Culvert Inventory Protocol

For cities in the Upper Rum River Watershed Management Organization
As recommended by the URRWMO Technical Advisory Committee 2-2020. Approved by the URRWMO 3-19-2020.

Culvert inventory requirement and reasoning

The URRWMO requires cities inventory culverts by the end of 2022. The purpose is to ensure the locations, sizing and elevations of these conveyances are known. This information will allow the cities and URRWMO to:

- Ensure discharge rates are maintained to void contributing to downstream flooding or erosion.
- Ensure culvert elevations are maintained to avoid upstream flooding (if a culvert were raised) and avoid wetland impacts drainage (if a culvert were lowered).
- Identify perched culverts that may prevent fish movement.
- Identify maintenance needs.

Goal of this protocol

Ensure data are consistent and comparable across cities because the water conveyance systems cross city boundaries.

Which culverts to inventory

Inventory culverts conveying open water of streams or ditches. Ditches may include public, private or roadside. Some waterways may only carry intermittent flows. Only those within a public right of way or city easement need to be inventoried.

Do not inventory:

- Culverts already inventoried by Anoka County. These are primarily culvert in county ditches. See http://gis.anokacountymn.gov/acwr/
- Private driveway culverts.
- Stormwater conveyance pipes under streets, or their outfalls. Stormwater conveyances and outfalls should already be mapped by cities.

Culvert inventory format and required data

- The inventory should be map-based with attribute data in an associated table. ArcMap is a recommended format in coordinate system NAD 1983 zone 15.
- Culvert attributes to collect:
    1. A unique culvert identification name/number.
    2. Location description, likely as a street name or intersection quadrant. For example, NE quadrant of 1st St and Polk Ave.
    3. Waterway name.
    4. GIS coordinates of upstream and downstream ends.
    5. Top and invert elevation at both ends of each pipe.
    6. Elevation benchmark, datum and location.
    7. Type of survey instrument used. If a survey-grade GPS is used, model and accuracy should be documented. If culvert data was obtained from a plat or construction plans, the data source should be noted as such.
    8. Pipe type/material.
    9. Pipe size and shape.

10. Whether the culvert is Perched (pipe end elevated above receiving water).
11. Pipe condition.
12. Inspection date.
13. Recommended, but not required, attributes to collect:
    - Photos
    - Erosion protection at downstream end.

- Waterway attributes to collect:
    1. Culvert inventory is not started, underway, or complete for each waterway segment.

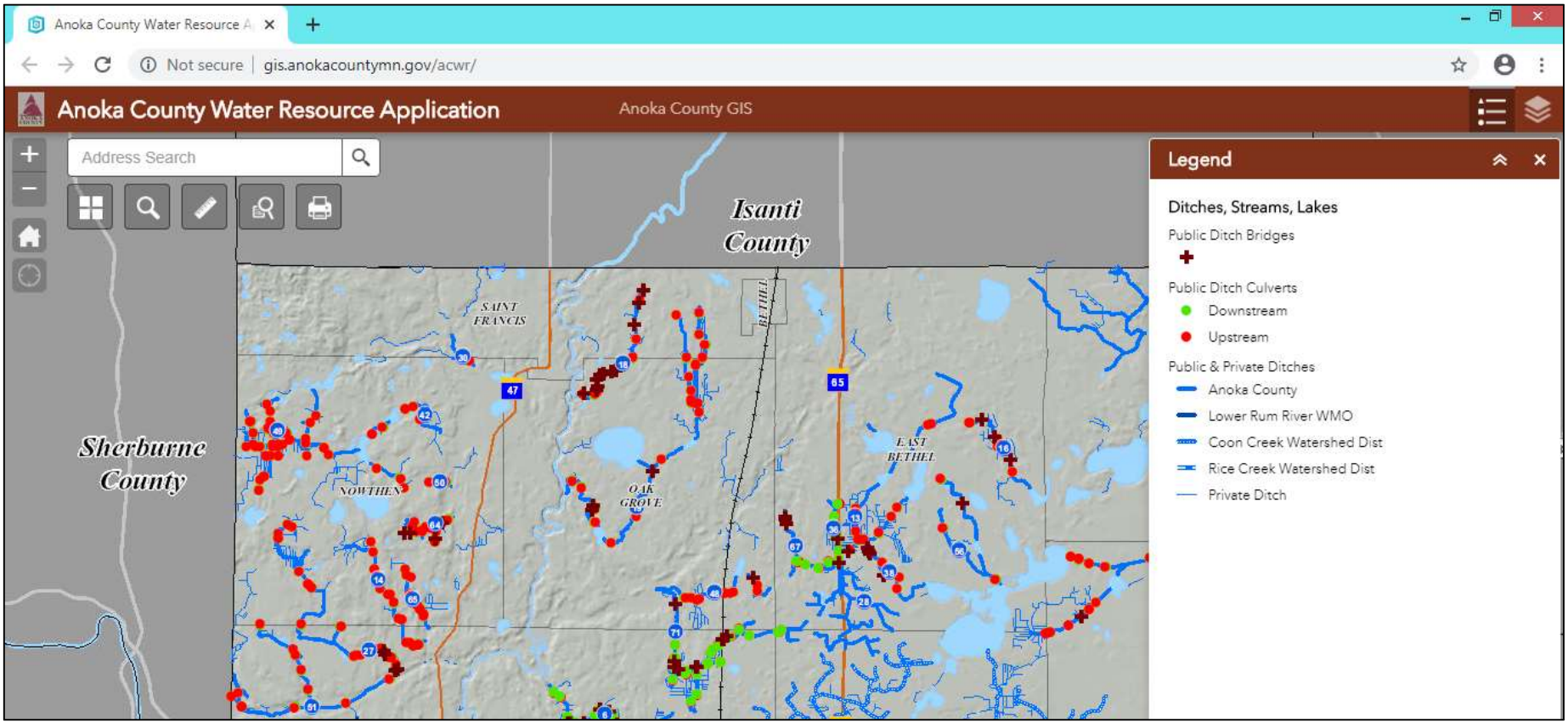
Other

- **Multiple culverts** - In any instances where multiple culverts are side-by-side, data must be collected for each. Do not assume they are all at the same elevations.
- **Timing of inspections** – Inspections must be done during the open water season (not ice). Avoid inspections during high water when culverts may be submerged.

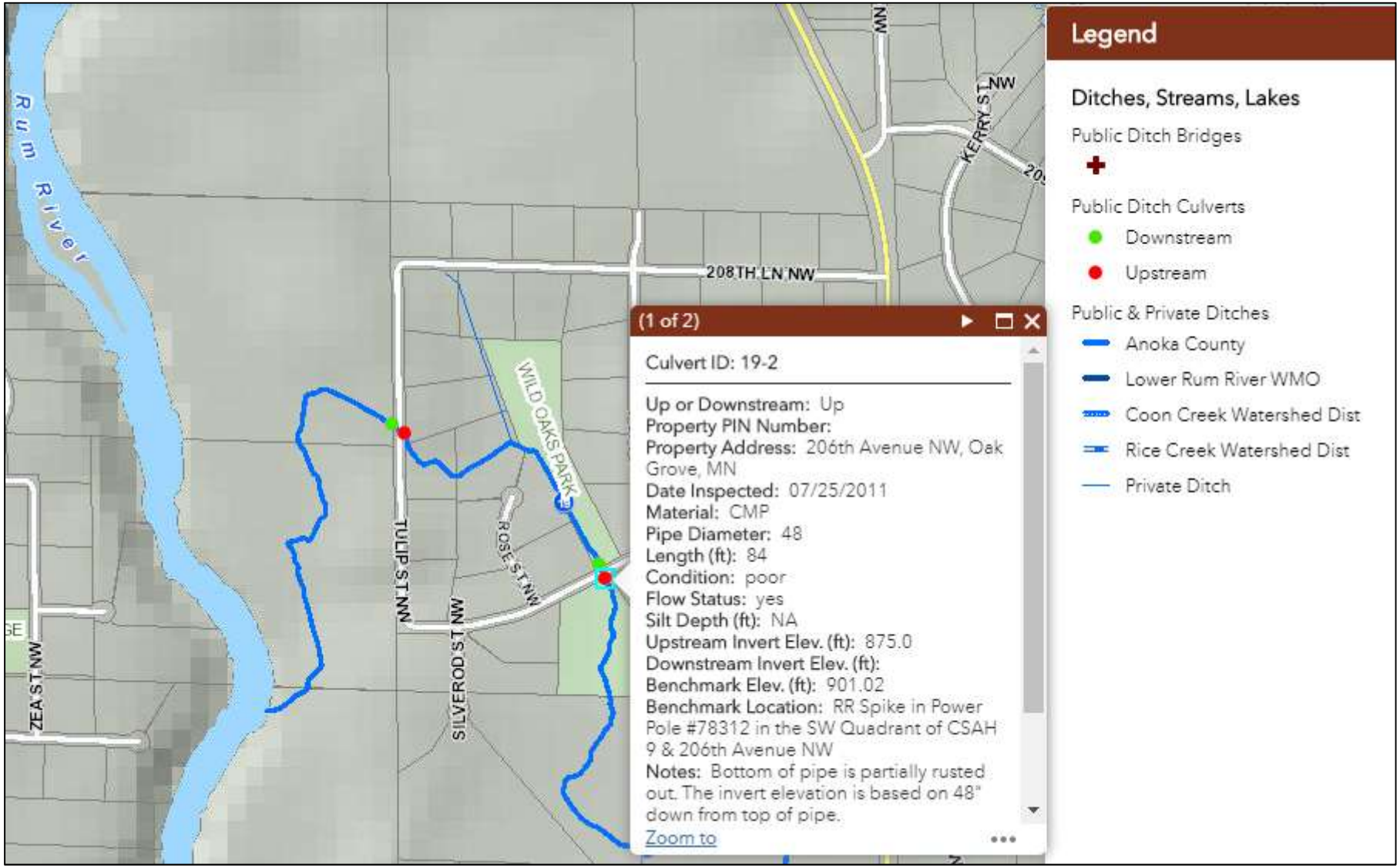
Data storage

Each city will submit its culvert inventory to the Anoka County GIS Department for public availability on the online County GIS Water Resources Application. Cities are responsible to keep and update their data as needed.

Example Culvert Inventory from Anoka County



The next page has a zoomed in image and displays attribute data.


Rum River
208TH LN NW
KERRY ST NW
WILD OAKS PARK
TULIP ST NW
ROSE ST NW
SILVEROD ST NW
ZEA ST NW
(1 of 2)
Culvert ID: 19-2
Up or Downstream: Up
Property PIN Number:
Property Address: 206th Avenue NW, Oak Grove, MN
Date Inspected: 07/25/2011
Material: CMP
Pipe Diameter: 48
Length (ft): 84
Condition: poor
Flow Status: yes
Silt Depth (ft): NA
Upstream Invert Elev. (ft): 875.0
Downstream Invert Elev. (ft):
Benchmark Elev. (ft): 901.02
Benchmark Location: RR Spike in Power Pole #78312 in the SW Quadrant of CSAH 9 & 206th Avenue NW
Notes: Bottom of pipe is partially rusted out. The invert elevation is based on 48" down from top of pipe.
Zoom to
Legend
Ditches, Streams, Lakes
Public Ditch Bridges
Public Ditch Culverts
Downstream
Upstream
Public & Private Ditches
Anoka County
Lower Rum River WMO
Coon Creek Watershed Dist
Rice Creek Watershed Dist
Private Ditch