IDWR Customized NHD Editing Tool

Purpose:
    The purpose of this tool is to collect more accurate geometry and attribute information of linear representations of Idaho waterways along with structures that impact water flow, referred to as points of diversion (POD), within and along the waterways. This tool will help the NHD Steward to improve the Flowline accuracy and networking capabilities of the National Hydrography Database (NHD).   Edits made using this tool are stored in a geodatabase. After all information is collected, the geodatabase is to be returned to the NHD Steward for incorporation into the NHD.

Tool Description:
    The IDWR Customized NHD Edit Tool is written in Visual Basic for Applications and is associated with an ESRI ArcMap project. The Tool consists of an ESRI file geodatabase containing two feature classes and a stand-alone table along with associated domains. Editing these feature classes via the Editor Toolbar will trigger scripts that will generate attribute entry forms. In addition, a toolbar with 5 button tools were also created. These button tools run scripts that allow transfer of geometry from an existing shapefile or geodatabase feature classes into the tool feature classes, correction of arc direction, creation of an additional feature class to indicate line intersections, and addition of Name attributes into the stand-alone table. This geodatabase maintains the information needed by the NHD steward to update the NHD.

    The arc direction of a flowline is very important in developing the NHD network. A Change Flowline Direction button tool adds a standardized arrow symbol layer to the map to indicate flowline direction. If flowline direction is incorrect, the user selects features of the layer and clicks the Change Flowline Direction button again to flip the arc direction.

    If the point of intersection of two or more lines represents one canal flowing into another or the location of a diversion structure directing water over or under another canal or stream, this information needs to be captured correctly. Connectivity and vertical relationships are very important when developing the NHD Flowline network and are difficult to determine in agricultural or urban areas without local knowledge. A Connectivity button tool was developed to help indicate these areas of intersection. Users place a Point of Diversion point at these areas of questionable connectivity and indicate how the water is traveling. Users are directed to use the Connectivity button tool after completing very large portions of their system. The tool will create points in areas where line segments of different names intersect or are within a 5 meter buffer distance of each other. Users can then either create a new point at the diversion structure location, or use the Transfer Point to POD button to transfer the geometry of selected connectivity points to the POD_edits feature class, and attribute accordingly.

Materials Provided:
    An ArcMap project (.mxd) containing the editing procedure code and a geodatabase containing the feature classes used by the tool is provided. A "Users Guide" document is also available. When working with local contributors, additional spatial data is also provided including current NHD data and available imagery (usually NAIP). Roads, Public Land Survey System, Administrative Boundaries, and Historical Map data may also be provided.
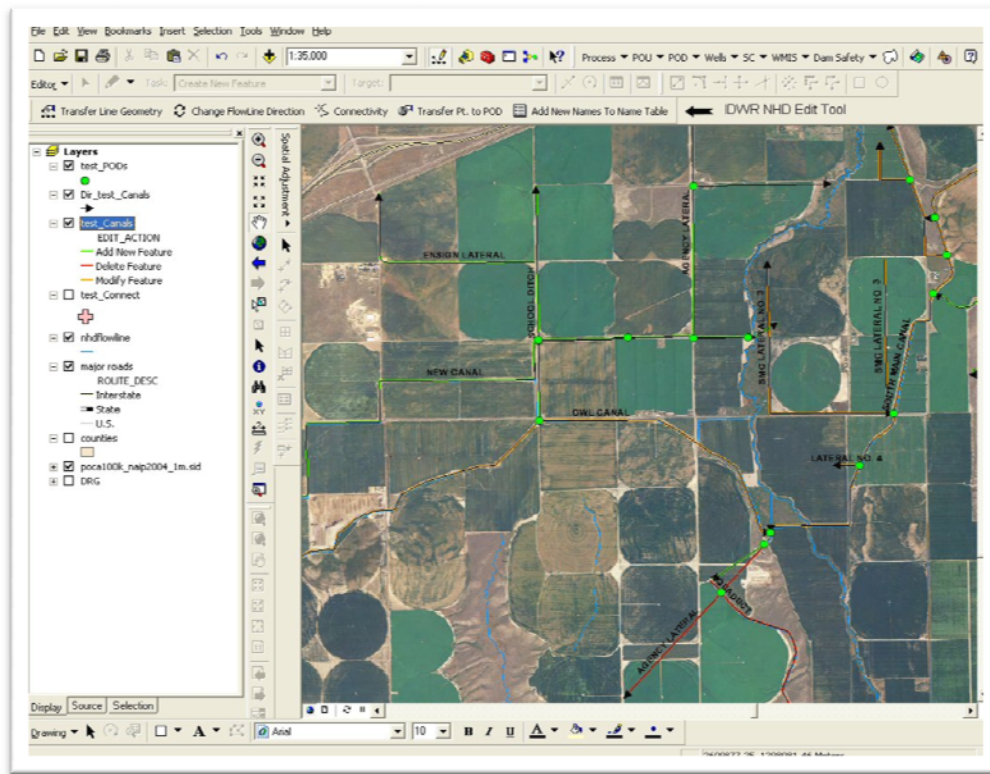
Figure 1. Example of an mxd file provided to local agencies to collect edits

For more information on the IDWR Customized NHD Editing tool, visit http://www.idwr.idaho.gov/GeographicInfo/NHD/default.htm.