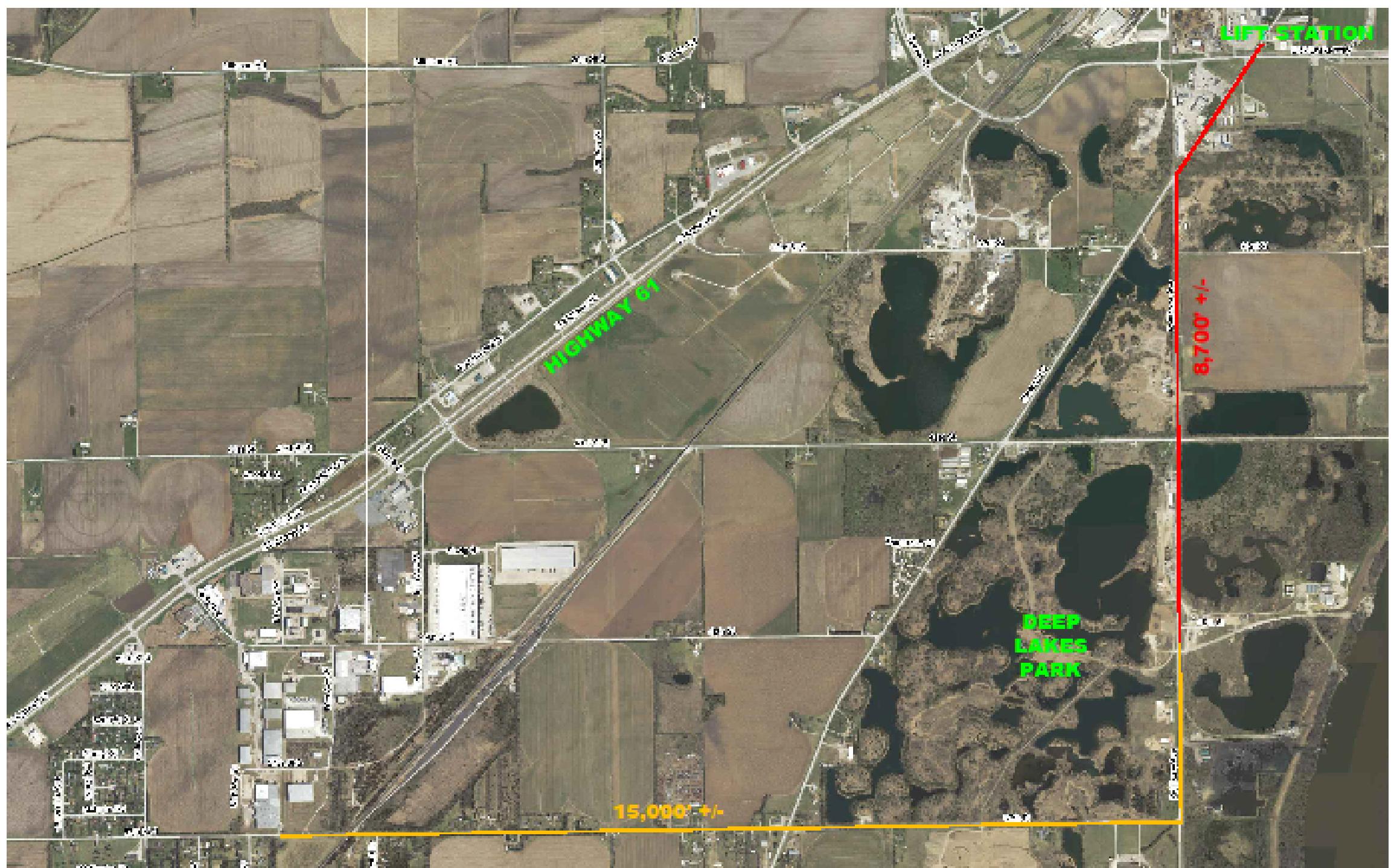


Deep Lake Sewer Discussion



City of Muscatine
March 30, 2021







Septic, Sewer and Lift Station Options

- ▶ #1 Septic Systems
- ▶ #2 Private installation and connection
- ▶ #3 City installs and maintains



#1 Septic Systems

- ▶ Current system on cabins using Waterloo Biofilter System
- ▶ How is it working? Can you sample it for nitrates, fecals, etc.?
- ▶ Restricts development if there are more users added?
- ▶ 75 camp sites may be too large for Waterloo System, unknown
- ▶ How do they work during off season and spring start-up?
- ▶ Will DNR allow 75 campsites to run on Waterloo System?
- ▶ DNR requirements for water more significant going over 25 users
- ▶ Environmental concerns, leaching into drinking water and lakes potential



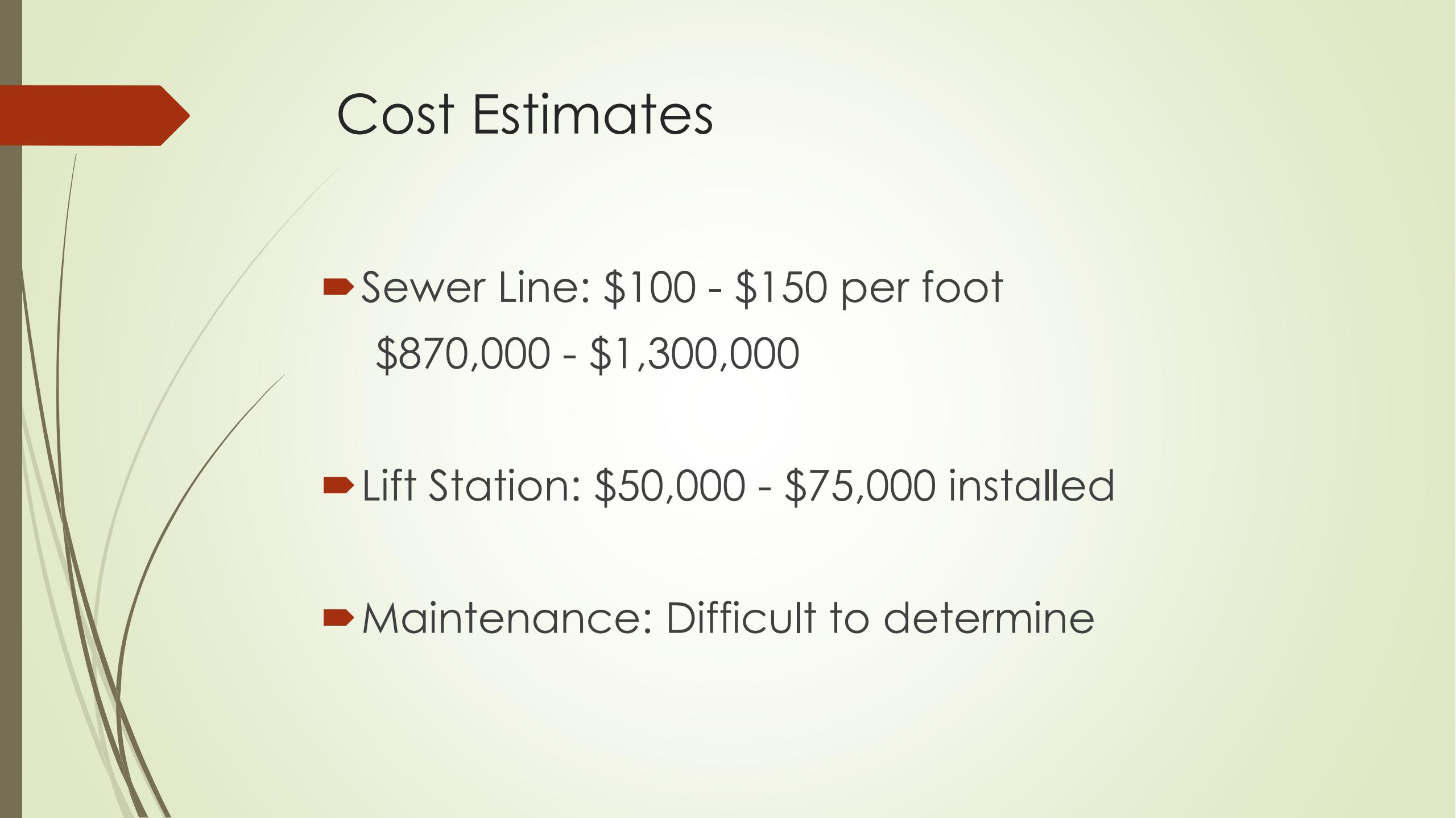
#2 Private Installation

- ▶ Allows for expanded park development
- ▶ Only two current systems outside City limits connected: Hon Geneva and Lutheran Homes.
- ▶ In general, the City does not extend City services outside City limits.
- ▶ \$1.0 to \$1.5 million cost by our rough estimation
- ▶ Numerous entities in the area desire connection without being in the City
- ▶ Private line agreements could be tricky for billing, stacking and pretreatment requirements for additional users
- ▶ City oversight for additional connections would be required
- ▶ Multiple ownership and liability challenges to consider
- ▶ There are private companies that can maintain sewer lines, lift stations and water systems
- ▶ Interest from surrounding users? Monsanto/Bayer, Kammerer Park?



#3 City Installed and Maintained

- ▶ Allows for expanded park development
- ▶ Out of alignment with past practices and policy. In general, the City does not extend services outside City limits
- ▶ Multiple entities have asked and have been denied services outside City
- ▶ \$1.0-1.5 Million installation
- ▶ Not enough of a return on investment due to low flows and limited development potential
- ▶ Maintenance challenges due to low flows: large water flushing program needed to move material long distances
- ▶ Installation and maintenance costs pushed to City rate payers
- ▶ Future costs for maintenance are difficult to determine



Cost Estimates

- ▶ Sewer Line: \$100 - \$150 per foot
\$870,000 - \$1,300,000
- ▶ Lift Station: \$50,000 - \$75,000 installed
- ▶ Maintenance: Difficult to determine