

# Clean Water Task Force Questions/Concerns

## Basis of Questions/Concerns

The April 17, 2012 Clean Water Task Force meeting resulted in several questions and concerns regarding the information presented on the draft recommendations for post construction standards. This memorandum provides some basic responses to these questions and concerns as well as website addresses for task force members to link to for obtaining more detailed information. The referenced Technical Memos and most of the other items can be found at the [Clean Water Task Force web page](#).

## Questions/Concerns

1. What is the incremental cost difference for Water Quality Best Management Practices (BMPs) between different rainfall percentile events?

Response: The cost of BMPs can be correlated to the amount of rainfall needing to be treated. From Technical Memo No. 1 and also assuming (as an example) an average present cost per acre of \$450 (Technical Memo No. 4) for a 90% rainfall event:

Table 1: Cost and Amount of Rain (and Pollutants) treated as compared to the 90% rainfall event

<u>Rainfall Event, Percentile</u>	<u>Amount of Rain, Inches</u>	<u>Percent Difference</u>	<u>Cost Difference</u>
70%	0.62	- 50%	- \$225/ac
75%	0.70	- 44%	- \$198/ac
80%	0.83	- 34%	- \$153/ac
85%	0.97	- 22%	- \$99/ac
90%	1.25	0%	\$0/ac
95%	1.65	+ 32%	+ \$144/ac

For more information on costs go to [Case Studies: Cost-Benefits of BMPs](#) (under the Resources subsection of the Clean Water Task Force web page) and the [National Menu of Stormwater BMPs](#).

2. What is the pollutant reduction for the different rainfall events?

Response: Similar to costs the amount of typical pollutant reduction is related to the percentile of rainfall event captured and treated. An estimate of pollutants treated can be correlated in a similar manner as was done for costs (for example from Table 1 above, designing a BMP to treat a 85% storm event will be 22% less effective than designing a BMP to treat a 90% storm event). A good explanation on pollutants treated and volume of surface runoff resulting from rainfall can found by going to another item shown

under the Clean Water Program Resources subsection on the Clean Water Task Force page ([Three Keys to BMP Performance](#)).

3. How does runoff and costs relate to rainfall for different types of developments?

Response: From Technical Memo #3, the runoff from an example residential area for a 90% rainfall event (1.25 inches) is approximately 0.4 inches. From an example mixed use development, the runoff would be 0.7 inches and from an example commercial development, the runoff would be 1.0 inch. On a relative basis the cost to treat stormwater from the mixed use development would be 75% more than the cost of treating runoff from the residential area. On a relative basis the cost to treat stormwater from the commercial development would be 150% more than the cost of treating runoff from the residential area.

To look at this a different way (using the examples above) if the above developments were to be designed to treat 0.5 inches of runoff (instead of the 90% rainfall event) they would treat the following rainfall events:

Residential: 1.45 inches of rain (93% rainfall event)  
Mixed Use: 1.05 inches of rain (87% rainfall event)  
Commercial: 0.75 inches of rain (77% rainfall event)

4. What are the different type of inspections needed for different type of BMPs and what are their costs?

Response: Type of inspections would include:

- A post-construction inspection by the City to insure the BMP was constructed correctly
- Annual inspections by the City during the first few years to make sure BMP is being maintained during establishment
- Annual inspections by the owner(s) to check on BMP functionality
- Periodic inspections, after establishment, by the City (e.g. 5 year interval) to verify BMP is being maintained and is functioning properly

At the Clean Water Task Force website there is a link under the Resources subsection to the Olsson Associate's [BMP Cost Analysis Paper](#). This includes a typical maintenance check list for a detention pond with a water quality outlet. The paper also includes typical maintenance costs.

Another good source to look at for maintenance items is the [Greenspace Handbook](#). At this website click on the General Maintenance Information. Major items to look for during inspection of BMPs are:

- Standing water
- Trash

- Weed growth
- Sedimentation or blockage of outlets
- Need for mowing

Most BMPs once established should be able to be maintained by spring weeding, periodic pick up of trash and seasonal mowing. As an example the established BMPs at the Havelock public parking lot, the NRD rain garden, the porous pavement & rain garden at the public parking lot at 27<sup>th</sup> & 'F', and the bioswale at 27<sup>th</sup> & Randolph are all maintained in this manner.

5. Are there studies available regarding pollutants, first flush contaminants, pollutants from urbanization, etc?

Response: Yes, there are several available studies on the web for the above items. Would recommend those referenced in the response to Questions 1 and 2.

6. What is the difference between infill and redevelopment?

Response: Generally redevelopment is any new construction on a site that was previously developed, such as downtown areas, commercial corridors, brownfields, etc, while in-fill is more typically construction on vacant or underutilized property.

7. Why was an exception for single family lots brought forward by staff?

Response: Single family lots were added as an exception to make it clear that an individual lot, that is not part of an overall development, would not be required to meet post construction standards (i.e. an infill lot). However as correctly pointed out this may be a non-issue as the post construction standards as initially proposed are only for those areas of an acre or more. Note: Any development 'as a whole' would be required to meet post construction standards as approved, not each individual lot.

8. How does maintenance responsibility work, can it be transferred?

Response: As proposed maintenance would be the responsibility of the owner. Similar to detention ponds, developers can transfer maintenance responsibility to a home owners association or business group as approved by the City Law Department.

9. What is TSS?

Response: TSS is Total Suspended Solids. This is a water quality measurement that measures the amount of sediment suspended in stormwater. Also see the [Common Stormwater Definitions #3 Sheet](#).

10. Are there any criteria for waivers?

Response: Listed below are some potential criteria for waivers. These could be waivers for the Director to consider under the following circumstances:

- Temporary waiver for unplanned emergency work or repairs necessary to protect life or property
- Existing downstream or shared off-site stormwater quality facility (BMP) that is designed, constructed and maintained to provide a level of stormwater quality equal to or greater than an on-site BMP (allowed if there are no impaired streams as determined by EPA between the planned development and the downstream stormwater quality facility)
- Construction of an on-site BMP that provides the same level of stormwater quality without the proposed storage requirements (e.g. a hydrodynamic separator which has a relative small footprint provides treatment of stormwater)
- In lieu of fee for redevelopment sites if site constraints for redevelopment make installation of any BMPs impractical (e.g. for an existing site that has an existing building footprint over the entire site that is being replaced by another building with a 100% building footprint over the site)