

NSGIC 3DHP FTN Monthly Forum:

## **Question and Answers**

### **Michigan 3DHP Project: Coordination, Data, and Conundrums.**

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### **Participant Questions:**

#### **What role does your hydro advisory committee play, on what types of things do they advise?**

The Advisory Committee is a collection of subject matter experts from across State of Michigan agencies that use hydrography. The committee meets weekly and their role is to:

- Review the data (geometry and attribution)
- Supports data outreach through local contacts
- Address decision points

As the state continues to work on its data governance, the Advisory Cmte is responsible for managing data governance and establishing/reviewing data workflows for data maintenance.

#### **Have you had any engagement with the USACE during the process?**

No.

#### **Is there a minimum size for waterbodies?**

From the [USGS EDH READ Rules](#) for Lake/Pond features:

“For EDH feature collection, if lake/pond is greater than or equal to 100 feet (30 meters) along the shortest axis (or approximately 0.4 hectare), then capture.”

#### **One of the great values of NHD is to be able to relate data through events. Is 3DHP going to maintain that critical feature?**

Absolutely.

#### **Does the specification require that line and polygon intersections share z values at the intersection point?**

Yes, z-values must match at the vertex intersecting the polygon from the polyline. Please see [USGS EDH READ Rules \(USGS response\)](#)

#### **Is the web reviewer a markup tool?**

There are two web reviewers. MSU collects initial comments and has markup tools. NV5 does a secondary review of attributes and overall context.

**Please elaborate on the culvert database - thin or detailed attribution? Owner, pipe size and invert or just existence? Maintenance plans?**

The database is not highly detailed. It includes road type, driveway, pseudo culverts. The focus is on accurate positioning. There is a separate endeavor in the state to enhance attributes, e.g. pipe size, missing driveway culverts, etc.

**How do you determine what is a Low-Accumulation Flowline, and are these all drainageway features?**

Generally, we are using a 100,000 pixel catchment area (4.6 acres) as the minimum threshold but this can change based on landscape. This almost always captures everything required by EDH and provides additional linework to the State of Michigan. Low accumulation lines may or may not be classified as drainageways. If there is a defined channel, then it is coded as either StreamRiver or CanalDitch. If there is no channel and there is clear evidence of drainage in an area (based on the DEM), it is classified as a drainageway. If there is no clear pattern of drainage on the DEM, it is not included in the deliverable for conflation (but is kept for the State of Michigan. These lines are not edited).

**How and when do you assign Stream Periodicity to new flowlines that are not drainageways? Also, are you validating conflated periodicity?**

We have not included periodicity in our mapping effort.

**Are you updating the Wetlands in NWI?**

We are not including wetlands in the product but NWI is on the pilot team and will be using the data to make updates.

**Are you using pseudo culverts to fix flow versus fixing the original point cloud and DEM?**

Yes, the pseudo culverts are used to address flow stoppage and create the hydro-enforced DEM, but they are not going back to USGS. These are generally blockages due to owner-installed foot bridges across drains, fallen logs across drains, LiDAR noise blockages, and similar circumstances.

**Is OrthoImagery used to map/adjust water edges versus DEM?**

OrthoImagery is ancillary to the process - the DEM is the product used for delineation whenever possible. There are some instances where the imagery must be used because the noise in the DEM is too high. Additionally, in some areas the LiDAR data was collected during a time when areas were flooded. For instance, the boundaries of a river channel may not be visible on the DEM because the vendor hydro-flattened a flooded floodplain. In this case, orthoimagery is used to delineate the boundary. This occurs in some LakePond features as well.

**Does NV5 check-in/update the final HUC-12 and WBD into the USGS Master Database, or does USGS staff do this?**

NV5 performs the updates.

**Are you working with local city and county dataset?**

Yes. We use all available resources with the understanding that the quality of data varies. In most cases, these data are being used strictly as ancillary data to assist with interpretation.

## **How much is the total contract for the work?**

\$3-4 million over multiple years.

## **What kind of discussions are you having about urban areas? Any distinctions between minor or complex urban areas? Any MS4 program interactions or engagement?**

There is no distinction between minor and complex urban areas. In all urban areas a good deal of the flow is underground through stormwater systems. This project is not mapping stormwater systems. If a channel moves through an urban area and is visible, it is mapped. If we can determine where sections of visible channel intersect (when they travel underground for some distance), we will make the connections and apply the correct FCode.

## **What's the conundrum part of the title?**

The “conundrum” relates to the issues we have had to work through:

- How we can address damns, weirs, sinks
- How to collect good data
- Which geomorphic indicators to use
- How to handle roadway ditches that do not have water flow for years
- Understanding and addressing the specifications with regard to data and hydroflattening surfaces.

## **Where were the biggest unanticipated issues?**

- Schedule and costs
- The time needed to think through the process, methods, workflow, and decision-making

## **Are you integrating field tiles or storm sewer networks?**

The scope of this project is surface flow. Mapping field tiles is not a realistic endeavor in Michigan since these are not mapped and the ability to see them on imagery is highly dependent upon when the orthoimagery was acquired. They cannot be determined from elevation data unless the data was capture immediately after installation. As for stormwater systems, this is difficult as well as most urban areas do not have detailed stormwater system data or it is difficult to obtain.

## **How does USGS plan to move your data to the new 3DHP?**

The 3DHP model is under development and is intended to support and guide integration. *(USGS response)*