



Forest-to-Faucet Partnership

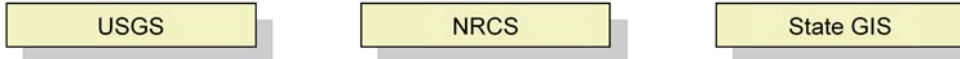


Applied Science to Protect Water Resources...From the Forest to the Faucet Watershed Forest Management Information System (WFMIS) Data Requirements

The Watershed Forest Management Information System is a spatial decision support system developed to evaluate and plan forest conservation, nonpoint source pollution mitigation, forest road maintenance, and silvicultural operations. It has been tested and validated on the Boston and Hartford water supplies.

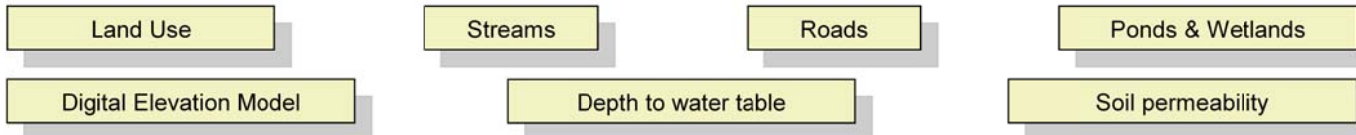
System Requirements: ArcGIS® 9.0 or later and ArcGIS® Spatial Analyst extension.

Primary data sources:



Module 1

WATERSHED MANAGEMENT PRIORITY INDICES



Module 2

FOREST ROAD EVALUATION SYSTEM

Roads Evaluation



Watershed Delineation

Can be used to delineate overall watershed.



Module 3

HARVEST SCHEDULE REVIEW SYSTEM

Note: harvest units need harvest year and silvicultural treatment index fields.



*Obtained from the Watershed Delineation submodule

Stream crossing hydraulic capacity determination requires two additional software programs: PeakFQ, a USGS product, and HydroCulv, an open source program from Hydrotools Software.

PeakFQ



PeakFQ calculates estimates of instantaneous annual maximum peak flows having recurrence intervals of 2, 5, 10, 25, 50, and 100 years.

HydroCulv



HydroCulv calculates the hydraulic capacity of a stream crossing.

* Consists of culvert length, height, type; inlet, outlet, stream bed, and road elevation; and stream bed width.

Tools needed: automatic or laser level, stadia rod, GPS receiver, tape measure.



Forest-to-Faucet Partnership

Watershed Forest Management Information System General Project Structure



1. Read WFMIS User's Guide and Overview.†

Watershed Management Priority Indices (WMPI)

1. Gather necessary datasets (page 1) and clip to watershed.
2. Load datasets into the WMPI interface.
3. Assign a priority index and score to each land type.
4. Define the limits for the buffers and the percent slope.
5. Choose display format.

time frame: < 3 weeks

Forest Road Evaluation System (FRES)

Roads Evaluation [5 meter DEM preferred]

1. Gather necessary datasets (page 1) and clip to watershed.
2. Load datasets into the Roads Evaluation interface.
3. Select the factors to analyze. (e.g. slope, fill slope, cut slope, stream crossing, roads within 30m of a water body.)

time frame: < 1 day

Watershed Delineation [5 meter DEM preferred]

1. Gather necessary datasets (page 1) and clip to watershed.
2. Load datasets into the Watershed Delineation interface.
3. Set the snap distance.

time frame: < 1 day

Harvest Schedule Review System (HSRS)

1. Gather necessary datasets (page 1) and clip to watershed.
2. Load datasets into the HSRS interface.
3. Indicate the recovery period, disturbance threshold, and year to analyze.

time frame: < 1 week

PeakFQ

1. Go to the USGS Real-Time Water Data for the Nation website*.
2. Select the proper stream gage based on location, years of unregulated peak streamflow data, and size of stream gage's watershed.
3. Export peak streamflow WATSTORE table.
4. Run PeakFQ to derive estimates of recurrence probabilities.

*<http://waterdata.usgs.gov/nwis/rt>

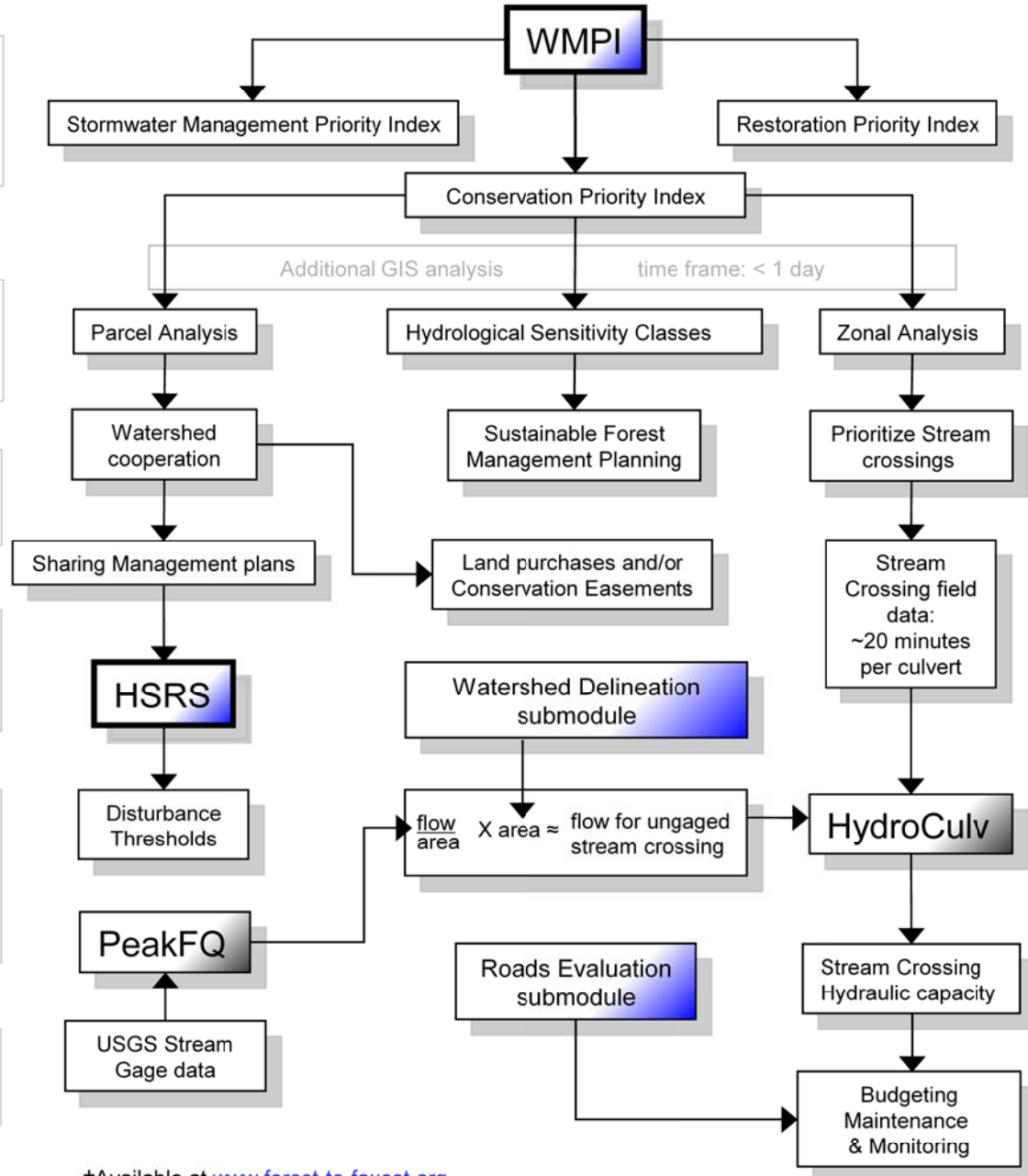
time frame: < 3 days

HydroCulv

1. Enter field data and estimated recurrence interval flows for stream crossing (termed discharge flows in HydroCulv).

time frame: < 1 day

Total time frame: ≈ 6 weeks



†Available at www.forest-to-faucet.org