

Stormwater Public Advisory Group

Drainage and Density Status of Action and Requested Items

<i>Requested Item</i>	<i>Status (as of 06/042020)</i>
<p>Additional Information and/or Study Needs Prior to or as part of Stormwater Management Plan Development</p> <ul style="list-style-type: none"> ◆ Recommend updated comparison cost data between the different facility types and scale, including construction and lifecycle costs 	<p>Low Impact Development cost comparison sheet developed for the Drainage and Density workshop (May 2019) (see also September 18, 2019 meeting packet).</p>
<ul style="list-style-type: none"> ◆ Recommend looking into stormwater reuse and cost analysis. 	
<ul style="list-style-type: none"> ◆ Research septic set back requirements from stormwater facilities. 	<p>OAR 340-71-2020 (3) covers septic tanks. No specified setbacks from stormwater facilities</p>
<ul style="list-style-type: none"> ◆ Incorporate lessons from Reno, NV's and other similar programs for example ideas (see more details below) 	<p>Shared and incorporating lessons from Gresham, OR into</p>
<ul style="list-style-type: none"> ◆ Explore impact of unpaved roads and alleys: Do they reduce peak flows? Would paving them result in increased runoff; what if paved with permeable? Reduced sediment loads? Do they have fewer utilities under them? Good candidates for permeable? 	<p>Streets is working with utilities to find best candidates for potential upgrades.</p>
<ul style="list-style-type: none"> ◆ Revisit with the next COSM update: how will Climate Change impact the design storm over time? 	<p>On hold due to Covid-related budget reductions and other project costs.</p>
<ul style="list-style-type: none"> ◆ Determining effective incentives for going beyond minimum requirements <ul style="list-style-type: none"> • Research storm types to provide a determination of how 	<p>Incentives may be considered as part of a credit program update; with the billing program update nearing completion the timing is improving to update the credit program.</p>

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<p>long sport field/retention areas might be out of action or the need for backups in case of a scheduled event with economic impacts should be affected.</p>	<p>Timing of sport fields to be out of action if used as a detention facility combination would depend on the design of the facility, and could be adjusted.</p>
<ul style="list-style-type: none"> ◆ Additional Information Needs for Master Plan/Code/Specs Updates <ul style="list-style-type: none"> • SFR tracking • Permeable pavement check in • Cost Comparison • Demonstration Projects 	<p>--Permeable Pavement maintenance fact sheet created (June 2019); technical guidance under development --Permeable Pavement technical guidance under development. --Cost comparison work developed for May 2019 Drainage and Density workshop.</p>
<p>Recommendations for Improvements</p> <ul style="list-style-type: none"> • Provide another training(s) on stormwater management techniques and designs based on Bend’s soils for builders. Address common misperception that “It doesn’t rain here.” 	<p>--Held Drainage and Density Workshop in May 2019 that focused on low impact development techniques applicable to Central Oregon. --Updating Geotechnical Infiltration study (FY2020, FY2021) --Urban small scale BMPs Center for Watershed Protection webinar held May 2020.</p>
<ul style="list-style-type: none"> • Address how best to manage runoff on infill lots—the last-to-build builder should not be responsible for correcting previously approved problems; potential for long-term issues should be minimized. 	<p>--Working towards incorporating flexibility and overcoming municipal hurdles, starting with subdivisions. --Meeting biweekly this spring internally to understand breadth of needs and work on modifications needed.</p>
<ul style="list-style-type: none"> • Provide homeowners and business owners access to drainage plans and to notify new customers about the availability of drainage plans and responsibilities related to those. --And Related Item-- • Improve how drainage information is carried through to the subsequent property owners to ensure they have access to drainage plans. 	<p>--Meeting biweekly this spring internally to understand breadth of needs and work on modifications needed.</p>

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<ul style="list-style-type: none"> • Commercial developments are required to have recorded stormwater maintenance agreements on the title. • Residential needs improvement. • City staff will look into available options given current and upcoming software. 	
<ul style="list-style-type: none"> • Research the City of Reno as one example, and other communities that have positively addressed concerns like these. For instance, Boise is drafting stormwater MOU's with private land owners. Incorporate Gresham's lessons learned into development rule updates: <ul style="list-style-type: none"> ○ Wood weirs are no longer allowed as check dams because water flows around them. Gresham has switched to concrete weirs to help prevent erosion. ○ Curb cut design is important, making sure you have a 2-inch drop at the inlet to prevent bypass of stormwater flows past the facility. ○ Infiltration rate is improving over time due to plant root growth. ○ Average ponding depth was a key factor for reducing runoff volumes. Deeper yet less steep facilities hold more rainfall/higher peak flows. ○ Longer facilities can intercept more rainfall if they have multiple inlets. Gresham now requires inlets at least every 25 feet. 	<p>Gresham's lessons learned were shared with engineering staff updating the standards and specifications (2019).</p>

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<ul style="list-style-type: none"> On steep slopes, terrace with check dams in such a way that soil is flat within the facility rather than sloped with the hill. 	
<ul style="list-style-type: none"> Explore the possibility further of locating parks at the low spot of a subdivision to provide a neighborhood recreational experience that doubles for stormwater management during the few wet periods received in Bend. 	<p>Draft policy, code and ordinance review conducted in spring 2019. Locating parks at the low spot of a subdivision is allowed.</p>
<ul style="list-style-type: none"> Research the ability of regional controls to provide supplemental sports fields in addition to the minimum number needed for economic gains due to tournaments, etc. Can sports fields be used as a stormwater retention pond? Yes, but it was noted that sports fields have a lot of pressures to be usable during all weather conditions. Central Oregon hosts many tournaments. Could also be an option for non-supplemental opportunities with additional research providing a determination of how long they might be out of action or need for backups in case of a scheduled event should be affected, given that storms can come through in cells and affect one area of town and not another. 	<p>May be able to incorporate as a supplemental question in the infiltration study update (see next item).</p>
<ul style="list-style-type: none"> Provide an improved City map showing the overlays where infiltration is better if possible with additional data since the original Stormwater Master Plan, which includes some basic infiltration zones and identifies several areas of perched groundwater. This 	<p>Project budgeted for FY19-20. David Buchanan is project manager. Contracting underway.</p>

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<p>recommendation recognizes that there is a lot of variability in Bend when it comes to infiltration rates, even on a single taxlot. One size doesn't fit all, but this can help with the need to plan for each geographic area in the revised Master Plan. Coordinate to include data required since last Master Plan for inclusion in compilation.</p>	
<ul style="list-style-type: none"> • Sediment is a pollutant of concern in the river, can carry other pollutants adsorbed to sediment particles, and can lead to clogging of facilities and related public safety issues. Specific planning strategies to reduce sediment loads coming off of sloped areas and from winter road care (while recognizing their benefits compared to soluble and other chemical approaches) especially should be a focus of the master plan update. 	<p>Updated Street Sweeping plan for stormwater quality to include focus on increasing street sweeping efficiency in the MS4 area.</p> <ul style="list-style-type: none"> --Tracking implementation --Investigating use of Water Sense as a notification tool for sweeping times.
<ul style="list-style-type: none"> ◆ City utility staff will work on a new customer booklet/brochure that would be sent out to all new customers that might prove to be a vehicle for this. 	<p>City staff created the One Water brochure – a very high level brochure that provides basic information about each of the utilities. Informs people that they may have swales onsite and what underground injection controls are.</p>