PRIORITIZE CULVERT REPAIRS FROM HYDINFRA DATA

HydInfra provides data for Hydraulics-Water Resources engineers to make decisions on needed repairs. Web-based HydInfra reports provide pipe inventory and inspection details which the engineers select from to choose pipes to be repaired.

Engineers prioritize pipes for repairs based on the project type, which varies from a road reconstruction or a District-wide culvert replacement project. The type of construction project influences which pipes are repaired, and which repair methods are used.

Maintenance forces also repair culverts and storm drain pipes. Their repairs are chosen based on other criteria, including emergencies or available staff, equipment and funding. Ongoing repairs by Maintenance forces range from simple joint-filling that interrupts loss of road fill through open joints, to slip-lining culverts for long-term repair.

Two possible ways to prioritize culvert repairs using HydInfra data are shown here.

PRIORITIZE HIGH RISK CULVERTS TO REPAIR

Find the biggest, worst culverts that have piping and road voids with high cover and highest ADT (and highest price tag):

1. Bad condition – pipes that are rated **3 (poor)** or **4 (very poor)**
2. Repair needed is under the pavement – **Repair Under Road** = Y
3. Loss of road fill as indicated by defects: **Road Void** or **Piping**
4. Defects that indicate road voids are happening: **Holes**, **Max Joint Separation** > 3 inches, or **Road Distress**
5. Large diameter pipes – select from data field "**Span in Feet**" – larger pipe indicates potentially larger void
6. Higher cover – data field "**Cover**" – limits the choice of repair methods and increases cost, especially if road voids have already formed, and would be more likely to require a detour
7. Higher ADT – pipe replacements on heavily used roads have increased costs because of lane closures or higher cost repair by pipe jacking. Open Trench replacement may be necessary if road voids have formed. (ADT is available from source outside of HydInfra but the data field Highway **System** – IS, US, MN – can be used to select interstate highways.)

OR PRIORITIZE THE PIPES THAT MAINTENANCE CAN REPAIR NOW WITH LITTLE CASH

- Paved Invert – repair **Steel Pipes** with **Holes**, **Span** larger than 3 ft. in diameter by paving the invert with concrete
- Joint Repair – fill or patch open pipe joints (**Max Joint Separation** > 1 inch) with internal bands, spray foam or other methods
- Reset – lift and pull together apron or pipe sections where repair is not under roadway (Concrete pipe where **Repair Under Road** = N or **Separated Apron** = Y)