McMAHON
ENGINEERS ARCHITECTS

To: **The Village President and Board of Trustees**

From: **Chris Dopkins, P.E., Village Engineer**

Re: **Geographical Information System (GIS) Mapping & Data Cataloging**

Date: **December 10, 2025**

As you are aware, the Village lacks comprehensive mapping of its water, sanitary and storm sewer systems. When the need arises to locate/manage infrastructure, staff generally utilizes old improvement plans many of which are either "preliminary" or "design" drawings, as the Village has very few reliable "record" drawings. There have been a few efforts over the years to develop reliable mapping, the last I recall was in 2013 +/- when the Village hired an intern who took a GPS locator into the field and located as many hydrants/valves/manholes/etc. as they could.   Those work points were then inserted into a map by Village Staff, water mains were drawn between valve locations, but no other information was catalogued. Staff have found that the maps are unreliable/incomplete, and since the GPS locator had limited accuracy, the maps do not accurately represent the location of assets in the field.

GIS technology has and continues to rapidly develop, and many municipalities are only scratching the surface of the capabilities of GIS especially in the Northern Illinois region. GIS can be a very powerful tool for tracking and managing the Village's assets (assets generally are public infrastructure). Not only can assets be tracked in GIS, but things like snow plowing, zoning, annexation and development agreements, building permits, etc. can be managed in GIS. And, the cost to manage the data within GIS is extremely reasonable as pretty much all of the data is cataloged and managed by Village Staff (not an outside consultant/vendor), and much of the data entry is through smart phones and/or tablets. Additionally, there are low-cost subscription services for the "base map" information that is needed to get a GIS system up and running.

McMahon's role in assisting the Village is to demonstrate what's possible, and then build an Organizational ArcGIS On-Line Account (AGOL). Within the Village's AGOL several GIS applications can be built. Think of an application as a software program for the assets that the Village desires to manage. Each application functions within GIS and consists of several data layers. For example, if the Village wanted to manage fire hydrants as part of its water system, there would be a layer that is devoted specifically to fire hydrants. Each application functions on its own but is part of the overall GIS organization.   The cost for McMahon to build the organization is dependent upon the number of applications and layers that are cataloged/tracked within the organization, but a typical range is between $4,500 and $6,500 per application.

Sam Pociask manages McMahon's GIS Department, and Sam and myself met w/ Staff a few weeks ago to demonstrate the capabilities of GIS, and to show how many of our municipal clients have implemented GIS to manage their assets. Sam is going to attend the Board Meeting (remotely) and will provide a 10-15 minute presentation to demonstrate some of ways that GIS is being utilized by our municipal clients.

We very much look forward to the opportunity to present the technology to the Board. As always, please do not hesitate to contact me at (815) 636-9590 with any questions in the meantime.

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