Decision Matrix for Development of Year Two BMPs

The following matrix will be used to determine what effectiveness should be assigned to a specific best management practice based on the amount of data, variability of data, quality of the data, location of study and applicability of the data. There will be interactions and differences between the four parameters below that will have to be considered in developing effectiveness estimates. For example, a limited number of research scale studies that are consistent, have low variability and are highly applicable may be given a somewhat higher effectiveness estimate than it would be solely based on the research scale or number of studies.

1) Quality and location of data

Location is defined as the average soil conditions and hydrologic regime associated with the landuse the BMP is typically applied to.

Peer reviewed studies that analyze practices in an operational setting on local watersheds that are applicable to expected conditions throughout watershed: average effectiveness estimate found in data range will be used

Studies that investigate practices on research plots on local watersheds that are applicable to expected conditions throughout watershed: values below the average of the range found in the data will be used

White paper, or limited research scale type publications, regardless of location: low end of the data range will be used

Best professional judgment, observation, and extrapolation: conservative effectiveness estimate below 30% will be used

2) Amount of data

Less than or equal to 3 studies: use low end of reported range or more conservative effectiveness estimate

4-6 studies: use value below the average of range reported

Greater than 6: use the average within the range

3) Variability

Wide range of data variability: use a conservative estimate

Low data variability: use the average of the range

4) Applicability

Completely consistent within jurisdiction and NRCS codes or Stormwater manual design standards: use average of the range of data

Largely representative: use a value below the average

Somewhat representative: use value at the low end of range

Effectiveness Estimates Assigned	Average (median)	Below average (between average and 1st quartile*)	Low end of range (within 1st quartile)	Conservative estimate with maximum of 30%**
Quality	Operational scale research (peer reviewed)	Research (peer reviewed)	Research ("gray" literature)	Best professional judgment, observation and/or extrapolation
Applicability	Within State TS definition and NRCS codes; Match Stormwater Manual Design Specifications	Largely representative of specifications	Somewhat representative of specifications	n/a
Location	Within Chesapeake Bay Watershed – representative soils and hydrology	Largely representative	Somewhat representative	n/a
Range	Low variability	Medium variability	High variability	n/a
Amount of Data	High	Medium	Low/limited	None

*Recommendation from NSC is to use quartiles to determine effectiveness estimate
** Rationale for selecting a 30% effectiveness estimate when best professional judgment is used is justified because most watershed studies show that when applying a suite of BMPs to a watershed, maximum reductions are about 30%. As such, no effectiveness estimate for a single practice recommendation based primarily on best professional judgment, extrapolation or observation should be more than 30%.