

Preliminary Nutrient Loading Results of Various SNAP v5 Scenarios

At the December 1, 2017 NSAB meeting, we will touch on the planning for SNAP5. The following information and graphs are provided to help explain a change in outcomes between scenarios for SNAP4 and SNAP5 as currently proposed.

SNAP 5 differs from previous versions by using a Curve-Number-based method to calculate development site runoff. Land cover event mean concentrations (EMCs) are applied to the volume generated from each land cover, as it is with earlier versions.

A series of four graphs compares nitrogen and phosphorus loading results calculated from earlier calculation tools (SNAP4, Jordan-Falls v2, and Tar-Pam Tool) against results from SNAP5 (one data line for each Hydrologic Soil Group).

Export Rate Targets for the various Nutrient Management Strategy Watersheds/Subwatersheds are displayed for reference.

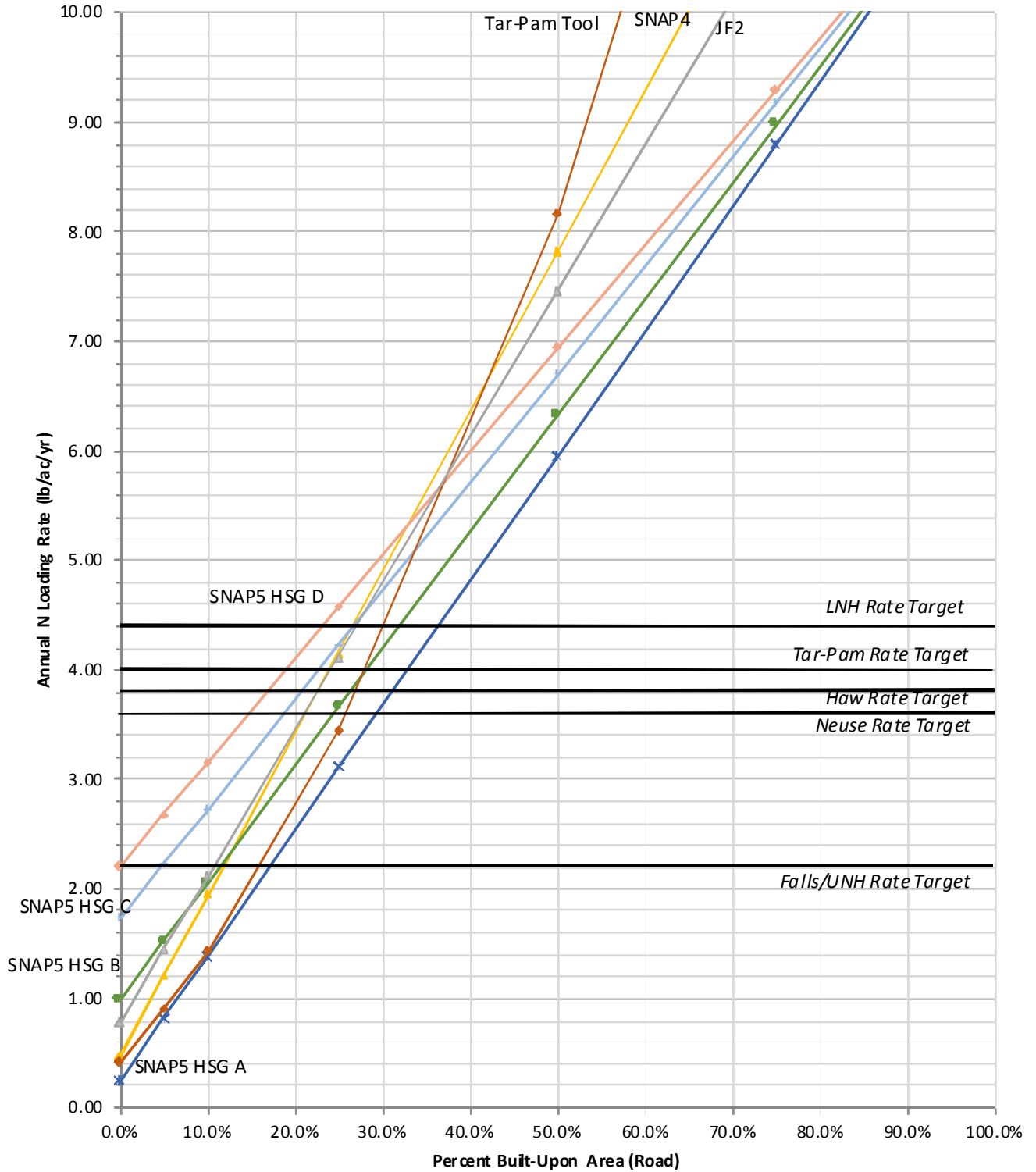
Each data line portrays a continuum of development intensities ranging from 0% Built Upon Area (on the left) to 100% Built Upon Area (on the right). For both nitrogen and phosphorus results, there is one graph for pervious area consisting solely of forest and another for pervious area consisting solely of lawn/managed pervious.

Results based on the Curve Number method converge on a single point, as the difference in calculation for SNAP5 results is the proportion of different Hydrologic Soil Groups against impervious surface. In contrast, results based on the Simple Method diverge as impervious surface increases.

Assumptions and Background Information

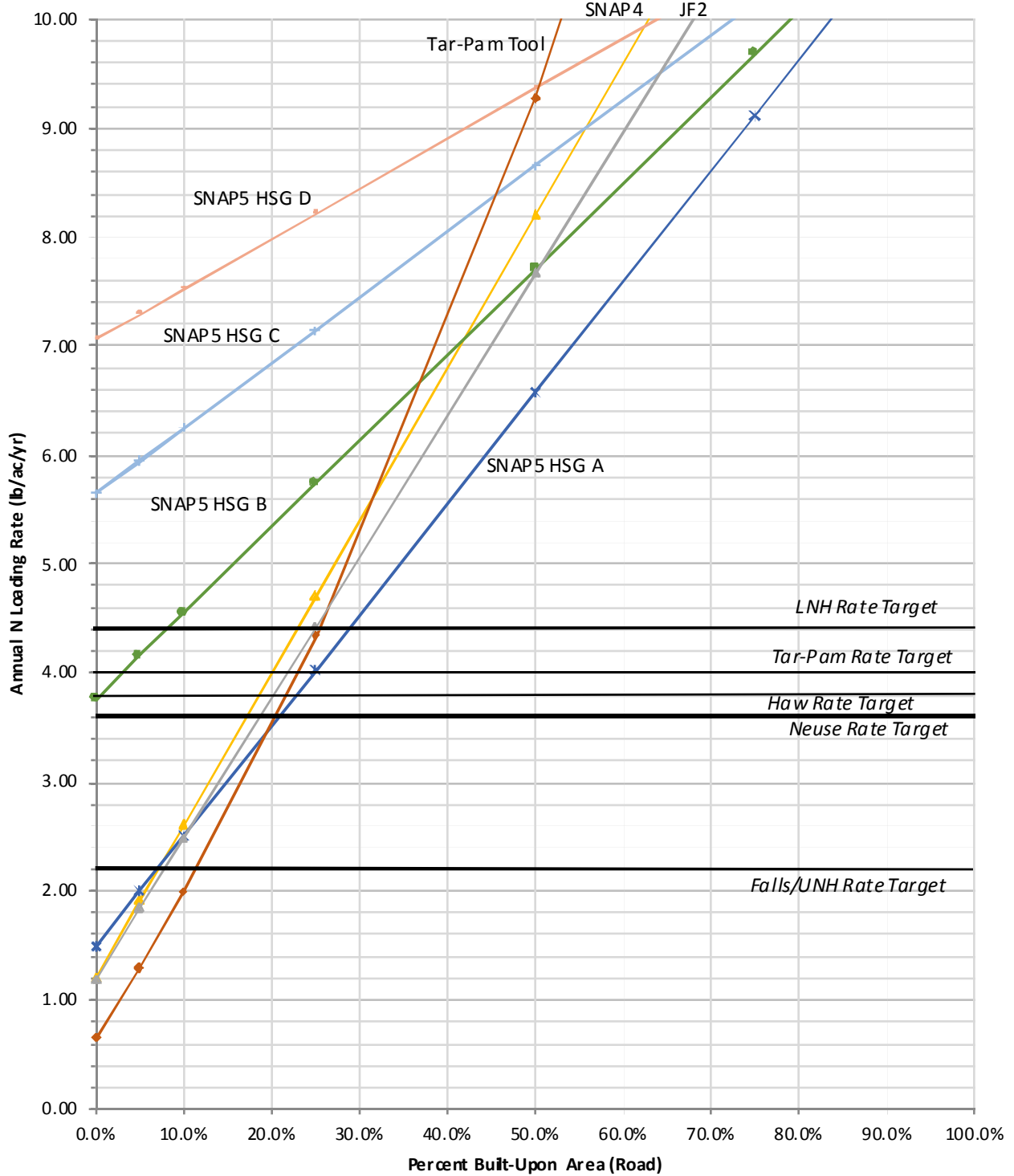
All calculations are for a 10 acre site. All SNAP5 and SNAP4 calculations use Durham as the rainfall station. Jordan-Falls v2 uses Butner. The Piedmont Tar-Pam tool is used for those calculations. Jordan-Falls v2 calculations assume the use of the "lawn" land cover rather than the "managed pervious" land cover. Impervious surface is represented solely by "road" land cover, which in Jordan-Falls uses the "Secondary Feeder Road" land cover type.

100% Forest to 100% Road - Nitrogen Loads



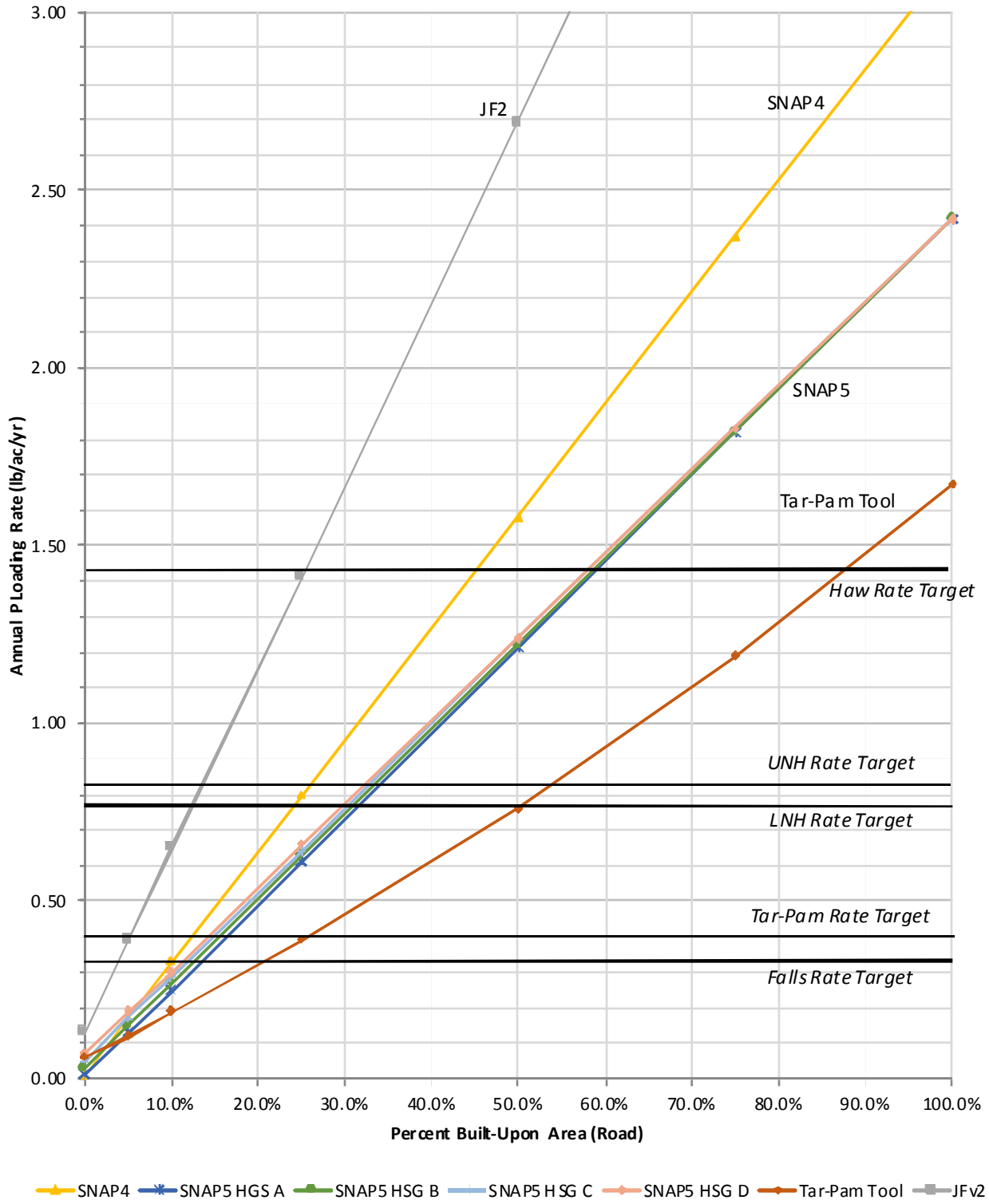
▲ SNAPv4
 ✕ SNAPv5 HSG A
 ● SNA Pv5 HSG B
 ▲ SNAPv5 HSG C
 ● SNA Pv5 HSG D
 ● Tar-Pam Tool
 ▲ JFv2

100% Lawn to 100% Road - Nitrogen Loads



- ▲ SNAPv4
- ✕ SNAPv5 HSG A
- SNAPv5 HSG B
- SNAPv5 HSG C
- SNAPv5 HSG D
- Tar-Pam Tool
- ▲ JFv2

100% Forest to 100% Road - Phosphorus Loads



100% Lawn to 100% Road - Phosphorus Loads

