

2 W. PLEASANT ST.
P.O. BOX 30
AURORA, MO 65605



PH: 417-678-5121
FAX: 417-678-6599
AURORA-CITYHALL.ORG

To: Mayor Lewis and Aurora City Council
From: Jon Holmes, City Manager
RE: WWTP Drainage Ditch Crossing
Date: 05/19/2022

Background

In the late evening of May 17, and early morning of May 18, 2021, the City of Aurora experienced a significant rain event as a storm passed over the City of Aurora. In reviewing the data from the National Oceanic and Atmospheric Administration, our engineers estimated that the storm that passed over Aurora was "200 Year Rain Event" dropping over 7 inches in a matter of hours.

One of the issues that created a substantial problem was that of a stormwater ditch that is crossed going to the Wastewater Treatment Plant (WWTP). Because of the culverts that are in that location, the volume of water flooded over the road at substantial depth, which resulted in staff being stranded at the Treatment Plant, and some staff not being able to access the WWTP. The water did not recede for a number of hours and the Wastewater Staff were able to access the plant at that time.

In response, the City Council directed the City manager to engage our engineers to develop plans to correct this issue and it was determined that the bridge crossing would need to be replaced with larger infrastructure. The engineers have provided two options for the Council to Consider.

Discussion

Currently the stormwater enters the WWTP property from the South and passes under the Burlington Northern Railroad line that runs East and West. This passage under the railroad line is a box culvert that is likely too small for the volume of water that flows through it. Because of its smaller size, it limits the volume of water that can pass through it, thereby creating storage on the South side of the RR tracks. Storage, meaning that stormwater accumulates there until it can flow through the box culvert under the RR line.

Based on this situation, the engineers have provided two options for the Council to consider.

Option 1

100-year (w/ RR storage) and/or 10-year (no RR storage) 27'x6' opening (Three 9'x6' boxes)

Option 1 passes the 100-year event when considering upstream storage from the railroad and the 10 year without upstream storage. To pass the 100 year this assumes that the railroad will not upsize their culvert in the near future.

Option 1 provides access to the treatment plant during the 100-year event today, but should the railroad ever decide to upsize their culvert in the future, then the capacity of the proposed culvert would be insufficient to convey the increased flow rate. We do not have a crystal ball, but it is suspected that the current railroad culvert will remain for many years to come. If for some reason they upsize in the future. Additional capacity could always be added to the WWTP access road at that time.

Option 1 Engineer Estimate: \$375,000

Option 2

100-year (no RR storage) 63'x6' opening (Bridge)

Option 2 would pass the 100 year if the railroad upsized their culvert in the future and released the storage that is provided by the existing culvert. This would require the installation of a large bridge with an approximate span of 70'.

This will be quite the undertaking if a bridge is to be installed and will require some geotechnical investigation and additional structural engineering to design the bridge. In addition, the roadway transitions and channel transitions will be quite long.

Option 2 Engineer Estimate: \$782,000

Conclusion

We are ready to move forward with the advertising of this project and opening it up to receive bids. Council direction on which option that they would like staff to proceed with is requested.

Thank You.

Jon Holmes, City Manager
City of Aurora
2 W. Pleasant
Aurora, MO 65605
Email: jholmes@auroramogov
Phone: 417-678-5121