



## CITY OF WASHINGTON, ILLINOIS

### City Council Agenda Communication

**Meeting Date:** March 21, 2022

**Prepared By:** Dennis Carr – City Engineer

**Agenda Item:** Robinson Engineering Proposal

**Background:** During the draft report presentation from Hamilton Consulting Engineers, two alternatives in particular were discussed amongst council as potential solutions for the Trunkline Project. For the alternative involving the reduction in I/I, smoke testing would need to be performed, as part of a Sanitary Sewer Evaluation Study (SSES), to identify illegal connections among other things. There were some differences in opinions at the council level, however, staff reached out to Robinson Engineering to acquire estimates and proposals to perform the smoke testing in Sanitary Basins 7&9 as well as with everything east of Wilmor..

**Further Review:** During review of Strand's flow metering, Hamilton's Draft Report, and Strands 2017 presentation to council regarding Sanitary Sewer Maintenance and Rehab, it was found that removal of I/I from basins 7&9 would not amount to enough flow removal and a price was also requested to smoke test everything East of Wilmor.

The flows discussed in Strand's Report on August 30<sup>th</sup> were from a 2.6-year storm intensity. Meter 6 measured the volume coming into STP1 at 11,671 gpm. This flow is a smaller flow than the combination of 7,8, and 9. Flow meter 7,8, and 9 combined for 16,117 gpm. The Strand report indicated that the difference in the flows between meter 6 and the combination of 7,8, and 9 could have been influenced by Control Chamber 1. This would likely mean that the Control Chamber is backing sewer up that exceeds 11,671 gpm, which would need to be removed as well. Hamilton's Relief Sewer alternative would bypass Control Chamber 1.

In looking at the combination of 7,8, and 9 (16,117 gpm) as the worst case, **We would need to reduce the peak flows by 8,291 gpm to get to the 7,826 gpm that the relief sewers could handle.** This would not include any additional I/I from basin 6, but considering the age of homes there, this will likely be another area to target in future.

Basin	Average Flow (gpm)	Aug 30 Flow (2.6 Year Storm) (gpm)	Peaking Factor	With 40% reduction in I/I (Per Strands 2017 Presentation) (gpm)
7	56	3142	56.1	1885.2
8	636	9584	15.1	5750.4
9	78	3391	43.5	2034.6
7+8+9	770	16117		9670.2

In Strand's 2017 presentation to council regarding the flow metering and I/I issues around the City, they noted on slide 33, that the reduction in I/I from the private side can reduce flows by 40%. A 40% reduction in I/I in basins 7,8, and 9 would only decrease flows to 9,670 gpm which exceeds the volume of the relief sewers included in Alternative E. This does not include the sewers in Basin 6 which would also add to the Trunkline flows.

Staff has been televising and lining sanitary sewers to address I/I on the public side for several years, but smoke testing could also potentially identify areas that we could address along our sanitary sewer or manhole structures.

### **Smoke Testing**

A request was made to Robinson Engineering to provide the City with proposals for the smoke testing of basins 7 and 9 as well as everything East of Wilmor. Their smoke testing also includes additional analysis on the total amount of flow entering at each issue. Robinson provided staff a conservative estimate (formal proposal to follow) for these two options based on our GIS information as follows:

The smoke testing itself is not a huge issue for residents to accommodate. Smoke testing is done in communities across the nation. Disconnection of down spouts and sump pumps are easy fixes that would absolutely reduce our I/I issues and should be fixed. Whether or not these fixes alone will solve the I/I issues is only speculative, but to remove more I/I (footing tile and floor drain connection) would consider more intrusive and expensive solutions inside the private homes of residents. Our ordinance was amended in 2021 to take a softer approach with these connections, but unless adjusted, our ordinance would require the disconnection of footing tiles and floor drains with 6 months of a connection being identified. Disconnection of footing tiles and floor drains will require the installation of a sump pump and likely the reconstruction of sections of basement floors.

**Staff Recommendation:** Staff recommends approval of the Engineering Services Agreement with Robinson Engineering to perform smoke testing east of Wilmore Road.

**Action Requested:** Approval of the Robinson Engineering proposal for testing everything east of Wilmor for an estimated cost of \$134,034.



Joseph Sullivan  
Direct Line: (630) 346-2877  
Email: [joe.sullivan@reltd.com](mailto:joe.sullivan@reltd.com)

March 7, 2022

City of Washington  
301 Walnut St.  
Washington, IL 61571

Attn: Dennis Carr, P.E.  
City Engineer

RE: Proposal for Professional Engineering Services for  
City of Washington – Proposed Smoke Testing (Area 2)

Dear Mr. Carr:

Robinson Engineering, Ltd. (REL) is pleased to provide this proposal for the above referenced project to study the City of Washington's (City) wastewater collection system. We take great pride in partnering with our clients to achieve their goals, and appreciate the opportunity to offer our expertise, hard work and dedication on this project.

Included in this proposal are the following elements: *1. Project Overview, 2. Project Approach, 3. Scope of Services, 4. Items Requested from the City, 5. Proposed Project Schedule, 6. Payment Terms, 7. Standard Terms and Conditions and 8. Map Exhibit.*

## **1. PROJECT OVERVIEW**

The City is interested in identifying locations of Infiltration and inflow (I/I) of storm water into their sanitary sewer collection system and recognizes the potential for savings associated with I/I reduction and lower wastewater treatment costs. The City has requested a proposal for smoke testing areas of its collection system as shown in the attached map.

The overall goal of this project is to use smoke testing to investigate and identify the deficiencies in the City's collection system, and to determine the most cost-effective repairs, prepare cost estimates and prioritize the repairs needed.

This work is typically best performed during the summer months when low groundwater table conditions allow the best opportunity for smoke to be visibly seen from defective sewers and manholes.

## **2. PROJECT APPROACH**

One of the cornerstones of our overall project approach is effective communication throughout the entire project, starting immediately at the initial project kick-off meeting. As the project unfolds, we recognize the importance to properly notify the City, property owners, as well as local fire and police departments,

of this work well in advance. We will ensure that notification and communication are our priority so that the project is a success. The following items are some of the key components to our project approach.

**Project Start Up:** REL will schedule a kick-off meeting with the City to review available sewer system data, establish lines of communication, and to set the project schedule. Throughout the project, REL will communicate to the City daily during smoke testing operations and weekly through project status updates.

**Field Investigation Procedure:** Experienced in-house crews from Robinson Engineering will conduct smoke testing using a 3 to 4-person smoke crew along with dual “Hurco Ripcord” smoke blowers for each setup. These blowers output nearly 4,000 cubic feet per minute of airflow each, allowing for maximum identification of sewer deficiencies. Only “Hurco” non-toxic liquid smoke will be used for testing and the placement of blowers will be at the optimal distance of approximately 300 feet to 500 feet apart for each setup. Where needed, REL crews will sandbag incoming lines to restrict airflow/smoke to the segment being tested.

**Data Collection and Real-Time Viewing:** Digital data will be collected on mobile devices through ESRI’s proprietary “Collector” application and results will be displayed in real-time through their ArcGIS Online (AGO) platform. Additionally, the AGO website will provide a dashboard of gauges to show progress of sewers tested, number of defects found and other useful project information. Usernames and passwords for the website will be provided so that City staff can see daily progress as it unfolds, viewing photos and location details as the defect data is being collected. For each defect, a digital photograph and GPS locate will be provided.

**Project Team:** The project manager for this project will be Joseph Sullivan. Mr. Sullivan has personally conducted nearly 2-million linear feet of sewer smoke testing in his 32 years of sewer collection system experience. This experience combined with his onsite presence, and role as the project manager, will ensure the City receives a top-notch smoke testing program that exceeds expectations. Our field crews typically work from 7:00 AM until 3:30 PM and are equipped with cell phones, work vests and ID badges. As needed, our personnel will communicate with City staff and residents, and will make themselves available to discuss any project details along the way as the work unfolds.

**Recommended Rehabilitation Plan:** Employees working on this job are well-versed in the latest in trenchless technology construction methods, manhole rehabilitation techniques, and those rehabilitation methods which provide superior infiltration resistance and longevity. Our considerable experience in these areas allows us to prepare accurate repair cost estimates and schedules to ensure that the City’s budgetary and timetable goals are achieved when developing a repair action list.

### 3. SCOPE OF SERVICES

Our proposed detailed scope of services is as follows:

- A. Conduct a project kick-off meeting with City staff to review expectations and goals for the project
- B. Provide personnel & equipment for smoke testing of approximately 152,312 LF of sewer
- C. Provide a draft notification letter to residents for the City to send out
- D. Provide & distribute smoke testing door notices to all affected residents 24 – 48 hours in advance of smoke testing
- E. Notify emergency services and City staff of smoke testing operations daily via email and phone calls
- F. Display smoke testing signs at key locations in the study area during testing
- G. Provide progress check-ins to the City daily and/or weekly as requested
- H. Online hosting of smoke testing data through AGO for the duration of the project
- I. Provide smoke testing deliverables including the following:
  - o Smoke testing summary report
  - o List of defects per address
  - o Digital photos of each defect
  - o GPS locations of each defect
  - o Cost estimates for repair of the defects
  - o Estimated I/I removal for each defect
  - o Defect summary - \$/ estimated GPM of I/I removed
  - o GIS digital deliverables of defect data in shapefile or geo-database format
- J. Provide project management for the duration of the project including project kick-off and a follow up meeting, project status phone calls & email correspondence throughout the project

### 4. ITEMS REQUESTED FROM THE CITY

- A. Assistance with Traffic Control on busy roads (if needed)
- B. GIS data files for sanitary sewers and manholes
- C. Access to sewer system manholes for testing
- D. The City to mail out initial smoke test letter to residents (drafted by REL)
- E. (If possible) provide a Washington fire department staff member to shadow the REL crews allowing for added communication with emergency services and City residents.

### 5. PROPOSED PROJECT SCHEDULE

Our proposed project schedule will be to conduct all field work between June and September 2022 and to provide analysis and reporting by the end of November 2022.

<u>Task</u>	<u>Start Date</u>	<u>Completion Date</u>
Smoke Testing Field Work	June - September 2022*	September 30, 2022
Report and Recommendations		November 30, 2022

*\*Smoke testing field work is weather dependent and best conducted in the summer months when conditions are dry.*

## 6. PAYMENT TERMS

The overall estimated cost for the project is \$134,034. The project will be billed as a unit price / linear foot prices according to the breakdown below as follows:

### Unit Price Smoke Testing for:

<u>Client Name</u>	<u>Sewer Length (feet)</u>	<u>Cost</u>
City of Washington	152,312' approximately	\$0.88/foot

## 7. STANDARD TERMS AND CONDITIONS

The Standard Terms and Conditions for this proposal are attached hereto and incorporated herein.

## 8. BASIN EXHIBIT

The Map Exhibit provided for this proposal is attached hereto and incorporated herein.

Again, we thank you for the opportunity to submit this proposal for your consideration. Please feel free to call me at (630) 346-2877 or email me at [joe.sullivan@reltd.com](mailto:joe.sullivan@reltd.com) if you have any questions regarding this proposal, or if any additional information is needed.

Very Truly Yours,

**ROBINSON ENGINEERING, LTD.**



Joseph Sullivan  
I&I Department Manager

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City of Washington  
Proposal for Professional Engineering Services for  
City of Washington – Proposed Smoke Testing (Area 2)  
March 7, 2022

Accepted this \_\_\_\_\_ day of \_\_\_\_\_, 2022.

By: \_\_\_\_\_

Signature

\_\_\_\_\_

Printed Name, Title



# ROBINSON ENGINEERING, LTD ("REL")

## STANDARD TERMS AND CONDITIONS

**CONTRACT** – These Standard Terms and Conditions may be amended, added to, superseded, or waived only if both REL and Client specifically agree in writing to any amendment of **these Terms and Conditions ("Agreement")**.

**STANDARD OF CARE** - The standard of care for all professional engineering, survey or related professional services performed or furnished by REL under this Agreement will be the care and skill ordinarily used by members of the same profession practicing under similar circumstances at the same time and in the same locality. REL makes no warranties, express or implied, under this Agreement or **otherwise, in connection with REL's services** on this Project.

**RELIANCE** – REL may, without liability, rely on the accuracy and completeness of **information provided by Client, Client's consultants** and any contractors, including, but not limited to, specialty contractors, manufacturers, suppliers, and the publishers of technical standards without the need for verification.

**CHANGES IN SCOPE** – **The proposed fees constitute REL's estimate to perform the services required to complete the Project.** However, all required services are not always definable in the initial planning. Accordingly, circumstances may dictate a change in the scope of services to be performed. Where this occurs, changes in the Agreement shall be negotiated, **an equitable adjustment shall be made to REL's compensation and agreed to in writing by REL and Client.**

**DELAYS** – REL shall complete its obligations within a reasonable time. If, through no fault of REL, such periods of time or dates are changed, or the orderly and **continuous progress of REL's services is impaired, or REL's services are delayed or suspended, then the time for completion of REL's services, and the rates and amounts of REL's compensation, shall be adjusted equitably.**

**SUSPENSION & TERMINATION** – Client may suspend the Project upon seven (7) **days written notice to REL. If REL's services are substantially delayed through no fault of REL, REL may suspend services after giving seven (7) days written notice to Client.** Either party may terminate this agreement upon thirty (30) days written notice to the other party in the event of substantial failure by the other party to perform in accordance with the terms hereof through no fault of the terminating party.

Client shall remain liable for, and shall promptly pay REL for all services rendered to the date of such suspension/termination of services plus suspension/termination charges incurred by REL. Suspension/termination charges include the cost of assembling documents, personnel and equipment rescheduling or reassignment, **and commitments made to others on Client's behalf.**

**OPINION OF PROBABLE COSTS** - **REL's opinions of probable Construction Cost are to be made on the basis of REL's experience and qualifications and represent REL's best judgment as an experienced and qualified professional generally familiar with the construction industry.** However, since REL has no control over the cost of **labor, materials, equipment, or services furnished by others, or over contractors' methods of determining prices, or over competitive bidding or market conditions,** REL cannot and does not guarantee that proposals, bids, or actual Construction Cost shall not vary from opinions of probable Construction Cost prepared by REL.

**REUSE OF PROJECT DELIVERABLES** - All design documents prepared or furnished by REL are instruments of service, and REL retains all ownership and property interest (including the copyright and the right of reuse) in such documents, whether or not the Project is completed. Client shall not rely in any way on any Document unless it is in printed form, signed and sealed by REL or one of its Consultants.

**RIGHT OF ENTRY** – Client agrees to obtain legal right-of-entry on the property when entry to property is required by the work of this Agreement.

**ENVIRONMENTAL CONDITIONS OF SITE** - **REL's scope of services does not include any services related to any environmental issues related to the site including petroleum, radioactive material, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, or regulated by any Federal, State, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning any hazardous, toxic, or dangerous waste, substance, or material.**

**RELATIONSHIP WITH CONTRACTORS** – REL shall not at any time supervise, direct, or have control over any contractor's work, nor shall REL have authority over or responsibility for the means, methods, techniques, sequences, or procedures of construction selected or used by any contractor, nor for safety precautions and programs in connection with the contractors' work, nor for any failure of any **contractor to comply with laws and regulations applicable to contractor's work.** REL neither guarantees the performance of any contractor nor assumes responsibility for **any contractor's failure to furnish and perform its work.** REL shall have no authority to stop the work of any contractor on the Project.

**LIMITATION OF LIABILITY** – **REL's total liability to Client** for any and all claims for damages whatsoever, arising out of or in any way related to the Project or this **Agreement, from any cause or causes, including but not limited to REL's negligence, errors, omissions, strict liability, or breach of contract,** shall be limited as follows: **REL's total liability shall not exceed the lesser of (1) \$1,000,000 (one million dollars) or (2) the remaining limits of any policy of insurance which provides coverage for the Client's cause or causes of action, such remaining limits to be measured as of the date judgment is entered against REL or the date when Client and REL otherwise settle/resolve the cause or causes of action.**

**INSURANCE** – REL shall maintain insurance coverage for Professional, Commercial **General, Automobile, Worker's Compensation and Employer's Liability** in amounts in accordance with any legal requirements **and REL's business requirements.** Certificates of Insurance shall be provided by REL upon written request.

**MUTUAL WAIVER** – To the fullest extent permitted by law, Client and REL waive **against each other, and the other's employees, officers, directors, agents, insurers, partners, and consultants, any and all claims for or entitlement to special, incidental, indirect, or consequential damages arising out of, resulting from, or in any way related to the Project.**

**GOVERNING LAW, JURISDICTION & VENUE** – This Agreement shall be governed by, and construed in accordance with, the laws of the State of Illinois. Further, the parties agree and consent to the exclusive jurisdiction of the courts of the State of Illinois for all purposes regarding this Agreement and that venue of any action brought hereunder shall be exclusively in Cook County, IL.

**NON-ENFORCEMENT** – **A party's non-enforcement** of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Agreement.

**ASSIGNMENT** – A party shall not assign its rights or obligations pursuant to this Agreement without the express written permission and consent of the other party. This Agreement shall be binding upon and inure to the benefit of any permitted assigns.

**SURVIVAL** – All express representations, waivers, indemnifications, and limitations of liability included in this Agreement shall survive its completion or termination for any reason.

**THIRD PARTIES** - Nothing in this Agreement shall be construed to create, impose, **or give rise to any duty owed by Client or REL to any Contractor, Contractor's subcontractor, supplier, other individual or entity, or to any surety for or employee of any of them.** All duties and responsibilities undertaken pursuant to this Agreement shall be for the sole and exclusive benefit of Client and REL and not for the benefit of any other party.

**SEVERABILITY** - Any provision or part of the Agreement held to be void or unenforceable under any Laws or Regulations shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Client and REL, who agree that the Agreement shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that expresses the intention of the stricken provision.

**STATUTE OF LIMITATIONS** – to the fullest extent permitted by law, all causes of action arising under this Agreement shall be deemed to have accrued, and all statutory periods of limitation shall commence to run, no later than the date of Substantial Completion of this Agreement.

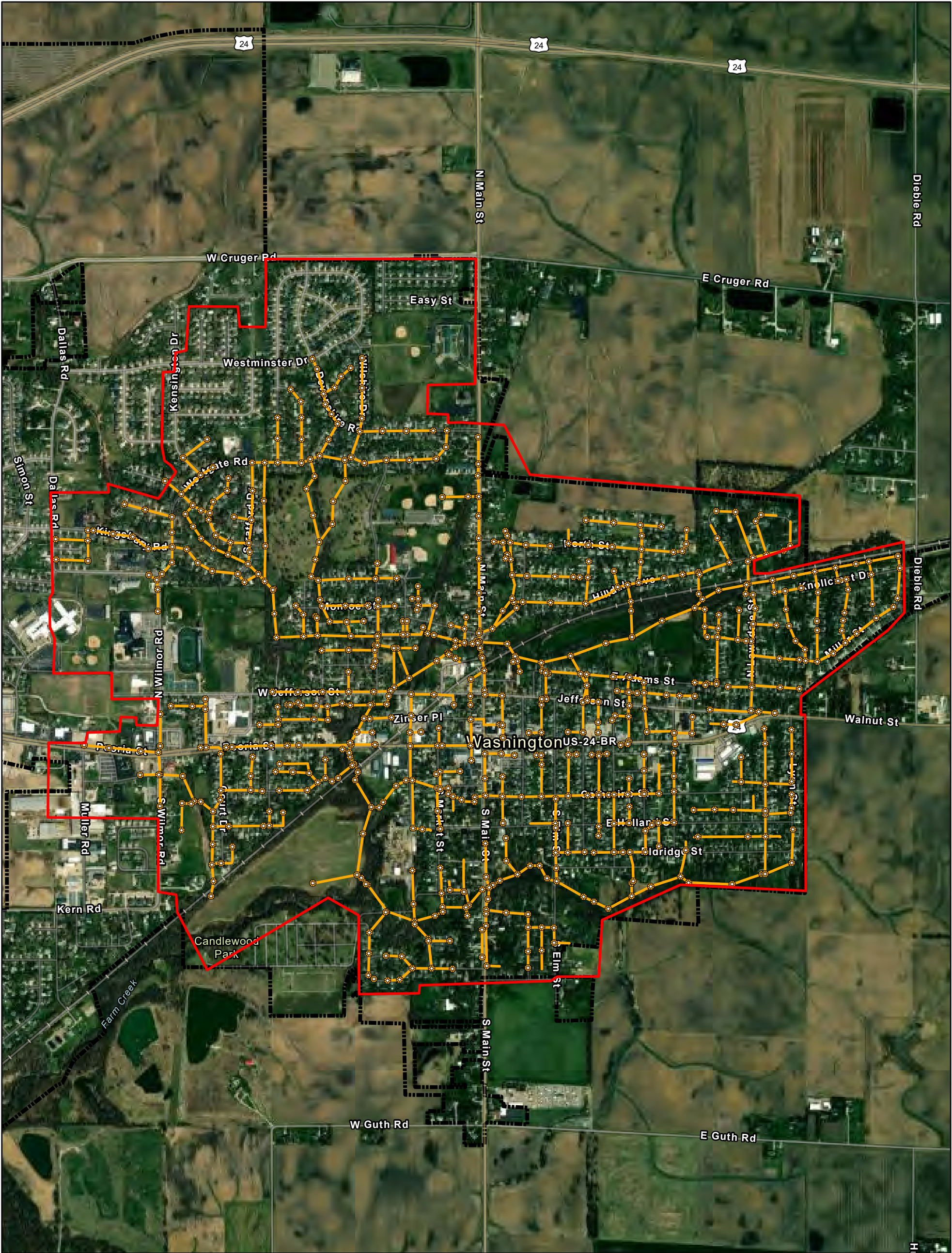
**CONFLICTS** - If a conflict exists between the Agreement provisions and these Standard Terms and Conditions then these Standard Terms and Conditions shall prevail and control.





# City of Washington

## Proposed Smoke Testing Study Area 2



### Legend

- City Limits
- Proposed Smoke Testing Sewer Main Segment
- Sewer Manhole
- Proposed Study Area 2



NOT TO SCALE

