

WRIA 9 Stormwater Retrofit

Table Discussion 4-25-13 Workshop Themes and Project Management Team (PMT) Responses

Workshop Theme 1: O&M and I&E costs are too high or too low, in particular when it comes to rain barrels

PMT Response: The PMT feels that the cost assumptions chosen for the project are still the best numbers available for a planning level document. It is understood the information on costs will change in the future, but at this point the PMT is comfortable sticking with the current numbers. For further information you can read the Cost Assumptions report by Dr. Horner presented as Appendix B of the SUSTAIN Model Pilot Study report. Highlights of the PMT discussion on this topic include:

The PMT recognizes that SUSTAIN is unable to capture and account for some things, like the fact that a property may have multiple rain barrels, thus reducing aggregate operating and maintenance (O&M) and inspection and enforcement (I&E) costs for a group of rain barrels at the same location. The O&M and I&E costs include less obvious costs of time spent on paperwork, data entry, travel to the site, education and outreach, and other costs. To arrive at these costs, the PMT used best professional judgment after polling a variety of experts from different municipalities; costs were informed in part by liability issues associated with failure to inspect/enforce, possible future permit requirements, and other factors. The PMT team feels the costs are representative of a planning level estimate of the average costs to maintain proper function of the rain barrels; and that costs aren't "too high" because rain barrels do show up with some frequency in the initial optimized model results. Further details on costing are provided in the Cost Assumptions report by Dr. Horner presented as Appendix B of the SUSTAIN model pilot study report. Additionally, the I&E cost presented at the workshop for rain barrels represents the cost applied *once every five years* rather than an annual cost.

Workshop Theme 2: Rain barrels aren't effective, so why use them?

PMT Response: As previously mentioned, rain barrels (which are really "mini detention tanks") do show up in optimized results regularly, but initial modeling show that cisterns are typically more cost effective so they are much more widely used by SUSTAIN. It is impractical to scale up using both rain barrels and cisterns, because SUSTAIN is set up to evaluate rain barrels and cisterns as two mutually exclusive scenarios, requiring separate model runs. Cisterns are more effective so we will use them rather than rain barrels during the scale up exercise.

Workshop Theme 3: Using one land cost for the entire WRIA seems inappropriate.

PMT Response: We agree that it makes sense to use more than one land cost. For the scale up, we will implement two separate land costs, applied geographically.

Workshop Theme 4: How will redevelopment be captured?

PMT Response: Redevelopment is accounted for in a post-processing scenario rather than being included directly in the SUSTAIN model. We assume that developers will pay for the costs of redevelopment, and that redevelopment projects will meet current standards for stormwater management to improve water quality. As a result, we subtract the predicted costs associated with redevelopment projects from the retrofit costs predicted by the optimized model. This will result in a lower cost than what the optimization outputs from SUSTAIN are. More detailed information will be provided in the final report.

Workshop Theme 5: Will annual costs for various categories of expenditure be presented, and how will they be estimated (public/private, capital improvement/O&M)?

PMT Response: SUSTAIN optimizes results assuming an instantaneous development cost – i.e. that stormwater retrofit facilities are built immediately and then operated for 30 years. Once the roll up is completed, capital costs will be averaged over 30 years assuming build-out will occur over 30 years at a fixed annual rate. Therefore, capital costs remain the same over the thirty-year lifecycle, but the O&M and I&E costs increase incrementally each year. Annualized costs will be presented in today's dollars.

Workshop Theme 6: Present annual costs over different time periods.

PMT Response: A thirty year life cycle was selected because the scope of the project is to create a 30 year planning document. Additionally, when the life cycle of the infrastructure was evaluated, most of the facilities had an approximate 30 year life cycle. There is a challenge in calculating costs beyond 30 years and it's not feasible because much of the information would be a "best guess". It is outside of the scope of the project to predict or model other rates of capital improvement.

Workshop Theme 7: Separate costs between public and private for each O&M and I&E.

PMT Response: It is our intention that "Public" and "Private" costs will be parsed out for both O&M and I&E costs. The project's final report will more specifically identify public versus private costs for green infrastructure on private property. The final Newaukum report includes this level of detail.

Workshop Theme 8: The scale up should account for soil type and slopes throughout WRIA9

PMT Response: We have been and we will continue to account for differences in soil type and slope through the SUSTAIN model. This planning level document assumes that in most cases, infrastructure can be installed in another area that has a less severe slope, such that the same stormwater management goals may be met.

Workshop Theme 9: Make sure there is a good outreach and education roll out

PMT Response: The PMT will present the findings of this project to multiple stakeholder groups. It's understood that different groups may need different levels of detail and types of outreach.

Workshop Theme 10: Are there are other BMPs or technologies that should be considered?

PMT Response: We recognize that best management practices (BMPs) and technologies are continually evolving. For example, the new NPDES permit has requirement for 8" of native soil to be amended to lawns in new development and redevelopment projects. This action provides significant storage and helps more water infiltrate to the ground in the summer. However, adding this as a new BMP to the SUSTAIN treatment train is beyond the scope of the project. SUSTAIN is a planning level exercise that should be used as a preliminary tool to estimate costs and types of technology needed; once funding is obtained, individual jurisdictions can explore the BMPs provided in the model as well as others that were not incorporated into SUSTAIN.

Workshop Theme 11: How does the optimized retrofit strategy result relate to flow control or other regulatory requirements for new and redevelopment projects?

PMT Response: The PMT group understands the benefit of providing a relation from pulse count/B-IBI indicator result to flow control standards, to provide context to engineers; however, no such relation can be made. The PMT group modified SUSTAIN to optimize to a Level 2 flow duration standard at a point downstream, rather than at the point of discharge, so SUSTAIN results cannot be related directly to regulatory flow control standards. Additionally, because the targets vary, the optimized result will as well, making it hard to present a definitive answer. The PMT work products will not, and are not intended to, impact flow standards that are already in place. Flow control doesn't correlate as well to habitat vitality as pulse count reduction, though flow control (or flow control with treatment) provide other tangible benefits. Flow control standards and pulse count reduction should be viewed as two complementary goals, rather than two means to achieve the same end.

Workshop Theme 124: The O&M cost for roadside bioretention should be higher than for residential bioretention.

PMT Response: SUSTAIN assumes the cost of O&M for roadside bioretention and residential rain gardens are the same, but this cost is based on the average of the two scenarios. The O&M costs likely vary based on a large number of factors, and there is likely substantial overlap in the range of O&M costs for roadside and residential bioretention. As a planning level estimate, the PMT group has worked to establish equitable and representative cost assumptions; the benefit of additional specificity in this area is not well defined given the variability of other factors throughout WRIA 9.

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