



CITY OF NOVI CITY COUNCIL
APRIL 11, 2022

SUBJECT: Consideration of approval to award engineering services to OHM Advisors for the preparation of a Sanitary Sewer Master Plan, in the amount of \$123,800, and amend the budget.

SUBMITTING DEPARTMENT: Department of Public Works, Water and Sewer Division

EXPENDITURE REQUIRED	\$ 123,800.00
AMOUNT BUDGETED	\$ 85,037.00
APPROPRIATION REQUIRED	\$ 38,763.00
LINE ITEM NUMBER	592-592.00-816.058

BACKGROUND INFORMATION:

The City's sanitary sewer master plan, which was last updated in 2014, is intended help create a city-wide plan for future capital and maintenance activities. This master plan update will evaluate the capacity of the system under existing, future and build-out conditions, and will identify improvements to be completed in the future.

The Water Master Plan update was completed in 2021 and the Master Plan for Land Use is currently being updated. Therefore, it makes sense to align the Sanitary Plan on a similar schedule.

The primary tasks involved include the following:

1. Data Review
 - Review past studies, models, and GIS information.
2. Flow Metering and Analysis
 - Review historic data for the seven permanent meters installed with the system.
 - Install up to four additional temporary meters at strategic locations.
 - Analyze flow data collected during wet weather and dry weather events.
3. Future Growth Projections
 - Update projections of future land use development.

4. Design Peak Flow Development
 - Analyze flow results to determine system peak flow parameters.
5. Hydraulic Model Development
 - Update the City's model (EPA SWMM5)
6. Hydraulic Analysis
 - Perform capacity assessments for existing, 20-yr, and build-out scenarios.
7. Condition Assessment
 - Evaluate CIP project completed and identify remaining projects that may now be a higher priority.
8. Capital Improvement Plan
 - Develop a city-wide plan for CIP and maintenance projects.
9. Develop Report
 - Develop report that summarizes work performed, findings, and recommendations.

OHM's proposal is enclosed and includes a detailed description of the tasks involved, as well as the fees and schedule for the work.

RECOMMENDED ACTION: Approval to award engineering services to OHM Advisors for the preparation of a Sanitary Sewer Master Plan, in the amount of \$123,800, and amend the budget.



March 14, 2022

Jeff Herczeg
Director of Public Works
City of Novi
26300 Lee BeGole Drive
Novi, MI 48375

Regarding: **Sanitary Master Plan**
Proposal for Engineering Services

Dear Mr. Herczeg,

OHM Advisors (OHM) is pleased to provide this proposal for professional engineering services for the preparation of a Sanitary Master Plan for the City of Novi (Novi).

PROJECT UNDERSTANDING

The purpose of the Master Plan effort is to develop a City-wide Capital Improvement Plan (CIP) for sewers that includes both capacity improvements and maintenance activities. Flow meter data and growth projections will be incorporated into the system hydraulic model to evaluate the capacity of the system under existing, future, and build-out conditions. Capacity improvements required to serve future growth will be identified as hydraulic CIP projects, and preliminary engineering will be performed to estimate planning-level costs for those projects. The previous asset inventory and condition assessment work completed for the 2018 Sewer and Water (SAW) grant will be used to develop maintenance CIP projects with estimated planning-level costs. The final CIP will combine the recommended projects and prioritize them based on the City's Level of Service criteria. The Master Plan report that will be delivered at the end of the project will summarize the work performed, findings, and CIP recommendations.

SCOPE OF SERVICES

The objective of OHM Advisors proposed scope of services is to prepare a wastewater capacity study and capital improvement plan for the City's wastewater collection system tributary to the Huron Rouge outlet in the southeast area of the City at 8 Mile Road. The following scope of services is proposed for the City's consideration:

Task 1: Project Initiation and Data Review

Under this task, OHM will initiate the project and obtain necessary information to proceed with the analysis. Specific work efforts include:

- ▶ Organize and attend a kick-off meeting with City staff to review project goals, objectives, and project schedule.
- ▶ Collect and review previous studies, modeling reports and asset management plans prepared for the collection system.
- ▶ Obtain necessary updated planning information to perform population projections and water demand calculations.
- ▶ Obtain and review updated sewer collection system Geographic Information System (GIS) information.
- ▶ Review status of the sanitation system data and identify required information to be updated.



Task 2: Flow Metering and Analysis

- ▶ Collect and assemble the long-term data from City's seven (7) permanent meters.
- ▶ Coordinate with the City to deploy additional temporary meters: 2-4 meters (see map). It is assumed that these meters would be installed by April 2022. Collect and assemble data from these meters.
- ▶ Input and process flow meter data in H2Ometrics.
- ▶ Perform I&I analysis.
 - Rainfall analysis
 - Dry weather flow evaluation
 - Wet weather flow evaluation
 - Flow metrics unitization and comparison to standard values

Task 3: REU Analysis and Future Flow Growth Projections

- ▶ Meet with City to update previous Residential Equivalent Units (REU) projections that incorporates significant changes to the land use since the previous projections were made.
- ▶ Update REU projections.
- ▶ Update future flow projections from the REUs.

Task 4: Design Peak Flow Development

- ▶ Update the antecedent moisture models for the outlet at 8 Mile and use this model to scale to the six (6) long term flow meters.
- ▶ Perform frequency analysis to develop design peak flows.

Task 5: Hydraulic Model Development

- ▶ Scale the peak flow projections to sub-districts for hydraulic modeling.
- ▶ Update the hydraulic model using GIS updates and completed projects from the City.
- ▶ Add local pipes to the model in high growth or high flow areas of particular interest to the City.
- ▶ Update base flow allocation based on metering data and GIS areas.
- ▶ Calibrate and validate hydraulic model.

Task 6: Hydraulic Analysis

- ▶ Evaluate system hydraulic performance.
- ▶ Create maps and hydraulic grade line profiles.
- ▶ Perform a capacity assessment.
 - Existing
 - 20-year
 - Build-out
- ▶ Identify hydraulic CIP improvements needed to serve future growth.
 - Preliminary engineering
 - Cost estimates
- ▶ Meet with City to discuss hydraulic CIP recommendations.

Task 7: Use Previous Asset Inventory for Condition Assessment

- ▶ Confirm the extent to which the CIP projects from SAW 2018 report have been completed.
- ▶ Use previous physical inspections to develop maintenance CIP projects. Consider projects that were not previously identified as high priority in the 2018 SAW report.
- ▶ Asset inventory in the 2018 SAW report was completed only for the oldest part of City, located in the southeast region of the City. Assume the newer part of the City that was not included in the 2018 SAW field work to be in better condition than the area that has been physically inspected.
- ▶ Make recommendations for follow-up evaluation of any sub-areas of concern from I&I analysis.
- ▶ Develop cost estimates for new items.



- ▶ Meet with City to confirm Business Risk Evaluation (BRE) criteria.
- ▶ Develop BRE score of new CIP projects.

Task 8: Capital Improvement Plan

- ▶ Develop a City-wide CIP for sewers that includes both hydraulic CIP projects and maintenance CIP projects.
- ▶ Meet with City to confirm Level of Service requirements.
- ▶ Use BRE scores and City input to prioritize CIP projects.
- ▶ Assign years for completing CIP projects.
- ▶ Include O&M recommendations for preventative maintenance.
- ▶ Assume City will do rate analysis and fund balance assessment.

Task 9: Development of Sanitary Master Plan Report

- ▶ Develop a draft report that summarizes the work performed, findings and recommendations.
- ▶ Submit draft to the City for review and comment.
- ▶ Meet with City to discuss comments.
- ▶ Incorporate to the City and deliver up to ten (10) copies and PDF of the final report.

ASSUMPTIONS AND CLARIFICATIONS

The above-listed scope of services was prepared with the following assumptions:

- ▶ City provides GIS for land use.
- ▶ City provides GIS updates for hydraulic model.
- ▶ City provides completed projects for updating hydraulic model.
- ▶ City will do rate analysis and fund balance assessment.
- ▶ Cost estimates will be based on high-level cost curves. Detailed design engineering will not be performed.
- ▶ Half of meetings will be in person and half will be virtual.

SCHEDULE

Assuming authorization by March 28, 2022, OHM proposes to submit the final Sanitary Master Plan report deliverable to the City by no later than December 31, 2022. This duration is based on timely responses from the City when information requests are verbally or formally submitted. As outlined in the Scope of Services, on-going involvement is needed from the City to maintain task progress and schedule.

FEE

OHM Advisors proposed to provide the above-outlined professional engineering services for a total lump sum fee of one hundred twenty-three thousand eight hundred dollars (\$123,800), based on the task breakdown shown below:

Task 1 – Project Initiation and Data Review	\$ 9,300
Task 2 – Flow Metering and Analysis	\$ 9,700
Task 3 – REU Analysis and Future Flow Growth Projections	\$ 14,900
Task 4 – Design Peak Flow Development	\$ 30,500
Task 5 – Hydraulic Model Development	\$ 11,700
Task 6 – Hydraulic Analysis	\$ 10,500
Task 7 – Asset Inventory and Condition Assessment	\$ 14,800
Task 8 – Capital Improvement Plan	\$ 9,400
Task 9 – Development of Sanitary Master Plan Report	\$ 13,200
Total	\$ 123,800



SERVICES NOT INCLUDED

The following tasks are not included in this proposal but can be provided on a time-and-materials basis upon the request of the City.

- ▶ Additional field verification or assistance.
- ▶ Additional field data collection.
- ▶ Model trouble shooting due to data availability and/or connectivity issues.
- ▶ Additional GIS development or assistance.
- ▶ Rate analysis and fund balance assessment.
- ▶ Other requested tasks, meetings, or efforts not outlined in the above scope of services.

OHM Advisors thanks you for the opportunity to provide professional engineering services to the City. If there are any questions, please contact us directly. Should you find our proposal acceptable, please sign the authorization page below and return a copy of this signed proposal to us for our file.

Sincerely,

OHM Advisors

Authorization to Proceed

ROBERT CZACHORSKI, P.E.
Project Manager

Signature

Date

Timothy J. Juidici, P.E.
Principal-in-Charge

Printed Name

Title

cc: Ben Croy, City Engineer
File

RESOLUTION

NOW, THEREFORE BE IT RESOLVED
that the following Budget Amendment
for the engineering services award
to OHM Advisors for the preparation of
the Sanitary Sewer Master Plan is authorized:

	INCREASE (DECREASE)
WATER & SEWER FUND	
APPROPRIATIONS	
Other Services & Charges	\$ 38,763
TOTAL APPROPRIATIONS	<u>\$ 38,763</u>
Net Increase (Decrease) to Fund Balance	<u>\$ (38,763)</u>

I hereby certify that the foregoing is a true and complete copy of a
resolution adopted by the City Council of the City of Novi at a regular
meeting held on April 11, 2022.

Cortney Hanson
City Clerk