4-14-2023 Linwood Flap Gate Evaluation & RFQ Update

Flap Gate Evaluation:

A team of our City Stormwater engineers and two of our engineering consultants discussed adding flap gates in the Linwood/Templeton area considering the case study information provided by Dane Wicks on March 2nd to understand if flap gates could be implemented in the Linwood/Templeton area to reduce flood risk created by surcharging during a rain event. The team recommended NOT adding flap gates to the system and concluded they would not have perceptible benefits to reducing flooding and would have a strong probability of increasing flood risks to residents upstream and downstream of the area. See a summary of our flap gate findings below and also an update on our request for qualifications effort.

The following flap gate case studies and spec sheets that were provided were looked at.

- CS-29 Black Bayou Culverts, Calcasieu Parish, Louisiana 1:4 Scale Model Study of Culvert Flap Gate
- Experimental study and flow analysis on a new design of water-retaining sluice gate
- F-10 CAST IRON DRAINAGE GATE
- Hydro Gate® flap gates

Based on our review and understanding, please find below our conclusions on using the flap gates in the existing storm drain system for the specific situation for Templeton flood reduction-

- Flap gates would have no significant impact on flood reduction for Templeton due to the capacity of the existing system and the amount of runoff/overland flow draining into the Templeton area from upstream, which are both creating more flooding than the surcharging
- The drainage pipes in the Linwood area are interconnected and at different times during an rain event, stormwater may flow in one direction or the opposite direction in the pipes
- Due to the interconnection, adding flap gates would either
  - *Push surcharging further downstream creating a strong potential for increased flood risk to residents downstream (which also already have flood risk due to the size of the system)*
  - *Block flow in the system and prevent water upstream of the Templeton area from entering the storm drain system creating the strong potential for increased flood risk to residents upstream (which also already have flood risk due to the size of the system)*
- While we could perform detailed engineering modeling to understand the benefits and impacts of the flap gates with a higher degree of certainty, the our overall engineering team was all very confident of the above conclusions and felt that doing the modeling analysis would not be a prudent use of staff, time, and financial resources.

Request for Qualifications Update:

As an update to our Request for Qualifications (RFQ) for engineering evaluation, project development, and design of flood mitigation improvements, our team finished evaluation of the six submittals received and identified Halff & Associates as the most qualified consultant to perform this engineering effort. We have started to negotiate the scope of work, schedule and fee and are still planning to go to City Council to request approval to award the engineering contract in May. This will help us kick off work quickly in late June when bond funding for the work becomes available.

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