Stormwater Management Manual
Bureau of Environmental Services
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SWMM and PAC Information Session Question Summary

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How can you access the presentations?

The annotated Power Point presentation for the SWMM information Session can be found here.
A recording of the Performance Approach Calculator (PAC) Information Session can be found here.

SWMM Info Sessions (May 20, 21 and June 4)

Vesting

1. *Is the requirement for what phase the project is in for SWMM version applicability a policy, or stated in code, SWMM, elsewhere?* It is not in code or the SWMM. It is internal policy direction used by development services, and engineering design.

Triggers

2. *Will new bus pads, curb extension, or median islands fall under the surface type change and trigger treatment vs being considered maintenance action when upgrading to concrete?* Yes. Changing the paving material for any reason will not be considered maintenance and will fall under the 500 SF trigger. Repairing or repaving a surface, keeping the same material, will be considered maintenance.
3. *Does the ADA exemption change apply to private onsite upgrades, or only in the ROW?* This applies in the ROW and on private property/parcels.
4. *When an existing building adds a vertical addition can you please clarify the area requirement of 10,000 SF. Is this floor area or footprint.* It is the footprint.

   Additional information:
   Some projects in the ROW and on private property will now trigger stormwater requirements when they were previously exempt (primarily sidewalk infill and larger ADA retrofit projects). Many of these projects will now be exempt under the new definition of pavement maintenance. Due to the change in the maintenance definition more pavement maintenance activities will be possible without triggering SWMM requirements.

Storm sizing

5. *What is the basis for the increase to 1.61" for the volume-based water quality storm? The slide said to comply with MS4 permit, but what analysis did you undertake to get to 1.61"?*
   BES analyzed the rainfall data from twenty-seven different rain gages (i.e., all of the HYDRA rain gages with at least 20 years of active service) to group the data into discrete storm events. These storm events were then arranged in increasing order. Since the goal is to treat the runoff from 90% of the average annual rainfall, the treatment storm depth is set to the storm at which 90% of the average annual rainfall from runoff-producing storm events is from storms equal to or smaller than that depth. This is described in more detail in Appendix A-2.

6. *What does it mean to "filter" the 25-year event when a flow control orifice is too small? Do you mean "treat" or is there another "filter" option?*
   Filtering the 25-year event means that all of the runoff from the 25-year event after development filters through the blended soil and none of it overflows through the overflow pipe. Although this results in treatment of runoff from the 25-year event, the intent of the requirement is not treatment, but to ensure an appropriate facility size. This requirement is appropriate for sizing vegetated facilities, specifically those designed with the PAC. This question raises an important point about how to address sites that cannot meet flow control and are not appropriate for a vegetated facility (e.g. structured detention systems). We will address this issue prior to final publication in the fall.
7. *You changed the SBUH WQ event size, but not the rational method WQ event size. Why was this? For MSTT facilities we typically have an option to choose either volume or flow rate analysis. Are you still allowing this?*
   As part of ongoing adaptive management, the City re-evaluated its water quality storm for this manual revision with a new analysis of rainfall data from all of the HYDRA rain gages in the Portland area that had at least 20 years of active service. This evaluation showed that the current water quality storm for rate-based facilities (the Rational Method WQ event size) meets the City's goal of treating 90% of the average annual runoff volume. However, the water quality storm for volume and rate-volume based facilities (the SBUH WQ event size) needs to be increased to meet the City's desired water quality goal of treating 90% of the average annual runoff volume. This is described in more detail in Appendix A-2. Consistent with the existing requirement, MSTTs must be sized as rate-based facilities using the Rational Method – see the MSTT Conditions of Approval.
8. *What is the difference in the facility size between requiring the post-development 2-yr peak outflow to be no greater than the pre-development ½ the 2-yr peak outflow and requiring the post-development ½ the 2-yr peak outflow to be no greater than the pre-development ½ the 2-yr peak outflow?*
   Changing the flow control requirement to the limiting the post-development to the predevelopment peak for the ½ the 2-year event reduces facility footprints by approximately 15% because the flow control requirement can be achieved with a larger orifice diameter. For the ½ the 2-year event, ponding in the facility is shallower than it would be for a 2-year event so the flow control requirement can be met with a larger orifice (because there is less hydraulic head on the orifice for the design event). Additionally, this reduces the minimum catchment area that can meet flow control requirements with our minimum orifice size of 3/8" which will result in more projects that are able to meet flow control requirements.
9. *How do our storm sizes compare to SLOPES?* We have been coordinating with DEQ and hope to be in alignment with the upcoming changes.

Impervious area reduction

10. *Why was the 'impervious area reduction technique' language in section 1.3 removed? Reducing impervious area cover is an important design strategy for minimizing stormwater runoff.* We agree that reducing impervious area cover is a good design practice to minimize the impacts of development. However, not including impervious area reduction techniques in the hierarchy was awkward because it included ecoroofs and pervious pavement which are stormwater facilities that are used to manage impervious area. This led to confusion about how to handle those facility types in the Stormwater Report and O&M plan because those areas were in a way no longer considered impervious. Additionally, in Portland we have density goals and an urban form of development that can put this requirement at odds with land use and zoning requirements. We can address this

concern by adding a discussion about impervious area reduction to the site design section of chapter 2.

Drywells/infiltration testing/safety factor

11. *What is the minimum tested infiltration rate that will trigger drywells?* We did not increase the minimum tested infiltration rate for when infiltration is required. However, we have made a few changes that will impact this issue. We have changed the 2 in/hr threshold for requiring disposal of the 10-year event to the design infiltration rate after factors of safety are applied. For the pit and encased falling head tests the standard factor of safety is 2. We have also added information for the design team when they want to recommend higher factors of safety, the new requirement to provide the soil bore log data will help with any justification for an increased factor of safety.
12. *Can you clarify the tested vs design infiltration rates?* The tested infiltration rate is the rate measured in the field using any of the approved testing methods. The design infiltration rate is the rate after the safety factor has been applied used for calculating the facility size. When using the PAC, enter the tested infiltration rate and the appropriate safety factor is applied automatically.
13. *Is there allowance for designer/geotechnical engineer to argue for higher safety factor on infiltration rates?* This can be done using the Performance Approach, this manual provides additional discussion on higher factors of safety.
14. *Regarding infiltration at potentially contaminated sites: Will there be official guidance for soil/groundwater evaluation & testing of the site? Currently sometimes BES (BDS) asks sites to follow 'unofficial' standards which can be very confusing.* There's an ongoing internal discussion about this, and more criteria will appear (likely in the Source Control Manual).

Tree credit

15. *Why will tree credits no longer be applicable to private development?* Few sites used the tree credit for stormwater management and most that did also constructed stormwater facilities. For those sites, stormwater facilities will need to be sized for a slightly larger area. Due to construction sequencing, the tree credit is difficult to inspect, and future O&M is difficult to enforce. Trees are important for watershed health and thankfully are covered by Title 11.
16. *Will tree credit be allowed on linear projects that aren't in the right-of-way?* No, the tree credit will only be allowed in the ROW.

Ecoroof

17. *It states that only 6" media depth counts as a 1:1 ratio for storm management, what will the minimum 4-4.5" systems be allowed to claim for stormwater management?* 4" ecoroofs and green roofs with deeper media layers receive the same credit for stormwater management. We'll update the language to clarify.

Manufactured Stormwater Treatment Technologies (MSTTs)

18. *Do the new sizing criteria mean that the facilities should be sized based on the total impervious AND pervious areas draining to the facility? And no longer sized solely on the impervious area?* Impervious area only, whether it is new or existing. We realize that pervious area may have runoff but don't have a requirement in place to consider it in the sizing at this time.
19. *Are sedimentation maintenance holes required before a devise that has a built-in pretreatment system?* The requirement is for ease of maintenance using the existing City method/equipment. The requirement could be modified depending on the pretreatment device.

Green streets

20. *Will more dedication be required to accommodate a wider swale?* No, there are four other designs that fit in the typical 8' wide planting strip. The preference is to not use a swale.
21. *Are green streets with sloped sides allowed in pedestrian districts?* No, a slope on the edge of a facility that meets the sidewalk is not allowed in pedestrian district. The street-side of the facility may be sloped, but would probably require a 2'-6" step-out if there is adjacent parking.
22. *Are sediment/sump systems the standard?* Where sediment/sump systems are feasible (groundwater separation,

Blended Stormwater Media

23. *Is the current media specification expected to continue?* BES revised the specification for the soil blend for vegetated stormwater systems in 2019. It's posted online at https://www.portlandoregon.gov/bes/article/596781, and will be included in the City of Portland Standard Specifications when the document is updated.
24. *Are you still using the public spec with lower fines?* This specification isn't used and will be removed from the upcoming revised City of Portland Standard Specifications.

Underdrain Aggregate

25. *For underdrains, the choker course has been eliminated. Does the 1/4" angular stone on its own prevent washout of bioretention soil?* Yes, we have done a filter analysis and extensive research.

Drainageways

26. *Does BES/PortlandMaps have or developed a drainageway layer?* BES is working on a GIS map of existing drainage reserves that have been applied through the development review process. The map is in the early stages and we hope to eventually have it available on PortlandMaps. It is not a map of drainageways.
27. *What criteria/threshold is used to identify drainageways?* We do not currently have threshold (catchment area trigger) for identifying drainageways. Currently, BES uses an internal map that is based on modeling to determine potential drainageways and then drainage reserve placement is confirmed by a site visit. BES is currently conducting an asset inventory of potential drainageways via field assessments. Eventually we hope to develop threshold criteria based on real data from the asset inventory.

17.38

28. *Can you say anything about the retrofits language that was added to 17.38?* Applicability of the SWMM to retrofits is outlined in the manual and requirements vary based on why the retrofit is being installed. For example, SWMM applicability is different for retrofits to meet regulatory requirements than it is for voluntary retrofits. We added a provision in 17.38 that states that the SWMM applies to retrofits as specified in the manual to ensure connectivity between the code and administrative rule.

Presumptive Approach Calculator (PAC) Info Sessions (May 26,27)

1. *Is porosity of the rock limited to 0.3?* This is an adjustable field.

2. *Will the output file be "unlocked"? Previously the file would be locked and difficult to add into the stormwater report*. Yes, future reports will be to be unlocked.
3. *Can we add subsurface storage in volumes greater than the constrained sizes?*
   The PAC allows the porosity of subsurface storage to range to up to 100%, so that alternative solutions such as subsurface crates can be analyzed. The PAC currently limits the area of subsurface storage to be no more than about 1/3 the facility footprint.