

3DHP FTN Monthly Forum:

Question and Answers

EDH Development – Guidance and Specifications

February 21, 2024

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Participant Questions:

You mentioned break lines for open water bodies using elevation data. Do you foresee break lines also incorporating some sort of imagery to better represent the extent of ponds - as it is now the lines reference the snapshot in time when lidar was flown?

It's an ongoing discussion. The current focus is having the 3DHP reflect the elevation surface, so we rely on the breaklines used for hydro-flattening to define where open water is. As topobathy is developed, as part of the 3D National Topography Model (3DNTM), we'll be looking at how it can be used to model lake and other water surface elevations.

I like the inclusion of the GMI to verify the hydrography and the continuity of flow paths. Here again, are you exploring the opportunities to use imagery as part of this verification process to tip the scales one way or another? We've seen locations with groundwater discharge that the flow path was visible from imagery, but the lack of channels and vegetation made it difficult to discern from solely using lidar.

We don't require contractors to use imagery, but they can if they want another view. When we're validation the data we don't usually use imagery for most checks but certainly do when we can't figure out what is going on.

You mention a 100' max length for culverts that you flag. Is there a minimum length along the stream you might flag.

Yes, a channelized feature that is less than 15 meters outside of the geomorphic index (GMI) is excluded from the flagged features.

Has there been discussion about introducing FCodes that help to differentiate between monotonic indefinite surface connectors vs non-monotonic indefinite surface connectors? While not a major concern for data administration, where those two feature types have a confluence, uninitiated users frequently perceive those confluences as a pseudo nodes in the network.

We could look at a combination of Elevation class (ECclass), Feature class (FClass), and Feature code (FCode). You'd have to determine if all 3 of those were the same before they were merged together. The 3DHP schema will contain mainstemid and other coding to help interpret the relationship between line segments.

How is flow duration derived? How does EDH integrate with the National Wetland inventory (NWI) data? We have an issue with streamlines jumping out of ditches. These are questions we talk a lot about and we could spend an entire meeting talking about any one of these.

Stream Permanence: We're modeling duration and stream permanence as a separate project. Unlike the NHD, we're dropping periodicity as a descriptor in the feature codes. We have a separate project going on with the USGS Water Mission Area to develop a model which will be based on drainage area and other parameters. The model will use USGS stream gauges as control points to classify streams into flow regimes with probability of flow from 0 to 365 days a year. Since locations and organizations vary in their definition of 'perennial', intermittent or 'ephemeral', the flow regimes can be used to derive a classification based upon an individual's definition of stream permanence. Those values will be tied to the 3DHP network and made available for use.

National Wetlands Inventory:

We have a couple of big projects going on in Alaska, and I know some of the States are working with NWI, to explore the alignment of the EDH and NWI data. We're trying to come up with a way of linking the datasets through identifiers so that if we have a wetland polygon, for instance, you'd be able to tell which 3DHP features were associated with that polygon. It's a little bit different, because again, back to the waterbody definitions, some states map waterbodies differently than we do. The objective is to avoid duplicate linear features within both data sets.

[Note that USFWS presented to this Forum in July of 2023: FY24 3DHP Partnerships and Enhancing the National Wetlands Inventory through Improved Interoperability with 3DHP](#) (login required to access materials)

With regard to streamlines jumping out of ditches, there's no easy answer other than going out in the field or using imagery to make the determination. But even then, you may have issues or questions such as "when was the imagery flown"? We all know that there's never 'one truth'.

You mentioned that there is a 100' maximum length for culverts. Is there a minimum culvert length you flag?

All features have a 1.5-meter minimum length.

Are the resources discussed that you currently only provide to the GPSC Contractors also going to be available to others (e.g. States / Counties) who are creating their own EDH and plan to contribute the EDH products they produce to 3DHP through a DCA?

We talk with data developers individually so that we can determine which resources would best support them. Some resources have not yet been fully vetted as part of the data development process and we hold those a little closer. Once they are vetted all resources are made available at the 3DHP Specifications website at <https://www.usgs.gov/3DHP/HydroSpecs>

To be clear, the Data Collaboration Announcement (DCA) is not a vehicle for 'contributing' EDH/3DHP data. The DCA is a means of cost-sharing for collection of EDH for input to 3DHP data development either using the Geospatial Products and Services Contract (GPSC) or through a cooperative agreement with USGS. USGS considers 'contributed' data as data developed independently of the DCA program and proposed for inclusion in 3DHP. We have not yet determined if and how those contributions might be made.

As most of you are aware, in the absence of an FY24 Federal budget, we are on hold with respect to selecting DCA projects for funding.

Do the specs contain the instructions for submitting EDH data for evaluation? My state agency is looking into the feasibility of generating EDH in Kentucky with one our HUC 10 basins.

At this time, USGS doesn't have a means for validating contributed data developed independent of the DCA but have plans to develop a process for this. Please contact your USGS National Map Liaison (<https://www.usgs.gov/ngp-user-engagement-office>) to discuss ways to participate in the DCA.