicable minimum requirements for flow control and water quality treatment performance standards (SMC 22.805.080 and SMC 22.805.090, respectively, and Stormwater Manual Volume 3). A project that meets the GSI to MEF target does not necessarily also meet the applicable performance standards for flow control and water quality treatment.

Note that the GSI to MEF requirement sizing factors and credits for GSI BMPs differ from the sizing factors and credits for flow control and water quality treatment performance standards. Specifically, the GSI to MEF requirement sizing factors and credits in Tables D.1 - D.5 of Appendix D to this Directors' Rules are applicable to all sites subject to the GSI to MEF requirement. In contrast, the sizing factors and credits for flow control and water quality treatment vary depending on a given site's applicable performance standard (e.g., Predeveloped Forest, Pasture, or Peak Flow Control Standards). See the Stormwater Code and Directors' Rules, including but not limited to Stormwater Manual Volume 3, Sections 2.3 – 2.6.

Appendix A –

Documenting the GSI to MEF Requirement

APPENDIX A: Documenting the GSI to MEF Requirement

The GSI to MEF Requirement Calculator is presented as Figure A.1. Electronic versions are available on the <u>SDOT Street Improvement Plan website</u> or <u>DPD</u> <u>Stormwater Code website</u>. If a project is a Joint Project, separate calculators shall be submitted for the Parcel-Based portion of the project and the Roadway⁶ portion of the project. If the project is in the right-of-way, the Street Use Permit process will also require compliance with the design requirements of the Right-of-Way Improvement Manual (<u>www.seattle.gov/transportation/rowmanual/</u>). Where conflict exists, the ROWIM shall apply in conjunction with SMC 15 and SMC 22.800.

The applicant shall follow the steps presented below to document whether the GSI to MEF target has been met. These steps are in addition to steps required if other minimum requirements and performance standards apply.

Note that GSI facilities must meet the design considerations and requirements set forth in Stormwater Manual Volume 3. However, the sizing factors for meeting the GSI to MEF requirement (presented in this appendix) are different from those presented in Volume 3. Roadway projects must use the appropriate sizing factors and calculators defined in the Stormwater Manual Volume 3 when designing to meet the flow control and water quality treatment performance standards, not those outlined in this GSI to MEF rule.

Documenting the GSI to MEF Requirement

Step A – Review Table 1 and the GSI to MEF Requirement Calculator (Figure A.1) to identify GSI BMP options for the project site as outlined in the subsequent steps. Use the electronic version of the calculator available on the <u>SDOT Street Improvement Plan website</u> or <u>DPD Stormwater Code website</u>.

Note: Applicants that choose not to use the GSI to MEF calculator shall use the sizing factors and credits in Appendix D, Tables D.1 – D.5, of this Directors' Rule to comply with the GSI to MEF requirement.

- **Step B** Divide the project area into distinct project types, if applicable (e.g., Sidewalk, Trail, Roadway, Single-Family Residential, Parcel-Based).
- **Step C** Calculate and report total new plus replaced impervious surface (including permeable pavements) for each project type.

⁶ See also Appendix B to this Directors' Rule, for exceptions to this requirement for Roadway Projects.

- Step D Check the feasibility of infiltration. See Appendix C and general requirements for infiltration facilities in Chapter 4.3 of Stormwater Manual Volume 3.
- Step E Identify opportunities for GSI Category 1 "GSI Runoff Reduction Methods" (retain existing trees, plant new trees, and dispersion).
 Note that dispersion is typically not feasible in an urban environment.

For each BMP, use the electronic GSI to MEF Requirement Calculator, or alternatively Table D.1, to calculate and report the impervious area mitigated as a product of the BMP area and its GSI credit.

Step F – Identify opportunities for GSI Category 2 "Infiltrating and Reuse Facilities" (bioretention cells without underdrain and permeable pavement facilities).

For each BMP, use the electronic GSI to MEF Requirement Calculator, or alternatively Table D.2, to calculate and report the impervious area mitigated with the selected BMPs.

Step G – If there are remaining unmitigated impervious surfaces, identify opportunities for GSI Category 3 "Impervious Surface Reduction Methods" (permeable pavement surfaces) followed by GSI Category 4 "non-infiltrating green stormwater infrastructure" (bioretention planter with underdrain).

For each BMP, use the electronic GSI to MEF Requirement Calculator, or alternatively Tables D.3 and D.4, to calculate and report the impervious area mitigated with the selected BMPs.

- Step H Use the electronic version of the GSI to MEF Requirement Calculator, or alternatively Tables D.1 - D.4, to calculate and report the total impervious area mitigated with the selected GSI BMPs.
- **Step I** If the GSI to MEF target is not met, provide documentation as outlined in Chapters 4-6 of this Directors' Rule.

City of Seattle GSI to MEF Requirement Calculator (2012-05-01)				
Building Permit No			Project Type	→
Project Address		1	Project Area	→sf
			New plus Replaced Impervious Area	→sf
			Area Requiring Mitigation —	→sf
Runoff Reduction Methods	Facility Size		Credit	Area Mitigated
Retained Trees				, a ca iningatoa
Existing Evergreen # Trees	Total Canopy Area of Trees Total Canopy Area of Trees	sf	x 20% Canopy (or min 100 sf/tree) = x 10% Canopy (or min 50 sf/tree) =	-
New Trees				_
New Evergreen New Deciduous	# Trees # Trees		x 50 st/tree = 20 sf/tree =	-
	# 11000		C Total Area Mitigated by Tree	
Dispersion 1			· · · · · · · · · · · · · · · · · · ·	
Downspout or Sheet Flow Dispersion	Dispersed Impervious Area	sf	x 100.0%	sf
Inflitentian and David Facilities	Castlife Clas		Olelen Fostor	Area Mikiwatad
Infiltration and Reuse Facilities	Facility Size		Sizing Factor	Area Miligated
Bioretention Cell (without Underdrain)	Discretestion Dottom Area	ef	Select Project Type	- 4
Ponding Depth in	Dioretention Dottom Area	51		
Design Infiltration Rate in/hr				
2 Contributing Area	Bioretention Bottom Area	sf	+ Select Project Type	= sf
Ponding Depth in		,		~
Design Infiltration Rate in/hr				
3 Contributing Area sf	Bioretention Bottom Area	sf	+ Select Project Type	= sf
Ponding Depth in				
Design Infiltration Rate				
Detention Cistern to Bioretention Cell (BC) (without Underd	rain) 2		Output Deviced Trans	
Contributing Area sf	Bioretention Bottom Area	sf	+ Select Project Type	=sf
BC Ponding Depth in				
BC Design Infilt Rate in/hr				
Permeable Pavement Facility (may receive run-on) ³	Permeshie Davement Area	ef	+ Enter Contributing Area	- of
Ponding Depth ⁴ in	Fernieable Favement Area	31	Plus Permeable Pavement Facility Area	
Design Infiltration Rate in/hr				
Reuse Facilities ¹ Rainwater Harvesting	Applicant must provide documer	ntation of area mitigate	ed by rainwater baryesting	ef .
<u>Reuse Facilities ¹</u> Rainwater Harvesting	Applicant must provide documer	ntation of area mitigate	ed by rainwater harvesting	sf
Reuse Facilities 1 Rainwater Harvesting Impervious Surface Reduction Methods Alternative Payement Surfaces	Applicant must provide documen Facility Size	ntation of area mitigate	ed by rainwater harvesting Credit	sf Area Mitigated
Reuse Facilities 1 Rainwater Harvesting Impervious Surface Reduction Methods Alternative Pavement Surfaces Permeable Pavement Surface (Subgrade Slope s2%)	Applicant must provide documer Facility Size Permeable Pavement Area	ntation of area mitigate	ed by rainwater harvesting Credit x100.0%	Area Mitigated
Reuse Facilities 1 Rainwater Harvesting Impervious Surface Reduction Methods Alternative Pavement Surface (Subgrade Slope s2%) Permeable Pavement Surface (Subgrade Slope s2%) Permeable Pavement Surface (Subgrade Slope s2-5%)	Applicant must provide documer Facility Size Permeable Pavement Area Permeable Pavement Area	ntation of area mitigate	ed by rainwater harvesting	Area Mitigated
Reuse Facilities 1 Rainwater Harvesting Impervious Surface Reduction Methods Alternative Pavement Surface (Subgrade Slope <2%) Permeable Pavement Surface (Subgrade Slope <2-5%) Alternative Roof Surfaces 1 Green Roof (Single/Multi-Course / 4" Growth Medium)	Applicant must provide documer Facility Size Permeable Pavement Area Permeable Pavement Area Green Roof Area	ntation of area mitigate	ed by rainwater harvesting	Area Mitigated =
Reuse Facilities 1 Rainwater Harvesting Impervious Surface Reduction Methods Alternative Pavement Surface (Subgrade Slope <2%) Permeable Pavement Surface (Subgrade Slope <2-5%) Alternative Roof Surfaces 1 Green Roof (Surgle/Multi-Course / 4" Growth Medium) Green Roof (Multi-Course / 8" Growth Medium)	Applicant must provide documer Facility Size Permeable Pavement Area Permeable Pavement Area Green Roof Area Green Roof Area	sf	ed by rainwater harvesting	Area Mitigated =
Reuse Facilities 1 Rainwater Harvesting Impervious Surface Reduction Methods Alternative Pavement Surface (Subgrade Slope <2%) Permeable Pavement Surface (Subgrade Slope <2-5%) Alternative Roof Surfaces 1 Green Roof (Single/Multi-Course / 4" Growth Medium) Green Roof (Multi-Course / 8" Growth Medium) Partial Infiltration 1 Bioratedicino Call with Detention (without Linderdrain)	Applicant must provide documer Facility Size Permeable Pavement Area Permeable Pavement Area Green Roof Area Green Roof Area	ntation of area mitigate	ed by rainwater harvesting	Area Mitigated =
Reuse Facilities 1 Rainwater Harvesting Impervious Surface Reduction Methods Alternative Pavement Surface (Subgrade Slope <2%)	Applicant must provide documer Facility Size Permeable Pavement Area Permeable Pavement Area Green Roof Area Green Roof Area	sf	ed by rainwater harvesting	Area Mitigated =sf =sf =sf =sf
Reuse Facilities 1 Rainwater Harvesting Impervious Surface Reduction Methods Alternative Pavement Surface (Subgrade Slope <2%)	Applicant must provide documer Facility Size Permeable Pavement Area Permeable Pavement Area Green Roof Area Green Roof Area Bioretention Bottom Area	ntation of area mitigate	ed by rainwater harvesting	Area Mitigated =
Reuse Facilities 1 Rainwater Harvesting Impervious Surface Reduction Methods Alternative Pavement Surface (Subgrade Slope <2%)	Applicant must provide documer Facility Size Permeable Pavement Area Permeable Pavement Area Green Roof Area Green Roof Area Bioretention Bottom Area	ntation of area mitigate	ed by rainwater harvesting	Area Mitigated =
Reuse Facilities 1 Rainwater Harvesting Impervious Surface Reduction Methods Alternative Pavement Surface (Subgrade Slope <2%)	Applicant must provide documer Facility Size Permeable Pavement Area Permeable Pavement Area Green Roof Area Green Roof Area Bioretention Bottom Area	Atation of area mitigate	ed by rainwater harvesting	Area Mitigated = sf
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Figure A.1. Sample GSI to MEF Requirement Calculator

Appendix B –

GSI to MEF Requirement Feasibility Checklist

APPENDIX B: GSI to MEF Requirement Feasibility Checklist

The intent of this appendix is to help designers and reviewers evaluate feasibility of GSI BMPs in meeting the GSI to MEF requirement for a given site. The City has identified several project situations where specific GSI BMPs are not considered feasible based on engineering, site, or financial constraints, and has included these situations in the feasibility checklist. This checklist contains examples and is not an exclusive list of all possible feasibility limitations⁷.

Applicants shall submit this feasibility checklist (or a narrative that provides the substantive equivalent information as the checklist) with permit applications as part of drainage review and approval if the applicant determines that including the level of GSI necessary to meet the GSI to MEF target is infeasible.

Feasibility shall be based upon practical engineering design limitations, physical limitations of the site, or reasonable considerations of financial costs as identified in the feasibility checklist or narrative. For BMPs selected, the applicant shall also use the information and design requirements presented in Chapter 4 of Stormwater Manual Volume 3.

The applicant is solely responsible for selecting, designing, and constructing GSI BMPs that are appropriate to the project, considering all potential impacts on and off the site.

⁷ Projects in the right-of-way also require compliance with the Right-of-Way Improvement Manual (www.seattle.gov/transportation/rowmanual/ to the extent applicable). Where conflict exists, the ROWIM shall apply in conjunction with SMC Title 15 and SMC 22.800.

BMP	Feasibility Considerations	Additional information from applicant
Retain Existing Trees	 No existing trees in project area. SDOT Urban Forestry has required and/or approved street tree removal (Street Trees will not be required to be removed for the purpose of installing other GSI BMPs). New and/or replaced ground level impervious surface not proposed within 20 feet of existing tree (defer to SDOT Urban Forestry regarding Street Tree retention). For tree(s) with a diameter greater than or equal to 6", significant grading within the dripline is unavoidable or otherwise does not meet standards (per COS Standard Plans and Specifications) required for retention (defer to SDOT Urban Forestry regarding Street Tree retention). For tree(s) with a diameter between 4-6": significant grading is unavoidable within 5 feet of tree trunk or otherwise does not meet standards (per COS Standard Plans and Specifications) required for retention (defer to SDOT Urban Forestry regarding Street Tree retention). 	
All Dispersion BMPs	 Design cannot accommodate dispersion due to infiltration restrictions and setbacks (identify from list below): Geotechnical evaluation determines infiltration not be used anywhere within project area due to reasonable concerns of erosion, slope failure, or down-gradient flooding (submit a signed and stamped geotechnical report). Project within a landslide hazard area defined by the Regulations for Environmental Critical Areas. Project area in or within 100 feet of a known contaminated site or abandoned landfill. 	
Sheet Flow Dispersion	 Positive drainage for sheet flow runoff in unachievable. Dispersion area cannot be graded to have less than a 15% slope. At least a 10-foot wide vegetation buffer for dispersion of the adjacent 20 feet of impervious surface is unachievable. 	
New Trees	 SDOT Urban Forestry does not allow installation of Street Trees. Space necessary for the mature height, size, and/or rooting depth for tree planting per the current COS Recommended Tree List (defer to SDOT Urban Forestry regarding Street Tree installation) is unachievable. 	

Table B.1.GSI to MEF Requirement Feasibility ChecklistCategory 1: Runoff Reduction Methods

Feasibility Consideration	Additional information from applicant
 Infiltration restrictions and setbacks per Stormwater Manual Vol. 3, Chapter 4.3 must be considered. "Infiltration Feasibility Flowchart" is provided in Appendix C for initial screening purposes. Infiltrating facilities may not be sited within: 	
1. Landslide prone critical areas	
2. Setbacks from steep slope areas	
 100 feet of a known contaminated site or abandoned landfill 	
 4. Other setbacks presented in the Stormwater Manual Vol. 3 (e.g., setbacks from structures). The minimum vertical separation of three feet from the facility bottom to the seasonal high groundwater elevation, bedrock, or other impermeable layer cannot be achieved and where the area tributary to the facility to an individual facility meets or exceeds any of the following limitations: 	
1. 5,000 sf of pollution generating impervious surface (PGIS)	
2. 10,000 sf of impervious area	
 3. 3/4 acres of lawn and landscaped area. The tributary area to an individual facility does not exceed the area limitations above but the minimum vertical separation of one foot from the facility bottom to the underlying water table, bedrock, or other impermeable layer cannot be achieved. Geotechnical evaluation determines infiltration NOT be used anywhere within the project area due to reasonable concerns of erosion, slope failure, or down-gradient flooding (submit signed and stamped geotechnical report). Pilot infiltration test (PIT) results demonstrate that the design soil infiltration rate is less than 0.25 inches/hr (testing shall be per Appendix E of Stormwater Manual Vol. 3). Minimum vertical and horizontal clearance from utilities is unachievable as required by utility owner. 	
 Bioretention facility evaluation is not required if the project site meets <u>all</u> of the following: 1. Discharges through a piped component of the public drainage system to a designated receiving water (SMC 22.801.050), and 2. Does not discharge to a capacity constrained system, and 3. Does not include new plus replaced PGIS areas. (Note: if the project meets criteria 1 and 2 above, but not criteria 3, bioretention facility evaluation is only required for the new plus replaced PGIS areas.) This is a right-of-way application and the project area does not have an approved location for bioretention facility use per the Right-of-Way Improvement 	
	 Feasibility Consideration Infiltration restrictions and setbacks per Stormwater Manual Vol. 3, Chapter 4.3 must be considered. "Infiltration Feasibility Flowchart" is provided in Appendix C for initial screening purposes. Infiltrating facilities may not be sited within: Landslide prone critical areas Setbacks from steep slope areas 100 feet of a known contaminated site or abandoned landfill Other setbacks presented in the Stormwater Manual Vol. 3 (e.g., setbacks from structures). The minimum vertical separation of three feet from the facility bottom to the seasonal high groundwater elevation, bedrock, or other impermeable layer cannot be achieved and where the area tributary to the facility to an individual facility meets or exceeds any of the following limitations: 5,000 sf of pollution generating impervious surface (PGIS) 10,000 sf of impervious area 3. 3/4 acres of lawn and landscaped area. The tributary area to an individual facility does not exceed the area limitations above but the minimum vertical separation of one foot from the facility bottom to the underlying water table, bedrock, or other impermeable layer cannot be achieved. Geotechnical evaluation determines infiltration NOT be used anywhere within the project area due to reasonable concerns of erosion, slope failure, or down-gradient flooding (submit signed and stamped geotechnical report). Pilot infiltration rate is less than 0.25 inches/hr (testing shall be per Appendix E of Stormwater Manual Vol. 3). Minimum vertical and horizontal clearance from utilities is unachievable as required by utility owner. Bioretention facility evaluation is not required if the project site meets <u>all</u> of the following: Discharges strough a piped component of the public drainage system to a designated receiving water (SMC 22.801.050), and Does not discharge to a capacity constrained system, and Does not dis

Table B.2.GSI to MEF Requirement Feasibility ChecklistCategory 2:Infiltrating and Reuse Facilities

BMP	Feasibility Consideration	Additional information from applicant
Bioretention Facilities (without impermeable liner) (Continued)	 Project site cannot accommodate bioretention areas because site's longitudinal surface slopes parallel to bioretention area cannot be graded to less than 7 percent. For projects within the right-of-way, total required bioretention surface area (top area including side slopes, bottom, and pre-settling area) is less than 500 sf. Minimum facility size cannot be met due to such examples as: encroachment within the critical root zone of an existing tree(s); minimum utility setbacks cannot be met; required pedestrian access; project limits are too small; directing runoff from impervious surfaces to meet minimum bioretention cell size in right-of-way not feasible due to longitudinal slope of project; amount of new plus replaced impervious surface area does not warrant installation of a bioretention cell with a 500 sf surface area. The minimum bottom cell width of the bioretention facility cannot be met due to site constraints (e.g. setbacks, planting strip width.) 	
Permeable Pavement Facilities	 Permeable pavement facility evaluation is not required if the project site meets <u>all</u> of the following: 1. Discharges through a piped component of the public drainage system to a designated receiving water (SMC 22.801.050), and 2. Does not discharge to a capacity constrained system, and 3. Does not include new or replaced PGIS areas. (Note: if the project meets criteria 1 and 2 above, but not criteria 3, permeable pavement evaluation is only required for the new plus replaced PGIS areas.) This is a right-of-way application and the project area does not have an approved location for permeable pavement use per the Right-of-Way Improvement Manual. See CAM #2215 for reference. Site has high potential for concentrated pollutant spills. A permeable pavement wearing course of 5 percent or less slope is unachievable. A contributing tributary of less than 3 times the permeable pavement facility area is unachievable. 	
Rainwater Harvesting	 Rainwater harvesting evaluation is not required if project site is one of the following: 1. Trail or Sidewalk Project 2. Roadway Project 	

Table B.2.GSI to MEF Requirement Feasibility ChecklistCategory 2:Infiltrating and Reuse Facilities (Continued)

BMP	Feasibility Consideration	Additional information from applicant
Permeable Pavement Surface	 Permeable Pavement Surface evaluation is not required if the project site meets <u>all</u> of the following: Discharges through a piped component of the public drainage system to a designated receiving water (SMC 22.801.050), and 	
	2. Does not discharge to a capacity constrained system, and	
	 Does not include new or replaced PGIS areas. (Note: if the project meets criteria 1 and 2 above, but not criteria 3, permeable pavement evaluation is only required for the new plus replaced PGIS areas.) 	
	 This is a right-of-way application and the project area does not have an approved location for permeable pavement use per the Right-of-Way Improvement Manual. See CAM #2215 for reference. 	
	 A permeable pavement wearing course of 2 percent or less slope is unachievable and the project includes greater than 5,000 sf of new plus replaced PGIS (Water Quality trigger). Rationale: permeable pavement surfaces with greater than 2 percent slope do not fully most the tractment standard for water 	
	 quality. Site has high potential for concentrated pollutant spills. 	
	 A permeable pavement wearing course of 5 percent or less slope is unachievable. 	
	 Run-on from an impervious surface area of 10 percent or less of the permeable pavement surface area is unachievable. 	
Green Roof	 Green roof evaluation is not required if project site is one of the following: 1. Trail or Sidewalk Project 2. Roadway Project 	
Bioretention with Detention	 Roadway Project Bioretention with detention evaluation is not required if project site is one of the following: Project site is a Trail or Sidewalk Project. Project discharges through a piped component of the public drainage system to a designated receiving water (SMC 22.801.050), and does not discharge to a capacity constrained system. Site does not have runoff concentrated from over 1,500 sf impervious surface Rationale: for smaller contributing areas, bioretention cells without detention require less area. Does not include new or replaced PGIS areas. (Note: if the project meets criteria 1 and 2 above, but not criteria 3, bioretention with detention evaluation is only required for the new plus replaced PGIS areas if the new plus replaced PGIS is over 1,500 sf.) This is a right-of-way application and the project area does not have an approved location for bioretention facility use per the Right-of-Way Improvement Manual. Project site cannot accommodate bioretention areas because site's longitudinal surface slopes parallel to bioretention area cannot be graded to less than 7 percent 	

Table B.3.GSI to MEF Requirement Feasibility ChecklistCategory 3:Impervious Surface Reduction Methods

Table B.3	. GSI to MEF Requirement Feasibility Checklist
Category 3:	Impervious Surface Reduction Methods (Continued)

BMP	Feasibility Consideration	Additional information from applicant
Bioretention with Detention	 For projects within the right-of-way, total required bioretention surface area (top area including side slopes, bottom, and pre-settling area) is less than 500 sf. Minimum facility size cannot be met due to such examples as: encroachment within the critical root zone of an existing tree(s); minimum utility setbacks cannot be met; required pedestrian access; project limits are too small; directing runoff from impervious surfaces to meet minimum bioretention cell size in right-of-way not feasible due to longitudinal slope of project; amount of new plus replaced impervious surface area does not warrant installation of a bioretention cell with a 500 sf surface area. The minimum bottom cell width of the bioretention facility cannot be met due to site constraints (e.g. setbacks, planting strip width.) 	

Table B.4.GSI to MEF Requirement Feasibility Checklist
Category 4: Non-Infiltrating BMPs

BMP	Feasibility Consideration	Additional information from applicant
BMP Bioretention Planter	 Feasibility Consideration Bioretention Planter evaluation is not required if the project site meets <u>all</u> of the following: Project is a Trail or Sidewalk Project. Discharges through a piped component of the public drainage system to a designated receiving water (SMC 22.801.050), and Does not discharge to a capacity constrained system, and Does not include new or replaced PGIS areas. (Note: if the project meets criteria 1 and 2 above, but not criteria 3, bioretention planter evaluation is only required for the new plus replaced PGIS areas.) Project site cannot accommodate bioretention areas because site's longitudinal surface slopes parallel to bioretention area cannot be graded to less than 7 percent. For projects within the right-of-way, total required bioretention surface area (top area including side slopes, bottom and pre-settling area) is less than 500 sf. Minimum facility size cannot be met due to such examples as: encroachment within the critical root zone of an existing tree(s); minimum utility setbacks cannot be met; required pedestrian access; project limits are too small; directing runoff from impervious surfaces to meet minimum bioretention cell size in right-of-way not feasible due to longitudinal slope of project; amount of new plus replaced impervious surface area does not warrant installation of a bioretention cell with a 500 sf surface area. 	Additional information from applicant
	 setbacks, planting strip width.) This is a right-of-way application and the project area does not have an approved location for bioretention facility use per the Right-of-Way Improvement Manual. 	

Appendix C –

Infiltration Feasibility Flowchart

APPENDIX C: Infiltration Feasibility Flowchart







Figure C.2. From the **Stormwater** Manual Vol. 3, Chapter 4.3: Infiltration Feasibility (continued)

Appendix D –

GSI to MEF Sizing Factors & Credits

APPENDIX D: GSI to MEF Sizing Factors and Credits

The GSI to MEF requirement sizing factors and credits mitigate small storms (e.g., the 1-year recurrence interval storm). The basis for the GSI to MEF requirement sizing factors and credits vary somewhat by GSI BMP as described below:

- Credits for bioretention cells without an underdrain (for non-Single Family Residential Projects), permeable pavement facilities, and rainwater harvesting facilities are based on managing 91% of the total stormwater runoff volume (per Section 4.4.6.3 of the Stormwater Manual Volume 3) or infiltrating 91% of the total stormwater runoff volume (per Section 6.5.4.4 of the Stormwater Manual Volume 3).
- Credits for green roofs, dispersion, permeable pavement surfaces, bioretention planters, and bioretention with detention are based on achieving a 91% reduction of the 1-year recurrence interval flow.
- Trees credits are as defined in Section 4.4.2.2 of the Stormwater Manual Volume 3.

Based on the sizing factors described above, Tables D.1 - D.4, define the specific factors and credits used in the GSI to MEF Calculator.

Table D.1.	GSI to MEF Requirement Credits
Category	1: Runoff Reduction Methods

BMP	Design Variable	Credit (%, or sf) ^a	Volume 3 Section providing Design Requirements
Retained Tree b, c	Evergreen	20% canopy area (min 100 sf / tree)	4.4.2
	Deciduous	10% canopy area (min 50 sf / tree)	
New Tree ^{b, c, d}	Evergreen	50 sf / tree	4.4.2
	Deciduous	20 sf / tree	
Dispersion ^e	Dispersion to compost amended lawn or landscape	100%	4.4.3 and 4.4.4

sf - square feet; % - percent; min - minimum

^a Impervious area mitigated by a BMP is calculated as: [GSI Credit (%)/100] x [Existing Tree Canopy Area, Number New Trees Planted, or Impervious Area Dispersed].

^b Trees must be within 20 feet of ground-level impervious surface. The total tree credit shall not exceed 25 percent of impervious area requiring mitigation.

GSI to MEF Credits for trees are the same as the credits presented in Section 4.4.2 of the Stormwater Manual Volume 3.

^d Approved tree species are listed in the City of Seattle Tree List available via link from the SPU GSI website (http://www.seattle.gov/util/greeninfrastructure). Trees in the "small" category are not eligible for GSI to MEF credit. Tree species not included on the City of Seattle Tree List may be given credit with prior approval by the Director.

^e GSI to MEF Credit for dispersion is based on achieving a 91% reduction of the 1-year recurrence interval flow.

Table D.2.	GSI to MEF Requirement Sizing Factors and Credits
	Category 2: Infiltrating and Reuse Facilities

BMP	Facility Overflow Depth	Native Soil Design Infiltration Rate (in/hr)	Sizing Factor (% of contributing impervious area) ^a	Credit ^c	Volume 3 Section providing Design Requirements
Bioretention Cell b	2 inch	0.25	9.3%	100%	4.4.5
	ponding depth	0.5	5.7%		
		1.0	3.3%		
	6 inch	0.25	5.0%		
	ponding depth	0.5	2.9%		
		1.0	1.6%		
	12 inch ponding depth	0.25	NA		
		0.5	1.7%		
		1.0	0.9%		
Permeable Pavement	6 inch storage	0.25	33.3% ^d	100%	4.4.7
Facility	reservoir depth	0.5	33.3% ^d		
(may receive run-on)		1.0	33.3% ^d		
Rainwater Harvesting ^e	Facilities cannot be presized; applicant must provide water balance100%calculations demonstrating using 91% of the total runoff volume (per Section 4.4.6.3 of the Stormwater Manual Volume 3).100%			4.4.6	
Detention Cistern to Bioretention Cell for Single- Family Projects	Refer to Directors' Rule SPU 2009-007 SPU / 19-2009 DPD for information on Detention Cistern for Single-Family Residential Projects.				4.4.5 and 4.4.6

sf - square feet; in/hr - inch per hour; % - percent

^a BMP area is calculated as a function of impervious area draining to it: BMP Area = Contributing Impervious Area x Factor (%)/100

^b Sizing factors are for bioretention facility bottom area. Total top area of the bioretention cell will be larger based on total facility depth (ponding depth plus freeboard) and facility side slopes (3H:1V, typical).

^c GSI to MEF Credits are based on infiltrating 91% of the total runoff volume (per Section 6.5.4.6 of the Stormwater Manual Volume 3).

d GSI to MEF Credits for permeable pavement facilities are 33.3% because the catchment area tributary to a facility is limited to 3 times the permeable pavement facility area.

e Evaluation of rainwater harvesting not required for Roadway, Trail, or Sidewalk Projects.

BMP	Design Variable	Sizing Equation (% of contributing impervious area) ^a	Credit (%) ^{b, c}	Volume 3 Section providing Design Requirements
Permeable Pavement	Slope less than or equal to 2%	NA	100%	4.4.7
Surface (may not receive run-on)	Slope >2%-5%	NA	55%	
Green Roofs d	4 inch depth growing medium	NA	55%	4.4.8
	8 inch depth growing medium	NA	84%	
Bioretention with	0.25 in/hr	[0.0382xA] + 199	81%	4.4.5
Detention	0.5 in/hr	[0.0297xA] + 129	81%	
	1.0 in/hr	[0.0208xA] + 97	81%	

Table D.3. GSI to MEF Requirement Sizing Equations and Credits Category 3: Impervious Surface Reduction Methods

sf - square feet; %-percent.

^a Sizing factors are for bioretention facility bottom area.

^b Impervious area mitigated by a BMP is calculated as: [GSI Credit (%)/100] x [Permeable Pavement Surface Area or Green Roof Area or impervious area directed to bioretention with detention]

^c GSI to MEF Credits for impervious surface reduction methods are based on achieving a 91% reduction of the 1-year recurrence interval flow.

^d Evaluation of green roofs not required for Roadway, Trail, or Sidewalk Projects.

Table D.4. GSI to MEF Requirement Sizing Factors and Credits Category 4: Non-Infiltrating Facilities

BMP	Design Variable	Sizing Factor/Sizing Equation (% of contributing impervious area) ^a	Credit (%)⁵	Volume 3 Section providing Design Requirements
Bioretention Planter	6 inch ponding depth	2.6%	46%	4.4.5
with Underdrain ^c	12 inch ponding depth	2.0%	56%	
Detention Cistern for Single-Family Projects	Refer to Directors' Rule SPU 2009-007 SPU / 19-2009 DPD for information on Detention Cistern for Single-Family Residential Projects.			4.6.6

sf – square feet; in/hr – inch per hour; % - percent; A – Contributing Area (sf); LN – natural log ^a BMP bottom area is calculated as a function of impervious area draining to it: Bioretention Planter Area (square feet) = Contributing Impervious Area x Sizing Factor (%)/100 or Detention Cistern Area (square feet) = Factor x [A (square feet) ^Integer].

^b Impervious area mitigated by a BMP is calculated as: [GSI Credit (%)/100] x [Impervious Area directed to Bioretention Planter].

^c GSI to MEF Credits for bioretention planter with underdrain are based on achieving a 91% reduction of the 1-year recurrence interval flow.

Appendix E –

Definitions

APPENDIX E: Definitions

The following definitions are relevant to this Directors' Rule. Additional definitions are contained in Chapter 22.801 of the Stormwater Code, and in Appendix A to Stormwater Manual Volume 3.

- "Green stormwater infrastructure" means a drainage control facility that uses infiltration, evapotranspiration, or stormwater reuse. Examples of green stormwater infrastructure include permeable pavement, bioretention facilities, and green roofs. (SMC 22.801.080) Although infiltration basins, trenches, and drywells utilize infiltration for flow control, they are not considered green stormwater infrastructure.
- "GSI to MEF requirement" means the SMC 22.805.020.F requirement, interpreted as follows:
 - Mitigate the GSI to MEF target, constrained only by the:
 - physical limitations of the site,
 - practical considerations of engineering design, and
 - reasonable considerations of financial costs and environmental impacts.
- "GSI to MEF target" is defined as follows:
 - For Single-Family Residential Projects only, all but 1,500 square feet of new plus replaced impervious surface.
 - For all other projects (Parcel-Based, Roadway, Trail, and Sidewalk) requiring GSI to MEF, 100 percent of the new plus replaced impervious surface.
- "Impervious surface" means any surface exposed to rainwater from which most water runs off. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, formal planters, parking lots or storage areas, concrete or asphalt paving, permeable paving, gravel surfaces subjected to vehicular traffic, compact gravel, packed earthen materials, and oiled macadam or other surfaces which similarly impede the natural infiltration of stormwater. Open, uncovered retention/detention facilities shall not be considered as impervious surfaces for the purposes of determining whether the thresholds for application of minimum requirements are exceeded. Open, uncovered retention/detention facilities shall be considered impervious surfaces for purposes of stormwater modeling (SMC 22.801.100).
- "Joint Project" means a project that is both a Parcel-Based Project and a Roadway Project (SMC 22.01.110).

- "Maximum extent feasible" means the requirement is to be fully implemented, constrained only by the physical limitations of the site, practical considerations of engineering design, and reasonable considerations of financial costs and environmental impacts. (SMC 22.801.140).
- "Roadway Project" means a project located in the public right-of- way, that involves the creation of a new or replacement of an existing roadway, or that involves the creation of new or replacement of existing impervious surface (SMC 22.801.190).
- "Sidewalk Project" means a project conducted within the public right-ofway that exclusively involves the creation of a new or the replacement of an existing sidewalk, including any associated planting strip, curb, or gutter (SMC 22.801.200). Note – to provide clarity on the meaning of associated curb or gutter, a project involving a sidewalk with associated curb or gutter is considered a Sidewalk Project (as opposed to a Roadway Project) only if the sidewalk cannot be constructed without the new plus replaced impervious surface in the roadway. If the total new plus replaced impervious surface in the roadway exceeds 5,000 square feet, the entire project is a Roadway Project and all of the requirements of SMC 22.805.060 apply.
- "Trail Project" means a project that exclusively involves creating a new or replacement of an existing trail, and which does not contain pollution-generating impervious surfaces (SMC 22.801.210).