

**Green Plan-IT Technical Advisory Committee (TAC)**

**June 17, 2014 Meeting Summary**

**Meeting attendance  
TAC members**: Matt Fabry (County of San Mateo), Sarah Sutton (PlaceWorks), Dino Marshalonis (Region 10 EPA), Keith Lichten (Region 2 Water Board)

**SFEI**: Lester McKee, Jennifer Hunt, Jing We, Patty Fontiera, Pete Kauhanen  
**SFEP**: Jennifer Krebs, Jesse Mills, Josh Bradt

**DCEC:** Dan Cloak  
**BASMAA**: Elaine Marshall (Sunnyvale); Jocelyn Walker (City of San Mateo); Jared Hart (San Jose); Bryan Apple (San Jose); Shannan Young (Fremont); Kristin Hathaway (Oakland); Ken Chin (City San Mateo); Peter Schultz-Allen (EOA representing San Mateo County Clean Water Program); Jill Bicknell (EOA representing Santa Clara County Clean Water Program)

**Meeting Outcomes**

* + The toolkit concepts, functionality, and proposed outputs were presented to the TAC and generally supported the project
  + The criteria for evaluating project success were proposed and supported by the TAC:
  + The toolkit strikes the right balance between “simple” to operate and complex enough to generate useful outcomes
  + The toolkit is locally applicable
  + The toolkit is regionally transferable
  + The toolkit is implementable
  + The TAC provided detailed recommendations and implementation priorities on the site locator tool and the hydrological model calibration
  + The TAC want further discussion of the optimization module and this will be done during a follow-up opt-in phone conference. A subgroup volunteered to be on the call.

**Meeting Action Items**

* + Dino to share detailed pollutant input parameters for WA state model
  + Jesse, Jill, Matt, Peter, Josh, Sarah, Ken, Shannan, Keith, Dino for a follow-up conference call likely within 2 weeks post meeting
  + Periodic conference calls to ensure the project “stays above ground for all to see”
  + Later this summer/early Sept having a debut with San Jose and San Mateo – open this up to the group?
  + TAC re-convene in Sept-Oct
  + Would be helpful to know about all of the connective pieces to the project e.g. MRP related – not necessarily a SFEI task. Need to understand what is really coming out of this project that will help municipalities with GI planning.
  + Consider project updates as a standing item on the Green Streets WG to disseminate project updates

**Meeting Notes**

Item #2 Project Overview

* Questions
  + Who is the user community?
    - Primary users are agencies regulated under the MRP for LID implementation.
    - Any municipality that has interest/need of LID implementation e.g. Phase II permitees, flood control agencies, Caltrans
    - BASMAA has a Phase II committee that could be explored as to their interest in the toolkit

Item #3 Site Locator Tool

* Discussion Items
  + Which treatment types? Bioretention (have any shape, linear and non-linear), bioswale, permeable pavement, can’t do vegetated swale (non-engineered soil). Wet ponds or wetlands are also not allowable in the permit – no detention type facilities. Need soil for treatment purposes. Infiltration basins are allowable.
  + Consider lowering the minimum requirement from 1000 sq ft
  + What about blue roofs? Blue roofs not as important.
  + What about tree wells? Sized the same as a bioretention unit. Filtera? Would the RB allow them if they were sized appropriately with treatment soil?
  + What about large scale rainwater harvesting?
  + How are buildings defined? Do they include areas where the building is underground?
  + More analyses within the street tool will be needed.
  + What if a municipality doesn’t have some of the opportunity or constraint data? Need to develop more assumptions with the data you have. San Mateo will be a good example of a city with fewer data layers available.
  + Smaller municipalities may not have the desired GIS teams to run the tool. City of San Mateo could incorporate GIS output into their Sustainable Streets plan. How to transfer the tool to private developers for their work.
  + Dino Summary: Any additions to increase the flexibility of the tool would be helpful. How to incorporate the local community into the tool (they can make or break a project)? Weighting scheme – need a lot more discussion to set defaults. Data layers added will depend on the question e.g. water quality vs pollutants.
  + Matt: need to look at the distinction between filtration and infiltration. Need to know the opportunities in the private and public development realm. ID the key data pieces that would most benefit the tool so municipalities can prioritize data layer development. Tool needs to fit into muni master planning process. Municipalities need to be able to add data layers.
  + Sarah: Streets are the driver. Resilience in low lying communities is high priority areas, climate change connection. Also consider tight space implementation e.g. Emeryville.
* Questions
  + Does slope layer in the base model include cross slope or just longitudinal?
  + What is the drainage area for each of the outputs of the tool?
  + How is veg swale defined? Shallow vegetated channels that slow water to discharge area. Might want to update this to more current terms e.g. bio swale
  + Why start with suitability and then do the knock out analysis? Technical reasoning to avoid multiple erases. Do the results differ by changing the order? If so, need to understand why.
* Recommendations
  + **LID features**
    - Need base analysis LID features to be consistent with the MRP allowable LID feature types and sizes.
    - Consider renaming wet ponds to infiltration basin and updating the specs to be for infiltration
    - Divide bioretention into two types: infiltrative (no sub drain or higher sub drain and non-infiltrative (has sub drain)
    - Consider a schematic with each LID feature type so each type is clearly defined
    - What about green roofs, green walls for air quality (e.g. Oakland)? Consider adding green roofs.
  + **What additional analyses?**
    - Street analyses:
      * Travel lane can be 12 feet or more.
      * Calculation of % treatment required based on amount of impervious surfaces. This could also be in the opportunity analyses that weights high volume treatment more.
      * Calculate drainage areas
      * Analysis of each individual street segment to understand runoff volume.
      * Bulb outs at intersections are good opportunities for LID placement.
      * Curb extension bulb outs are also opportunities to maintain existing mature trees on streets where LID is implemented.
      * Other opportunities in addition to just including 2 lanes of traffic; need to consider other street types e.g. one way streets etc.
    - Public V private property
      * What are the differences between public and private properties? Need to make explicit public vs. private property – maybe 2 different analyses or data outputs?
  + **Constraints and Opportunities**
    - Constraints: private property, Bus stops and glide paths; Existing mature trees
    - Change red curbs from constraint to opportunity
    - Riparian buffers should be a constraint
    - Protection of native vegetation could be a constraint
    - Additional knock outs are bridges
    - Consider requirements for large truck turning radius
  + **Additional Data Layers**
    - Include areas of flooding.
    - Layering with Complete Streets, especially bike lanes (avoid). Look at streets that could have road diet. Provide data that could enable funding e.g. disadvantaged communities
    - Lot of other data layers to incorporate – linking to planned pedestrian improvements, storm drain infrastructure walk path to schools.
    - Aging grey infrastructure layer
    - Incorporate ADV data into the toolkit. This will show oversized roads.
  + **Other**
    - Be good to have a checklist of data needed to perform certain levels of analysis.
    - Make sure tool output distinguishes between treatment and drainage area
    - City of San Mateo would like some initial output by August

Item #4 Modeling

* Discussion Items
  + Hydrology and sediment calibration look good
* Questions
  + Why is sediment concentration under predicted?
    - Sediment is difficult to model especially due to the SWMM function of buildup and wash off process. Need to get input on what function to apply to build up/wash off process e.g. exponential or power etc.
  + Is sediment strongly correlated with impervious? If so can this be used as a surrogate for sediment? Or land use as a surrogate?
  + Do we want to use SWMM generated pollutant loads or bring loads estimates in? Important to get the relative scale of pollution right rather than absolute.
  + Dino: water calibration was exceptional – could try to improve model performance of peaks. Sediment calibration was decent – could spend some more money on this piece. Get the bias to about 0.7 from 0.4 were it current is (i.e. the results would still be 30% bias low but good enough to go forward. Doesn’t like SWMM for sediment.
  + How did WA state deal with the pollutant loading? Had pollutant decay functions within the pipe and in overland flow.
  + Want to err on the side of under predicting pollutant reduction.
  + What drainage detail is important for the desired output?
  + County of San Mateo has more detailed storm drain maps.
  + City of Berkeley has done some modeling to find pinch points where grey infrastructure is failing and where LID could help that.
  + What is the ease of adding data layers to the model?
* Recommendations
  + Adding the storm drain catchment areas could be an important addition to the hydro model?
  + Basin delineations may need to be manipulated since stream layer that created basins does not include storm drain information.
  + Consider using the Oakland museum creek and watershed maps as the drainage data layer.
  + Discuss the idea of developing non-modeling methodology for estimating WQ and hydro reduction.

Item #5 Optimization

* Discussion Items
  + Matt: Least connection to reality in terms of what the cities need. Land use is going to be a primary factor of where LID gets placed. Cost can be determined by looking at individual street segments and start to estimate the cost for treatment for that segment. Need to have flexibility within the tool for the cities to pick out priority areas. Might have a tiered cost factor e.g. downtown expensive…residential less expensive. Have far do we have to go to clean up PCBs.
  + What are the decisions that the optimization is trying to drive? Need to answer that before going through questions.
  + Estimate: $50k for treating an acre is an ideal cost for SW treatment. Maintenance would be 1/3 of the upfront cost per year.
  + Dino: Need to incorporate compliance costs – ensuring the features are functioning as designed.
* Questions
  + How do we prioritize sites within the toolkit? Can apply a weighting factor to the costs.