HydInfra Overview

HydInfra is Mn/DOT's statewide Hydraulic Infrastructure information application used to manage inventory, inspection and maintenance activities for storm drainage system features.

Features: All features are initially inventoried, and then can have multiple inspections and activities (maintenance or other changes) over time. Pipes are located as lines, other features are located as points.

- **Pipe**
- **Structures** (Catch Basins, Manholes, Drop Inlets)
- **Special Structures** (Aprons, Slotted Drain, Weir, Energy Dissipater, …)
- **Pond**
- **SPCD** (Structural Pollution Control Device – settler, skimmer, filter, etc. – for water quality)
- **Ditch**

Other Record Types:

- **Outfall** – associated with a feature, we can designate if it's an Outfall or Infall or Other flow, and where it goes to or from
- **Illicit Discharge Inspection** – track water quality offenses
- **Environmental Inspection** – pH, Conductivity, Resisitivity …
- **Culvert Group** – group multiple pipe, structures, special structures using GIS tool
- **Pond Group** – group multiple pipe, structures, special structures, ponds, spcds & ditches using GIS tool

Data Collection/Creation and Upload

- **HIF Format –** Trimble GPS equipment is used with HydInfra data dictionaries and Pathfinder Office software and exported to .hif format.
- **Published Format (PF) –** tabular, ASCII data in csv format allows input of data collected with alternate GPS equipment, data dictionaries or from design data (including flow network data). A Help file (HYIHelp) and template Excel spreadsheets, facilitate data creation in this format.
- **Forms –** Data can be read, updated or created in Oracle Forms. HydInfra data can be sent from Forms to review in GIS or selected in GIS and sent to Forms for editing.
- **GIS Tools –** Arcmap tools have query tool to review data, create features with location and minimum data set, move existing features (including Pipe ends), and create pond or culvert groups. Export selected data to Excel quickly.
- **Upload Data Website –** Allows internal (Mn/DOT) or external (consultant) data collectors to upload HIF or PF format data files. Emails tell the data submitter if the data was accepted, or sends specific corrections needed if the data doesn't meet requirements. Data collector and district key expert notified via email when data is accepted. District key expert can review data (Forms, Reports, GIS tools) and accept the uploaded data or delete it.
- **Location Data –** Derived from GPS XY coordinates**,** the route system, route number, reference point, control section, county and district are assigned for all features (or inspections with a location) so the Inspector does not need to input.
- **ArcPad –** Metro WRE and CO are developing an ArcPad application to collect Inventory and Inspection information.

Data Access

- **Reports** – Crystal reports accessed from HydInfra webpage. User selects from a list of report types and further chooses report criteria: feature ID, route and milepost, date, etc.
- **GIS –** ArcMap interface to query for data to display on map. Export data to Excel.
- **Forms –** Oracle Forms – features in database can be read, updated or created. Can select data in GIS interface and send to review in Forms.

MS–4 Functionality:

Minimum Control Measure 3: Illicit Discharge Detection and Elimination

- Storm sewer system map
  - GIS tools can display collected features on map – can query/display what is wanted.
  - Can set up flow networks
  - Storm drainage system design data from GEOPAK Drainage reports can be input to HydInfra.
- Program to detect and address non–storm water discharges
  - Illicit Discharge inspections can be managed, and viewed via reports or GIS

Minimum Control Measure 6: Pollution Prevention/Good Housekeeping

- Inspect Annually all SPCDs
- Inspect at minimum 20% of MS4 outfalls, sediment basins and ponds
  - All Features can be designated as MS–4 required or not
  - Outfalls can be designated as MS–4, or not, can differentiate between InFall vs. Outfall or Other flow, which feature the Outfall is associated with, and which municipality flow is coming from/to. (Inspection or maintenance activity is recorded on the associated feature).
- Determine if repair/replacement/maintenance required
  - All features can be assigned a recommended inspection period and queried if inspections have been completed.
  - Reports can be used to determine if recommended maintenance has occurred (if maintenance activities are recorded).
- Summarize results of outfall inspections in annual report
- Keep records of inspection results
  - HYDINFRA database allows for multiple inspection and activities to occur for any feature so that the history can be reviewed/queried. Based on history, required inspection frequency can be adjusted. The required inspection frequency and the last inspection date are included in HYDINFRA and can be queried and reported on.