

APPENDIX D. PROCESS USED TO CREATE THE SURFACE HYDROGRAPHY GEODATABASE

Lakes and other waterbodies

1. We started with the Portland Water Bureau Lakes GIS file, which consisted of three waterbodies: Bull Run reservoirs #1 and #2 and Bull Run Lake. We have not altered these features except for a very small part of Bull Run Reservoir #2 at the spillway to make the edge straight.
2. We enhanced the Lakes feature class with U.S. Geological Survey National Hydrography Dataset (NHD; U.S. Geological Survey, 2012a) derived features for NHD feature codes (Fcode) 390 and 466 (feature Type [Ftype] Lake/Pond and Swamp/Marsh, respectively).
3. We enhanced the Lakes feature class with DOGAMI' lidar-derived features for Lake/Pond and Swamp/Marsh that are not in the NHD.
4. We added appropriate NHD-like attribute columns to the Lakes feature class.
5. We used the Spatial Adjustment toolbar in Esri® ArcGIS® to set up Attribute Transfer from the NHDWaterbody feature class to the Lakes feature class.

NOTE: Non-NHD based waterbodies have NHD Fcode and Ftype attributes only. We hope to add more features in a future update of the NHD for this area.

Modeled streams

1. We converted the “modeled stream-centerline” shp file provided by the Portland Water Bureau to a feature class.
2. We copied modeled streams to a separate feature class for editing purposes. This new feature class is named BRWFlowline.
3. We added appropriate NHD-like attribute columns to the BRWFlowlines feature class.
4. We edited BRWFlowlines at their junctions with roads at assumed culverts and to what the lidar revealed. This action was taken to correct radical shifts of the BRWFlowlines along roads.
5. We edited BRWFlowlines within lakes and reservoirs so the BRWFlowlines broke at waterbody edges and assumed a reasonably straight path. These lines became what the NHD terms “Artificial Path.” Artificial Paths are assumed centerlines within a waterbody and provide network continuity within the NHD framework. A main flowline such as the Bull Run River through the Bull Run reservoirs will traverse the waterbodies near the centers, but this is not a hard-and-fast rule. All incoming side streams to the waterbody become Artificial Paths at the waterbody edge and then assume a reasonably straight path to the main flowline within the waterbody. The Artificial Path corrections are the most noticeable change to the modeled streams provided Portland Water Bureau.
6. We used the Spatial Adjustment toolbar in ArcGIS® to set up Attribute Transfer from the NHDFlowline feature class to the BRWFlowline feature class.

NOTE: Major discrepancies exist between the modeled flowlines, BRWFlowline, and NHDFlowline feature classes. The two feature classes do not correspond one-to-one. As a result, many of the BRWFlowlines cannot be given NHD attributes. In an update to the NHD, these non-attributed BRWFlowlines would become new features to the NHD.