



April 13, 2021

Mr. Ken Dado
Utility Operations Manager
Village of Orland Park
15655 S. Ravinia Avenue
Orland Park, Illinois 60462

Subject: PROPOSAL FOR VILLAGE OF ORLAND PARK – 2021 STRATEGIC FLOW MONITORING

Dear Mr. Dado:

RJN Group, Inc. (RJN) is pleased to submit this proposal to the Village of Orland Park (Village) for a strategic sanitary sewer flow monitoring project.

PROJECT UNDERSTANDING AND APPROACH

Installation and Calibration

RJN field technicians will make an initial site evaluation visit to the targeted 8 meter locations. Meter site investigations are necessary to evaluate hydraulic flow characteristics and sensor application to ensure that conditions are suitable for measuring flow rates accurately. The field crew will also review each site for access, traffic control, and overall site safety considerations. Site investigation results can then be used to determine the optimal location and appropriate flow metering technology for each meter site.

Site investigation reports containing the site information and digital photographs will be prepared for Village's approval prior to the installation of the metering equipment.

RJN's field crews are certified in confined space entry procedures and will complete confined space entry reports before each site visit through the duration of the project.

At the time of installation, manual depth and velocity readings are taken by the field technicians to confirm that the meter is reading accurately and to the manufacturer's operating standards. In addition to the initial calibration, RJN will return within once more during the flow-monitoring period to obtain manual level and velocity readings for calibration and for comparison to the meter collected data. A final set of measurements for calibration will be taken prior to meter removal.

Data Maintenance & Handling

RJN will maintain the data link required for remotely uploading the data from the installed meters. Experienced data analysts will collect, consolidate, process, and perform a cursory review for data continuity and quality throughout the project. Data will be corrected and adjusted according to

calibrations and flow balances among connecting sites. The data will be made available on Clarity by RJN to the Village for viewing.

RJN will utilize a host software support application program for remote wireless flow meter data collection. On a bi-weekly basis, all data recorded and stored in the meter will be collected by the host system. RJN will install, operate, and maintain the telemetry for this system. On a bi-weekly basis, flow meter measurements, battery voltages, and other data entities will be forwarded to the server and immediately posted to the website for viewing by the Village.

The web module software will allow any networked computer (with appropriate authentication) access to the data stored using a common web browser (i.e. Firefox, Google Chrome, etc.). The web module will enable the user to view the data and download the data in Microsoft Excel format. Web module users will not have access to modify the database or any operational setpoints.

Data Analysis

RJN will review the flow monitoring data at least twice a week during the “settling in” period and then once per week thereafter, and rainfall data after receipt. If necessary, during the “settling in” period, crews will obtain necessary calibrations and make efforts to prevent sensor failure, minimize equipment maintenance issues, avoid excessive siltation, and configure the monitoring equipment to capture hydraulic variations or anomalies. The analysis of the data includes the identification of data gaps, hydraulic anomalies, and overall meter performance.

Any equipment service needs will be conveyed to RJN field service crews from our data analysis team. The data will be processed and edited in accordance with field confirmations to produce final data sets for each site. The final data will be posted when completed.

After the flow-monitoring period is complete, the data will be evaluated and used in developing an I/I analysis for the Village. In addition to addressing the results of the flow monitoring, the report will also include recommendations for reducing excess flows. The recommended study plan will help to identify areas of high I/I and provide guidance on determining future long term planning O&M programs for the MWRD IICP.

Recommendations on scheduling and budgeting further studies, including smoke testing, manhole inspections, dyed water flooding, and televising inspection will be included.

Assuring Quality and Safety

RJN is committed to providing **quality** deliverables. RJN’s internal quality control (QC) tools within our in-house data management software, as well as our corporate training and QC processes will ensure this project provides value for the Village.

As an employee-owned firm, RJN’s commitment to the **safety** of our employees and of Orland Park employees and customers is paramount. That commitment to safety is demonstrated in our internally developed and audited safety program where our goal is to have all field staff, engineers, and project managers “RJN Safety Certified.” Included in the certification is confined-space entry training,

temporary traffic control, OSHA 10-hour, fall protection, and many more. Every project follows an RJN Health and Safety Plan (HASP) when completing any field work.

Price and Schedule Summary

This project will be invoiced on a Unit Price and Lump Sum for a total not-to-exceed fee of \$48,420. The project is expected to be completed by December 31, 2021. Complete Scope of Services, Pricing, Schedules, and Maps are provided in the following exhibits:

- Exhibit A – Scope of Services
- Exhibit B – Pricing
- Exhibit C – Schedule
- Exhibit D – Project Map

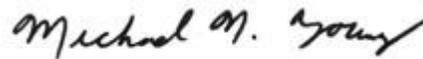
We are looking forward to the opportunity to work with Village of Orland Park on this important project. It is our pleasure to submit this proposal to you. Please feel free to contact either of us at (630) 682-4700 if you would like to discuss this proposal or have any questions.

Sincerely,

RJN Group, Inc.



Marissa Villafuerte, P.E.
Lead Project Engineer



Michael N. Young, P.E.
Principal



EXHIBIT A

SCOPE OF SERVICES

RJN is proposing the following scope of services to conduct the 2021 Strategic Flow Monitoring for the Village of Orland Park.

1. Flow Monitoring

- a. Obtain data from Village-owned and operated rain gauges as available. Provide the rental of two (2) rain gauges to supplement rainfall data for the duration of the project.
- b. Investigate targeted sites for flow meter installation. Determine the meter sites that are hydraulically suitable for flow monitoring. Prepare Site Investigation Reports for approval by Village.
- c. Prepare flow meters and rain gauges for installation. Install 8 Village-owned flow meters at approved locations. Install 2 rain gauges at approved locations.
- d. There will be no spare Village equipment throughout the duration of the project, and this proposal does not include costs for buying and replacing equipment. The Village will cover any cost for repairs of Village-owned metering equipment, meters, sensors, etc.
- e. There are no cellular services for the meters included in this proposal. The Village will activate the two remaining meters that need cell service activation as well as cover all costs for continuation of cellular service for all 8 meters in the fleet.
- f. During installation, calibrate each flow meter by taking manual depth and velocity measurements and comparing with meter readings.
- g. Provide standard traffic control measures (portable signs and cones) at each site in or near a roadway. If a higher level of traffic control is required, RJN crews will contact Village staff and request traffic control assistance.
- h. Prepare the host system for handling the flow data and posting the data for viewing and access by Village staff. Review the data at least twice per week during the "settling in" period, once per week thereafter, and report any equipment service needs to the field crews.
- i. Provide flow meter and rain gauge maintenance as necessary to keep equipment in proper operation for the duration of the monitoring period. Calibrate each meter once within the flow monitoring period. Utilize the calibrations to adjust the data and prepare final data sets.
- j. Procure spare parts, such as batteries, antennas, and bands, as needed to keep flow meters and rain gauges working and within operating standards.
- k. Perform final calibration measurements at each site and remove the flow meters and rain gauges. Uninstall, sanitize & pack-up the flow meters for storage until next usage.
- l. Process the collected raw data. Analyze the processed data for wet- and dry-weather flow patterns. Create hydrographs for each meter and determine wet-weather peaking factors at standard storm recurrence and durations for each basin.
- m. Perform an inflow and infiltration analysis, including:
 - i. Inflow peaking factors;

- ii. Regression analysis for peaking factor prediction;
 - iii. Scatter graphs and hydrographs; and
 - iv. Capacity analysis including downstream control and surcharging assessment.
- n. Provide the following information for the summary report:
- i. Details on each flow meter and rain gauge location;
 - ii. Summary of the flow and rainfall data collected;
 - iii. Conclusions from the flow metering, including evidence of downstream control, hydraulic bottlenecks, and levels of infiltration and inflow (I/I);
 - iv. Adequacy of the existing system to handle existing flows; and
 - v. Recommendations for the MWRD IICP as part of long-term O&M program.
- o. Consolidate information and prepare a summary report to Village outlining results and recommendations. Provide a pdf of the summary report and an electronic deliverable containing all digital documents and processed flow-monitoring data.
- p. Provide project management services for the duration of the project. Attend one meeting with Village staff.

Items Requested from the Village

1. Access to the Village's sanitary sewer system and flow monitoring equipment for installation and maintenance of the five flow meters throughout the duration of the project.
2. Access for locations to install two (2) temporary rain gauges for the duration of the monitoring period.
3. Access to the Village's five rain gauges for periodic data deliveries from Village for each rain gauge, at 5-minute interval data, at a minimum.
4. Assistance with traffic control where needed in high traffic locations.
5. If needed, the cost of repairs to equipment
6. The activation of cellular service for the meters



EXHIBIT B PRICING

Pricing Terms for Invoicing: Lump Sum and Unit Rate

Not-To-Exceed Total Cost: \$48,420

Task #	Task	Quantity	Unit	\$/Unit	Total
1001	Site Investigation	8	Each	\$ 600	\$ 4,800
1002	Meter Preparation and Installation	8	Each	\$ 950	\$ 7,600
1003	Meter Maint, Cal, and DA	24	Meter*Month	\$ 680	\$ 16,320
1004	Meter Removal, Cleaning, Packaging	8	Each	\$ 450	\$ 3,600
1005	Rain Gauge Preparation and Installation	2	Each	\$ 500	\$ 1,000
1006	Rain Gauge Maintenance	6	Gauge*Month	\$ 250	\$ 1,500
1007	I/I Analysis, Recommendatinos, Summary Report	1	Lump Sum	\$ 10,000	\$ 10,000
1008	Project Management and Meetings	1	Lump Sum	\$ 3,600	\$ 3,600
				TOTAL :	\$ 48,420



EXHIBIT C PROPOSED SCHEDULE

RJN is prepared to start work immediately upon an Agreement. The key schedule parameters for this project are as follows:

- The site investigations will begin within two weeks of a notice to proceed.
- Flow meters will be installed within two weeks of site investigations.
- The flow monitoring period will begin after the last meter is successfully installed.
- The flow monitoring period is 3 months.
- The summary report will be submitted to Village within three months of the end of the flow-monitoring period.



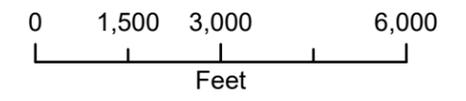
EXHIBIT D

PROJECT MAP

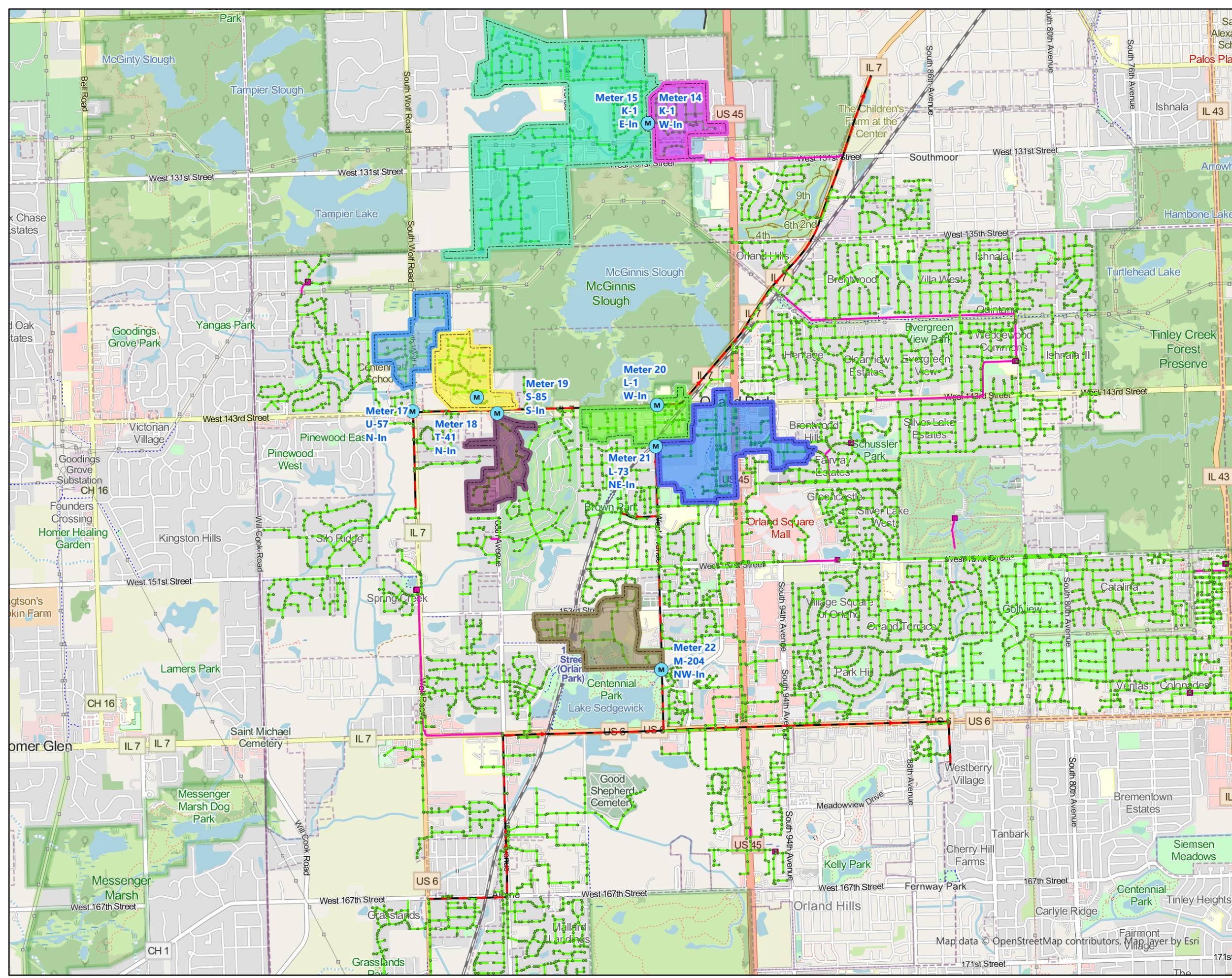
2021 Proposed Flow Meter Basins

-  Basin 14
-  Basin 15
-  Basin 17
-  Basin 18
-  Basin 19
-  Basin 20
-  Basin 21
-  Basin 22

-  2021 Proposed Flow Meter
-  Sanitary Manholes
-  Lift Stations
-  Sanitary Sewer
-  Force Main
-  MWRD Main



Village of Orland Park, IL
 2021 Flow Monitoring
 Proposed Flow Meters and Basins
 April 2021



Map data © OpenStreetMap contributors, Map layer by Esri