

## Asset Management for Hydraulics

MnDOT is among the national leaders in the management of its hydraulic infrastructure. Although no dataset is perfect, MnDOT’s culvert inventory can be considered quite good from a statewide perspective, and storm sewer and deep storm tunnel inventory very good for the Metro District. Through the Asset Management Strategic Implementation Plan (AMSIP), MnDOT developed a well thought out plan for enhancing and maintaining needed inventories across the state.

MnDOT has well-developed inspection protocols, a suite of performance measures, and configuration of the TAMS system which houses inventory data, planning level repair decision trees, and detailed work activities for accurate repair/maintenance work cost capture.

Aside from needed financial resources to fill gaps, MnDOT is in a very good place in its Hydraulics Asset Management discipline.

The screenshot displays the GEORILLA software interface. On the left, a 'Select Results' panel lists 26 features. The main map area shows an aerial view of a road network with blue arrows indicating flow directions and orange lines representing infrastructure. A table at the bottom provides detailed data for the selected features.

| ID        | Status          | Unit            | LRS Route                | Offset | Carto Measure | Station       | Local Name | Roadway Type | Current Pipe Shape | Current Inside Material | Current Inside Width | Current Inside Height | Original Pipe Shape | Original Material | Original Pipe Width | Original Pipe Height | Total Length | Cover at Upstream Road Edge | Pipe Type | Pipe Class |
|-----------|-----------------|-----------------|--------------------------|--------|---------------|---------------|------------|--------------|--------------------|-------------------------|----------------------|-----------------------|---------------------|-------------------|---------------------|----------------------|--------------|-----------------------------|-----------|------------|
| Q 2251493 | Inplace Culvert | 9649 - Red Wing | Subarea 0200000000000052 | 8.783  | 77.6747       | 1155+78.77.33 | Centerline | Round        | Concrete           | 18                      | 18                   | Round                 | Concrete            | 18                | 18                  | 64                   | 4            |                             | Unknown   |            |
| Q 2317992 | Storm           | 9649 -          | Subarea 0200000000000052 | 77.600 | 77.600        | CB-26 to      |            |              |                    |                         |                      |                       |                     |                   |                     |                      |              |                             |           |            |

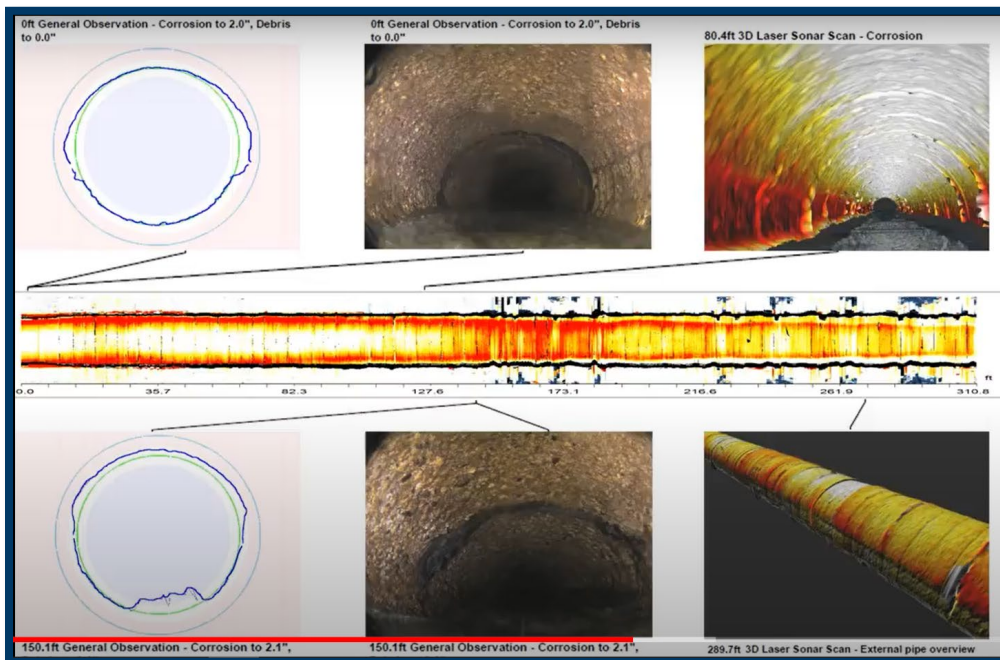
Maintaining quality hydraulics data is known to be costly. Initial data acquisition, condition inspections, and processing of as-built infrastructure into the asset management system represent non-trivial resource draws. MnDOT has given thought to asset data needs through its AMSIP and recommended generally to stay the course relative to most culvert data, acquire some additional data over time, and avoid committing to other “nice to have” datasets such as driveway culverts. Through the AMSIP process, MnDOT not only considered its data needs but also established a long term vision, and articulated a strong commitment to the advancement of Asset Management principles.

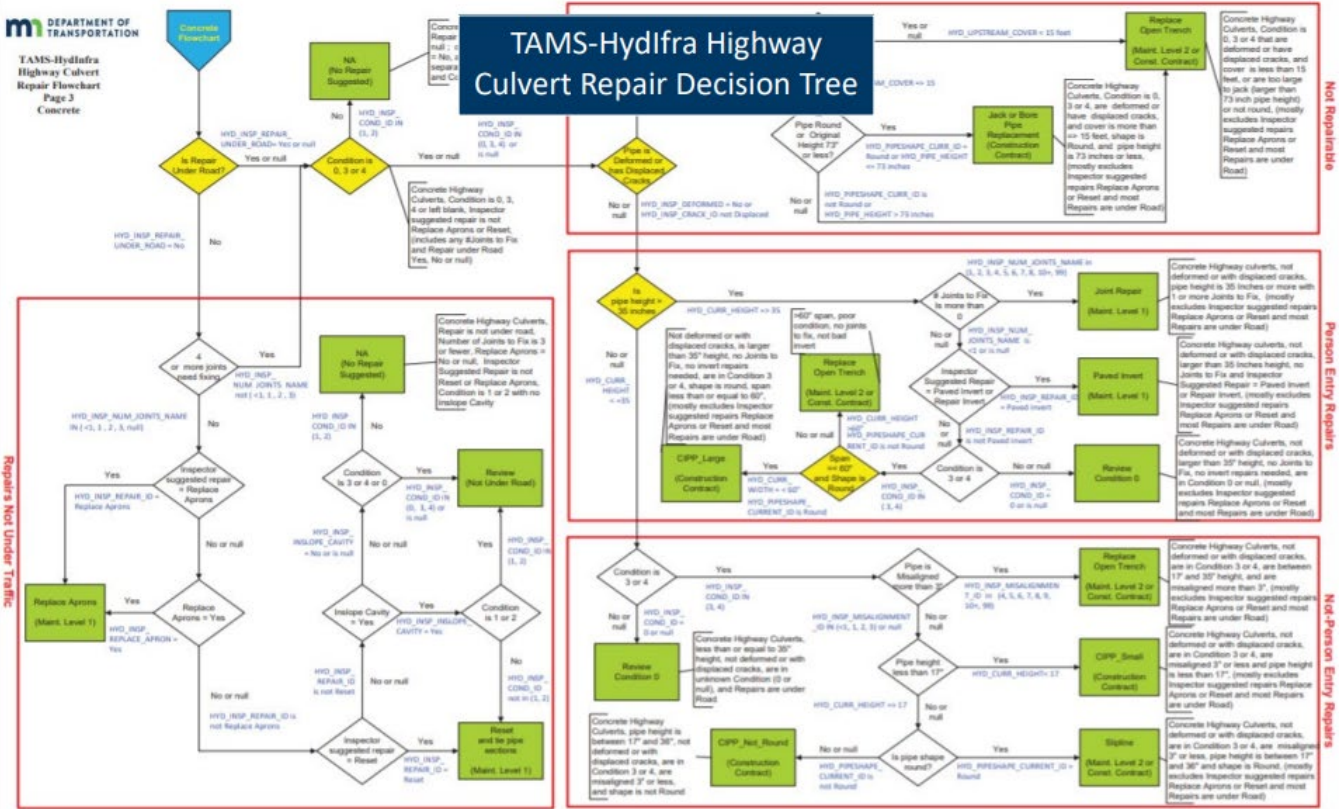
MnDOT believes it is vital to practice and continue to advance Transportation Asset Management because TAM:

- Is a performance-based approach that uses agency goals and objectives to drive resource allocation. Asset management relates resource needs to the construction, maintenance, and operation of transportation infrastructure assets.
- Enables transportation agencies to improve accountability, decision-making, and coordination between maintenance and capital programs and better manage the available funding.

The collection, management, and analysis of quality asset inventory and condition data is a critical part of asset management. Asset management implementation benefits from well-planned information technology systems that consider the decision-making processes that agencies use to keep assets operational and safe.

MnDOT made a strong commitment to managing our assets by adopting an Asset Management Strategic Implementation Plan, which sets a departmental vision (and set of strategic objectives and action plans). In other words, MnDOT is committed “to effectively manage transportation assets by mitigating risk, optimizing return on investment, and using the best available information and tools.”





## Maturing Hydraulic Asset Management at MnDOT

Hydraulics personnel perform many important roles in this relatively mature discipline, though there is variation across districts. Here are some of both the current and aspirational best practices visible across the state:

1. Planning for and executing an effective inspection protocol. This may require collaboration with Central Office, District Maintenance and others.
2. Using TAMS and other data to assess risk and vulnerability issues.
3. Capitalizing on infrastructure data and tools to optimize incident response recommendations.
4. Capitalizing on infrastructure data to support scoping/identification of items needing field review, and moving toward ways data can enhance the comprehensiveness of programming decisions.
5. Utilizing planning outputs, institutional knowledge, knowledge of performance targets, and collaboration with Maintenance personnel to plan for optimum approaches to drainage repairs and maintenance.
6. Supporting the capture of As-Built and TAMS Work Order inventory information and ultimate management of TAMS data accuracy.

7. Championing Hydraulics interests in Planning and Programming, Project Scoping, and Maintenance work planning based on high quality, objective data.

Hydraulics personnel play a crucial role in asset management, and through the use of advancing data quality and comprehensiveness, management tool capabilities, performance measures, and collaboration over the past many years have successfully raised the awareness, and resource commitment to hydraulics infrastructure management. Keep up the great work!

