Summary of STAC Workshop

USWG meeting

Sept. 23, 2014

The Process for Updating Urban Land Uses in CBP Watershed Model

- STAC Workshop Peculiarities of Perviousness – April 22-23
- Draft Report came out in July; still out for final comment; includes elements from:
  - Tetra Tech literature synthesis (March)
  - Variety of BMP expert panel reports and committee deliberations

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- Joint USWG/LUWG meeting in July produced recommendation for urban land uses (other committees involved in other land uses)
- WQGIT to make preliminary final urban land use decisions in Fall of 2014
  - Provisional status for urban tree canopy, stream corridor

How Urban Land Cover is Represented in the Current Version of CBWM

	Impervious Cover	Pervious Cover	Construction
Acres in Watershed [1]	1,269,030	3,398,732	84,500
Average TN Load [2]	15.5 lbs/ac/yr	12.4 lbs/ac/yr	26.4 lbs/ac/yr
Average TP Load [2]	1.93 lbs/ac/yr	0.55 lbs/ac/yr	8.8 lbs/ac/yr
Average TSS Load [2]	0.65 t/ac/yr	0.09 t/ac/yr	24.4 t/ac/yr
Key Inputs	Air Deposition Build-up/Washoff	Air Deposition Fertilizer [3]	Air Deposition No Fertilizer
Key Outputs	Flow volumes and N/P EMCs for surface runoff only	Flow volumes and N/P EMCs in runoff, interflow and groundwater	Flow volumes and sediment yield, attached nutrients

[1] Acres as reported in most recent CBWM version 5.3.2
[2] Average values, as reported in Tetra Tech 2014a and ESC EP, 2014 (construction sites), although actual values are regionally variable
3 Unit fertilizer input of 43 lbs TN /ac/yr and 1.3 lbs TP/ac/yr (altered by implementation of UNM EP report recommendations) applies to all pervious acres

Range of Urban Land Cover/Uses Considered by LUWG (2014)

Land Cover	Potential Sub-Class
Impervious Surfaces	Residential/Non-Residential; Commercial, Industrial, Institutional, Roads, Connected/Disconnected
Pervious Surfaces	Residential/Non-Residential, Hi-fertilized turf, Lo-fertilized, Golf Course, Landscaping, Scrub-shrub, Connected/Disconnected
Urban Tree Canopy	Forest, Street Trees, Residential Trees, Mixed- Open
Construction	None
Extractive [1]	Surface mines, quarries, gravel pits, abandoned mines
Stream Corridor	Floodplain, riparian forest, wetland
Other Layers [2]	MS4-Regulated/Non-regulated, Combined Sewer Service Area, Federal Lands,

[1] not considered in this report, as it is not really an urban land use
[2] layers are defined as an acreage subset of an existing land use category, and are only used by managers to track implementation in these sectors (i.e., not used for simulation purposes

The 4 Criteria For Making a Change

- Does the source or cover type depart in a meaningful way from the average nutrient or sediment loading for generic impervious and/or pervious land?
- If so, are their existing or future mapping tools that can accurately measure the source or cover type at the scale of a county and the entire Bay watershed?
- If so, can the pollutant dynamics of the source or cover type be accurately simulated in the context of existing or future versions of the CBWM?
- If so, would the source or cover type respond in a unique manner to the application of a new or existing urban BMP type?

The Six Key Issues at the STAC Workshop

1. Do different types of impervious cover have different pollutant loading rates ?

2. Should we recommend a lower target load for disconnected impervious cover ?

3. Should there be a new land use representing the urban stream corridor ?

4. What changes in nutrient inputs to urban land can be expected in the future -- atmospheric deposition, fertilization, discovered nutrient discharges, etc.) ?

5. Does it make sense to split pervious land based on fertilizer wash-off risk or fertilization status ?

6. How should we handle urban tree canopy and forest fragments on pervious land ?

Conclusions I

- Do different types of impervious cover have different pollutant loading rates ? Generally, NO
  - Enough evidence to support the case to create a transport land use sub-category within impervious cover to include streets, roads, and highways
  - The monitoring analysis indicated TSS concentrations at stormwater outfalls were at least an order of magnitude lower than what is observed in urban streams. This supports creation of urban stream corridor land use or overlay

Conclusions II

- Should we recommend a lower target load for disconnected impervious cover? NOT RIGHT NOW
  - Although some evidence for lower loads from such areas, the highly variable site-specific nature of these variables does not lend itself at this time to establishment of a separate land use
- Should we establish a stream corridor land use YES with caveats
  - Plenty of evidence to support this is a unique land use, although more work is needed to establish what the loading rates will be. Made a recommendation to form a small group to develop ways to allocate sediment and nutrient loads to the urban stream corridor, and make corresponding reductions to target loads for impervious and pervious cover.

Conclusions III

- What changes in nutrient inputs to urban land can be expected in the future?

  Recommendations to:

  - Improve lawn fertilizer input data, based on better analysis of the non-farm N and P fertilizer sales statistics in each of the Bay states (for more detail, see UNM EP 2013).

  - Conduct monitoring to characterize the discharge of nutrients from construction sites, following the study design proposed by the ESC EP (2014).

  - Do further research to define the significance of organic matter loads (detritus) produced from urban lands and delivered to the urban stream corridor by the urban storm drain system.

- Should we separate urban pervious land into subcategories (fertilized vs not fertilized or high risk for nutrient loss versus low risk) NO
  - Although there is some evidence to support differential loading rates, particularly for high-risk versus low-risk lawns, we lack that the site-specific data to characterize for the watershed
- Should we establish an urban tree canopy overlay YES
  - Urban tree canopy should be considered as either (a) a unique category of pervious land, (b) a pervious land use overlay, or (c) treated as an urban BMP. (Forestry Workgroup or other entities will work to develop the loading rates)

Conclusions IV

- Should we separate urban pervious land into subcategories (fertilized vs not fertilized or high risk for nutrient loss versus low risk) NO
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