

## Development of E3 Urban Practices for Phase 6

The E3 Scenario is an estimate of applying management actions to the fullest possible extent.

- A “what-if” scenario of watershed conditions with theoretical maximum levels of managed controls on load sources
- It is used with the No-Action scenario to define controllable loads, the difference between No-Action and E3 loads.
- There are no cost and few physical limitations to implementing BMPs for point and nonpoint sources in E3.
- For most nonpoint source BMPs, it was assumed that the load from every available acre of the relevant land area was being controlled by a suite of existing or innovative practices.

### Approved E3 Urban Sector Scenario for Phase 5.3

- E3 Stormwater Management
  - Regions with karst topography (low permeability) and Coastal Plain Lowlands (high groundwater)
    - 50 percent of area—impervious cover reduction
    - 30 percent of area—filtering practices designed to reduce TN by 40 percent, TP by 60 percent, and SED by 80 percent from a pre-BMP condition
    - 20 percent of area—infiltration practices designed to reduce TN by 85 percent, TP by 85 percent, and SED by 95 percent from a pre-BMP condition
  - Ultra-urban regions—defined as high- and medium-intensity land cover
    - 50 percent of area—impervious cover reductions, e.g., cisterns and collections systems to capture rainwater for reuse
    - 30 percent of area—filtering practices, e.g., sand filters, bio-retention, dry wells
    - 20 percent of area—infiltration practices, e.g., infiltration trenches and basins
  - Other urban/suburban regions
    - 10 percent of area—impervious cover reduction
    - 30 percent of area—filtering practices, e.g., sand filters, bioretention
    - 60 percent of area—infiltration practices
- E3 Erosion and sediment controls
  - Controls of the runoff from all bare-construction land use areas are assumed to be at a level so that the construction loads are equal to the nutrient and sediment edge-of-stream loads from pervious urban under E3 conditions
- E3 Nutrient management on urban
  - All pervious urban acres are under nutrient management
- E3 Controls on extractive (active and abandoned mines)
  - Controls of the runoff from all extractive land use areas are assumed to be to a degree so that the loads are equal to the nutrient and sediment edge-of-stream loads from pervious urban under E3 conditions

- E3 Forest conservation and urban growth reduction
  - All projected loss of forest from development is retained or planted in forest
- E3 Riparian forest buffers on urban
  - 10 percent of pervious riparian areas without natural vegetation (forests and wetlands) associated with urban lands are buffered as forest for each modeled hydrologic segment in the Chesapeake Bay watershed
  - The area of un-buffered riparian land is determined using the best available data (1) 1:24K National Hydrography Dataset, and (2) 2001 land cover
- E3 Tree planting on urban
  - Forest conservation and urban riparian forest buffers account for tree plantings in the urban sector

### **Recommended Assumptions for E3 Scenario for the Urban Sector in Phase 6**

| <b>BMP</b>  | <b>Land Use <sup>1</sup></b> | <b>Treatment Assumption</b>  |
|---|------------------------------|--|
| Retrofits   | IC, TIC & PC                 | RR Retrofits sized to treat 1.5 inch IA for all urban land uses                        |
| New Development   | IC, TIC & PC                 | All new development has RR BMPs sized for 2.0 inch IA                                  |
| Street Cleaning   | TIC                          | 100% of TIC swept using SCP-1  |
| UNM Plans   | PC                           | 100% of PC has UNM Plans; 20% High Risk/80% Low Risk                                   |
| State Fertilizer Laws   | PC                           | All Bay States Receive Credits for P and N Fertilizer Laws                             |
| Grey Infrastructure & Storm Drain Clean Outs  | SC                           | 5% of Urban N and P load Removed due to both credits                                   |
| Stream Restoration  | SC                           | 15% of stream network restored @ twice the default SR value                            |
| ESC   | C                            | 100% of all construction sites are treated to ESC Level 3 and have high risk UNM plans |
| UTC   | TC                           | <i>Need some help from forestry work group on this one</i>                             |
| <sup>1</sup> Land Use Codes: IC= Impervious Cover, TIC= Transport Impervious Cover, PC=Pervious Cover, C= Construction, SC= Stream Corridor, TC Tree Canopy   |                              |  |
| <sup>2</sup> Prior assumptions for Phase 5.3.2 E3 urban practices are retained for: Forest conservation and urban growth reduction, riparian forest buffers on urban, tree planting on urban and controls on extractive land uses |                              |  |