iSWM Implementation Guidance for Partial Application of Outcomes

This document is to serve as a guide on the intent of the outcomes used to measure a jurisdiction's partial application. It also provides generalized examples of acceptable and not acceptable partial applications.

There are some outcomes where no examples of accepted or not accepted partial application are provided. This is not meant to indicate that there would not be specific cases that would fall into these categories, only that a generalized example could not be determined at the time of this document's creation.

#	OUTCOME	iSWM CRITERIA MANUAL REF.	INTENT	EXAMPLES OF:	
				ACCEPTED PARTIAL	NOT ACCEPTED PARTIAL
MANDATORY OUTCOMES					
1	Site Plan Review Applicability	Section 2.2, Step 3	To discuss stormwater requirements and options early in the development planning process so that items such as downstream impacts and low impact design can be considered before design effort has occurred.	Community encourages pre-application meetings for new development	Community allows all development or redevelopment construction plans to be submitted without a plan review meeting
2	Land Use Conditions	Section 3.6.1	Account for the effects of increased flow from new development/re-development	Stormwater infrastructure is designed to residential land use runoff levels, in lieu of the future zoning designation	Only existing land use conditions used for design
3	Hydrologic Methods	Section 3.1 Table 3.2; TM HO Section 1.2*	Set applicability limits for calculation methods based on generally accepted engineering practice	Limits set on Rational Method but no frequency factor multipliers are used	Rational method allowed under all circumstances
4	Open Channel Velocity Criteria/Energy Dissipation	Section 3.6.3, Table 3.10 and 3.11	Protect receiving drainage elements from erosion	Channel velocities or erosion control measures are mitigated for a storm event greater than 1-year	All channels are required to be concrete-lined or velocities are not reviewed
5	Detention Structure Discharge Criteria	Section 3.6.3, Detention Structures	Design detention across the hydrologic scale to limit water surface elevation increases, erosion downstream, or flooding due to blockage	Design detention structures only for the 100-yr storm event	Pond design does not analyze pre- and post-construction runoff comparison
6	Streambank Protection	Section 1.3, Table 1.3; Section 3.4	Limit erosion downstream	Velocity limitations are generalized and not based on erosive velocities of the bank materials	Do not require analysis of velocities or mitigation of erosive velocities
7	Flood Mitigation	Section 1.3, Table 1.3; Section 3.5.2	Limit flooding downstream	Identify allowable incremental increases in downstream water surface elevations	Only on-site flooding considered
8	Construction Controls	Section 4.0	Limit erosion and the discharge of sediment and other pollutants from construction sites	Require erosion and sediment controls compliant with State regulations but at a level less than the Construction General Permit	Defer all erosion and sediment control requirements to other regulating entities
9	Operations and Maintenance	Section 2.2, Step 5	Define the operations and maintenance requirements and responsibilities of stormwater infrastructure	Guidelines for operations, maintenance and inspection are required to be outlined on development approval documents but do not include enforcement procedures	Guidelines for operations and maintenance are provided but do not include inspection or enforcement procedures
10	Downstream Assessments	Section 3.3; TM HO Section 2.4*	Limit downstream impacts of development	One storm event is analyzed and incremental increases in velocities and water surface elevations are allowed	Community encourages the assessment of downstream impacts but does not require the analysis of downstream impacts

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RECOMMENDED OUTCOMES					
11	Conveyance Limits	Section 3.6.2	Identify design storm events for different stormwater infrastructure	Design infrastructure to lesser storm events than identified in full application (with 100-yr storm event contained within the right-of-way)	100-yr storm event is not required to be contained within the right-of-way
12	Storm Drain Velocity Criteria	Section 3.6.1, Table 3.8	Prevent clogging or erosion in pipes	Minimum and maximum velocity ranges for flow in a pipe are provided	Only a minimum velocity rate for flow in a pipe is provided
13	Spread Criteria	Section 3.6.2, Table 3.7	Limit spread of flow in streets for safe passage during large storm events	Variable ranges of allowable spread but contained in the right-of-way for the 100-yr storm event	No travel lanes left open for design storm event on roads with a classification greater than residential
14	Freeboard Criteria	Section 3.6.3	Provide a level of safety on large stormwater infrastructure such as bridges, culverts and detention structures	Variable ranges of freeboard requirements but do not allow overtopping for the 100-yr storm event	Allow overtopping of large stormwater infrastructure during the 100-yr storm event
15	Finished Floor Elevations	Section 3.7	Reduce property damage within a floodplain during large storm events	Minimum of 1-foot above the effective FEMA base flood elevation	Allow finished floor elevations to be at the same elevation as the effective FEMA base flood elevation
16	Water Quality Protection	Section 1.3, Table 1.3; Section 3.2	Address water quality by using structural and/or non-structural post-construction controls	Ordinance language supports low impact development (LID) techniques	1) Construction control requirements; OR 2) tree ordinance requirements; OR 3) water conservation requirements
17	Drainage and Floodplain Easements	Section 3.7	Clearly state easement requirements for drainage systems that allow for operation and maintenance	1) A constant easement width is identified that does not allow significant space for operations and maintenance; OR 2) Easement requirements only partially cover stormwater infrastructure	No drainage or floodplain easements are required
OPTIONAL OUTCOMES					
18	Open Channel Stability Criteria	Section 3.6.3	Reduce erosion from small storm events by mimicking natural channel crossings	The low flow channel is designed to convey runoff from a storm event larger than the 2-yr storm	No low flow channel is required
19	Detention Downstream Timing Analysis	Section 3.5.2, Option 3	Confirm detention does not exacerbate pre-development peak flows in downstream reaches	No example given	Allow a letter of acceptance on file by downstream property owner to accept any peak flow increases
20	Conservation and Utilization of Natural Features and Resources	Section 3.2.2; TM PL 2.2.1**	Encourage preservation of natural resources such as riparian buffers and/or natural open space areas and utilization of natural design features for stormwater conveyance	No example given	No example given
21	Lower Impact Site Design Techniques	Section 3.2.2; TM PL 2.2.2**	Encourage reducing limits of clearing and grading and limiting impervious cover per integrated site design practices	No example given	No example given
22	TriSWM	TriSWM Appendix	Utilize water quality controls and/or practices in public right-of-ways	No example given	Street sweeping program with no other controls

*TM HO = iSWM Technical Manual, Hydrology Section **TM PL = iSWM Technical Manual, Planning Section