

DRAFT



**Wastewater
Projects**





Wastewater

Effective wastewater system management is essential to public and environmental health. The challenges of effective management continue as the Olympia area population grows, land use densities increase, and development occurs in outlying areas distant from the LOTT Clean Water Alliance treatment facility. Responding to these challenges necessitates proactive management of our public and private wastewater infrastructure.

Capital facility funding is important to the heavily infrastructure-dependent Wastewater Utility. The public system maintained by Olympia is comprised of approximately 185 miles of gravity pipe and 33 regional lift stations. The Utility is also responsible for the operation and maintenance of approximately 1,730 residential and 20 commercial Septic Tank Effluent Pumping (STEP) sewer systems that utilize individual effluent pumps at residences and 28 miles of associated STEP pressure mains. Additionally, the continued use of over 4,140 septic systems in Olympia and its Urban Growth Area creates long-term public health and water quality concerns. Conversion of septic systems to the municipal system is encouraged.

The pipes making up the wastewater infrastructure vary in age, materials, and structural integrity. Ongoing work to systematically televise and evaluate the condition of the individual pipes helps

prioritize repair and replacement needs. Considerable work has been completed in recent years. However, this work effort will continue in the years to come with subsequent inclusion of repair and replacement projects in the CFP.

The Olympia City Council adopted the most recent Wastewater Management Plan in 2013. The Plan supports the continuation and refinement of current practices; the repair and replacement of existing pipes and pumps, extensions of major trunk lines, and conversions of onsite sewage systems to public sewer service. This new plan begins to evaluate wastewater needs for a 20-year planning horizon. It also provides for the review of existing policies related to the use of on site sewage systems and STEP systems.

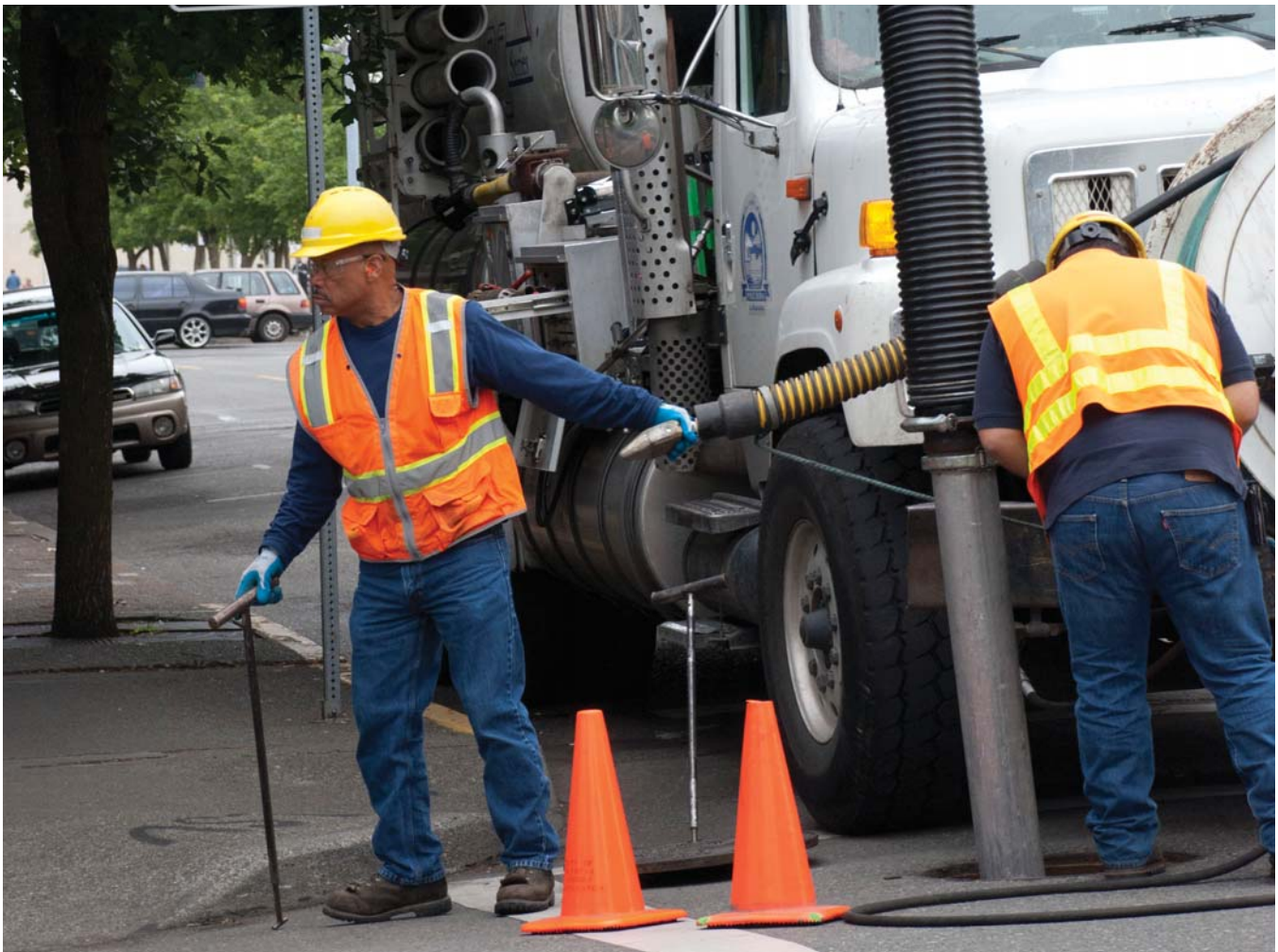
The projects contained in the Wastewater CFP are funded annually through Utility rates and General Facilities Charges. State low interest loans and grants are pursued as needed. The 2013 Wastewater Management Plan includes a financial strategy that relies primarily on cash financing of capital projects.

There are currently no projects identified in the CFP under the pipe capacity upgrade program of the Wastewater Program. Additional capacity upgrade projects may be developed and incorporated into future CFPs.

Growth-Related Projects

Projects that fall under this category are associated with work accommodating customer base expansion and are therefore funded by General Facility Charges (GFC) revenue. When an upgrade project serves both new and existing development, a portion of the project cost is funded by GFCs. This CFP identifies numerous lift station upgrades and sewer extensions that are appropriate for GFC funding. These projects will often accommodate both existing and future needs:

- Miller and Central lift station upgrade – 100% expansion and upgrade related
- Water Street lift station force main – 50% upgrade related
- Old Port II lift station upgrades – 100% expansion and upgrade related
- Annual sewer extensions - 100% expansion related
- Neighborhood sewer program - 100% expansion related
- Boulevard Road sewer extension - 100% expansion related





Asphalt Overlay Adjustments—Sewer (Program #9021)

Location Citywide as determined by the Transportation Program’s six-year Transportation Improvement Program (TIP).

Links to Other Projects or Facilities Street Repair and Reconstruction Projects—Transportation Section
Asphalt Overlay Adjustments—Drinking Water and Storm and Surface Water Sections

Description The work of the City’s annual overlay and street reconstruction projects includes replacing and adjusting wastewater utility castings within streets. These wastewater funds are passed-through to transportation street repair and reconstruction projects for incidental wastewater upgrades.

Justification (Need/Demand) Asphalt overlay and street reconstruction projects often require the adjustment/replacement of wastewater system structures (e.g., manhole frames and lids) as part of the paving process. The goal of this work is to replace damaged castings and to ensure that all castings are adjusted to the new pavement level.

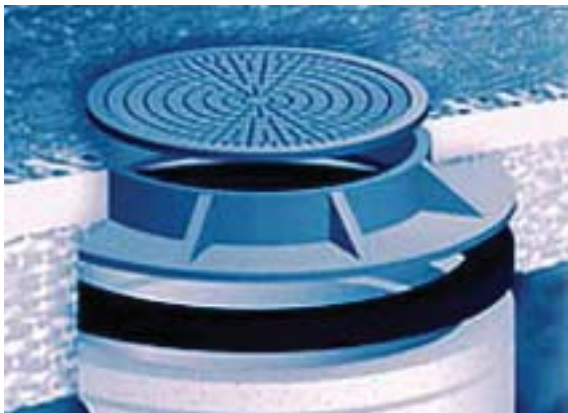
Comprehensive Plan and Functional Plan(s) Citations This program implements the following Olympia Comprehensive Plan goals and policies:
GU 3: Utilities are developed and managed efficiently and effectively.
PU 3.1: Utilities are developed and managed efficiently and effectively.

Capital Costs:	2016	2017-2021	Total
Construction	\$ 11,000	\$ 55,000	\$ 66,000
TOTAL	\$ 11,000	\$ 55,000	\$ 66,000

Funding Sources:	2016	2017-2021	Total
Rates	\$ 11,000	\$ 55,000	\$ 66,000
TOTAL	\$ 11,000	\$ 55,000	\$ 66,000

Annual Operations and Maintenance

Estimated Costs	None
Estimated Revenues	None
Anticipated Savings Due to Project	Efficient upgrades to existing infrastructure
Department Responsible for Operations	Public Works
Quadrant Location	Citywide



Infrastructure Pre-Design and Planning—Sewer (Program #9903)

Location City sewer service area.

Links to Other Projects or Facilities Not defined at this time.

Description These funds support pre-design conceptual evaluation of wastewater projects and potential alternatives in order to refine complex projects prior to launching full permitting and design. Additionally, the funds are used to expediently respond to emergencies and other unanticipated needs.

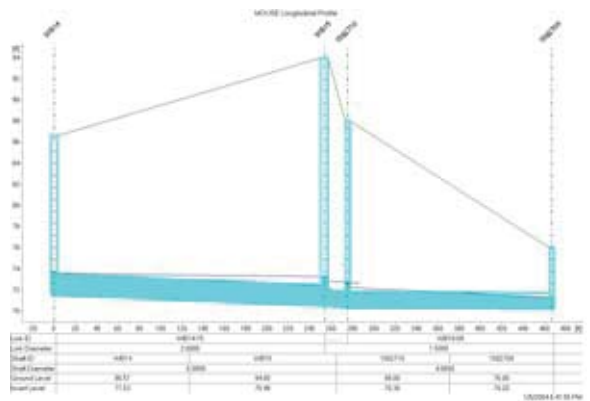
Project List	YEAR	PROJECT	COST ESTIMATE
	2016-2021	Pre-design and planning—Develops project scopes and cost estimates. Responds to emergencies.	\$ 234,000

Justification (Need/Demand) The City’s Wastewater Management Plan and six-year Capital Facilities Plan identify projects from a planning level perspective based on detected deficiencies in specific portions of the system. They also include planning level cost estimates completed at the time the Plan was developed. These estimates may not include enough detail in the scope to accurately assess project costs. This program evaluates complex projects prior to full initiation of design and permitting. It ensures accurate scope of work, cost estimates and a full evaluation of project alternatives. Other uses for this information include timely staff response to unanticipated public or environmental risks while long-term funding is secured.

Comprehensive Plan and Functional Plan(s) Citations This program implements the following Olympia Comprehensive Plan goals and policies:
 GU8: The City and its growth area are served by a City-owned wastewater collection and transmission system that is designed to minimize leakage, overflows, infiltration and inflows so as to provide sufficient capacity for projected demand.
 PU8.8: Evaluate the structural integrity of aging wastewater facilities, and repair and maintain as needed.

Capital Costs:	2016	2017-2021	Total
Pre-Design & Planning	\$ 39,000	\$ 195,000	\$ 234,000
TOTAL	\$ 39,000	\$ 195,000	\$ 234,000

Funding Sources:	2016	2017-2021	Total
Rates	\$ 39,000	\$ 195,000	\$ 234,000
TOTAL	\$ 39,000	\$ 195,000	\$ 234,000



Annual Operations and Maintenance

Estimated Costs	None
Estimated Revenues	None
Anticipated Savings Due to Project	Project specific savings
Department Responsible for Operations	Public Works
Quadrant Location	Citywide





Lift Stations—Sewer (Program #9806)

Location Various locations Citywide.

Links to Other Projects or Facilities N/A

Description Aging pumps and associated systems in our lift stations need to be upgraded or reconstructed in order to provide dependable service while meeting increasing wastewater flows. Projects include providing needed increased pumping capacity, providing backup power generators and upgrading facilities to current Department of Ecology sewage pump station design criteria.

Project List

YEAR	PROJECT/ LOCATION (Quadrant: Map Coordinate)	COST ESTIMATE
2016	Old Port I Lift Station Upgrade- Upgrade the existing lift station for existing and future flows. This work also includes the replacement of the aging force main pipe.	\$ 630,000
2017	Miller and Central Lift Station Upgrade (N:B6)–Upgrade the existing lift station for existing and future flows. This project is funded by GFCs.	\$ 788,000
2017	Miller and Ann Generator (N:B6)–Install an onsite emergency generator for the lift station.	\$ 63,000
2018	Water Street Lift Station Force Mains Upgrade (DT:C5)–Replace the existing 18- and 30-inch concrete sewer force mains serving the Water Street lift station. This project is partially funded by GFCs.	\$ 945,000
2019	Old Port II Lift Station Upgrade (W:B4)–Upgrade the existing lift station for existing and future flows. This project is funded by GFCs.	\$ 630,000
2020	Ken Lake Generator–Replace the aging emergency generator at this lift station.	\$ 63,000
2021	Roosevelt and Yew Lift Station Upgrade- Upgrade the existing lift station for existing and future flows.	\$ 630,000

Justification (Need/Demand) Pumps are an integral element of our sewer infrastructure. Lift stations pose critical risks for spills and associated public and environmental health impacts. Unlike gravity sewer pipes, pump stations are complex mechanical and electrical systems susceptible to chronic or acute failure. The lift stations must operate well in order to prevent sewer overflows.

Comprehensive Plan and Functional Plan(s) Citations This program implements the following Olympia Comprehensive Plan goals and policies:
 GU 8: The City and its growth area are served by a City-owned wastewater collection and transmission system that is designed to minimize leakage, overflows, infiltration and inflows so as to provide sufficient capacity for projected demand.
 PU 8.1: Extend the wastewater gravity collection system through both public and private development projects.
 PU 8.8: Evaluate the structural integrity of aging wastewater facilities and repair and maintain as needed.

Capital Costs:	2016	2017-2021	Total
Construction	\$ 504,000	\$ 2,495,200	\$ 2,999,200
Design & Engineering	\$ 126,000	\$ 623,800	\$ 749,800
TOTAL	\$ 630,000	\$3,119,000	\$ 3,749,000

Funding Sources:	2016	2017-2021	Total
General Facility Charges (GFCs)	\$ -	\$ 1,890,500	\$ 1,890,500
Rates	\$ 630,000	\$ 1,228,500	\$ 1,858,500
TOTAL	\$ 630,000	\$3,119,000	\$ 3,749,000

Annual Operations and Maintenance

Estimated Costs	Not yet determined
Estimated Revenues	Several projects support future growth
Anticipated Savings Due to Project	Projects decrease likelihood of system failure
Department Responsible for Operations	Public Works
Quadrant Location	Citywide





Onsite Sewage System Conversions—Sewer (Program #9813)

Location Various Locations Citywide.

Links to Other Projects or Facilities N/A

Description Supporting the conversion of existing onsite sewage systems to municipal sewer services is a City priority. Efforts to pursue conversions rely on both mandatory regulations and financial incentives. This program provides funding for both minor sewer extensions typically along a short section of street and coordinated neighborhood sewer extensions covering larger areas.

Project List

YEAR	PROJECT/ LOCATION	COST ESTIMATE
2016-2021	Annual Sewer Extensions—As part of the onsite sewer conversion program, this project funds minor extensions of the public pipe systems for new conversions. This project is funded by GFCs.	\$ 948,000
2017-2020	Neighborhood Sewer Program—Similar to Annual Sewer Extensions, but focused on larger neighborhood-scale projects. This project is funded by GFCs.	\$ 1,050,000

Justification (Need/Demand) In increasingly densely developed urban settings, onsite septic systems pose long-term threats to public and environmental health. City goals and policies provide various resources, including CFP funding, for the conversion to municipal sewer.

Comprehensive Plan and Functional Plan(s) Citations This program implements the following Olympia Comprehensive Plan goals and policies:
 GU 8: The City and its growth area are served by a City-owned wastewater collection and transmission system that is designed to minimize leakage, overflows, infiltration and inflows so as to provide sufficient capacity for projected demand.
 PU 8.1: Extend the wastewater gravity collection system through both public and private development projects.
 PU 8.4: Encourage septic system owners to connect to the City wastewater system by offering incentives, cost-recovery mechanisms, pipe extensions and other tools.

Capital Costs:	2016	2017-2021	Total
Construction	\$ 126,400	\$ 1,472,000	\$ 1,598,400
Design & Engineering	\$ 31,600	\$ 368,000	\$ 399,600
TOTAL	\$ 158,000	\$ 1,840,000	\$ 1,998,000

Funding Sources:	2016	2017-2021	Total
General Facility Charges (GFCs)	\$ 158,000	\$ 1,840,000	\$ 1,998,000
TOTAL	\$ 158,000	\$ 1,840,000	\$ 1,998,000

Annual Operations and Maintenance

Estimated Costs Not yet determined

Estimated Revenues Supports new wastewater customer through conversion program

Anticipated Savings Due to Project Facilitates gradual expansion of sewer system

Department Responsible for Operations Public Works

Quadrant Location Citywide



Replacements and Repairs — Sewer (Program #9703)

Location City sewer service area.

Links to Other Projects or Facilities N/A

Description Provide funds for scheduled repairs, as well as unexpected repairs, replacements and rehabilitation of existing pipe systems and manholes. When possible, trenchless technologies are used to minimize disruptions and costs. Projects include work to abandon several high-maintenance STEP systems and provide gravity service through newly-installed gravity systems.

YEAR	PROJECT/ LOCATION	COST ESTIMATE
2016-2017	Southeast Area Odor and Corrosion Control- Evaluate, design and install facilities to control odor and corrosion in the southeast Olympia sewers.	\$ 200,000
2016-2021	Allocation of Prioritized Repairs–Citywide–Funds major pipe repairs and replacements.	\$ 1,668,000
2016-2021	Spot Repairs–Repairs and replaces small sections of sewer pipe.	\$ 630,000
2016	Commercial STEP Conversions–Connect several existing large STEP systems to the newly available sewer main on Yelm Highway.	\$ 441,000
2016	Percival Bridge Stabilization- Stabilizes abutment of bridge that supports City sewer pipe.	\$ 350,000
2016	Pipe Corrosion Abatement, Phase 2–High levels of hydrogen sulfide gas associated with STEP system can corrode concrete pipe and manholes. This project funds the lining of priority damaged systems.	\$ 158,000
2018	Manhole Repair and Replacement–Address structural deficiencies, leaks, and/or corrosion needs.	\$ 105,000

Justification (Need/Demand) This program provides improvements to the sewer pipe system to assure adequate service and prevent catastrophic system failure and sewage release. An annual list of priority projects is developed based on the results of televising inspections of the sewer lines and implementation of the condition rating program. Planned repairs include major prioritized work, minor spot repairs, manhole repairs, and manhole lining to address corrosion in manholes associated with STEP system effluent gases. Reducing maintenance needs is also a priority.

Comprehensive Plan and Functional Plan(s) Citations This program implements the following Olympia Comprehensive Plan goals and policies:
 GU 8: The City and its growth area are served by a City-owned wastewater collection and transmission system that is designed to minimize leakage, overflows, infiltration and inflows so as to provide sufficient capacity for projected demand.
 PU 8.8: Evaluate the structural integrity of aging wastewater facilities and repair and maintain as needed.
 GU 9: The Utility will facilitate the implementation and use of new technology and management systems.

Capital Costs:	2016	2017-2021	Total
Construction	\$ 899,200	\$ 1,902,400	\$ 2,801,600
Design & Engineering	\$ 224,800	\$ 475,600	\$ 700,400
TOTAL	\$ 1,124,000	\$ 2,378,000	\$ 3,502,000

Funding Sources:	2016	2017-2021	Total
Rates	\$ 1,124,000	\$ 2,378,000	\$ 3,502,000
TOTAL	\$ 1,124,000	\$ 2,378,000	\$ 3,502,000

Annual Operations and Maintenance	
Estimated Costs	Decreases maintenance and emergency response costs
Estimated Revenues	None
Anticipated Savings Due to Project	Decreases likelihood of system failure, sewage release and emergency repair
Department Responsible for Operations	Public Works
Quadrant Location	Citywide

Sewer Systems Extensions—Sewer (Program #9809)

Location	Citywide sewer service area.
Links to Other Projects or Facilities	Boulevard Road Intersection Improvements–Transportation Impact Fee Section Transmission and Distribution Projects–Drinking Water Program
Description	Sewer extensions provide infrastructure needs in a timely manner to accommodate emerging service needs. Extensions are often incorporated into street construction projects by the Utility with a resultant long-term financial savings to the community. Otherwise, extensions are typically funded and constructed by private development to meet the needs of specific projects.

Project List	YEAR	PROJECT/ LOCATION (Quadrant: Map Coordinate)	COST ESTIMATE
	2016	Boulevard Sewer Extension at Morse-Merryman Road–Install a new sewer pipe under Morse-Merryman roundabout in conjunction with a Transportation Program intersection improvement project. This project is funded by GFCs.	\$ 788,000

Justification (Need/Demand)	Sewer extensions help meet our long-term goals for effectiveness and efficiency, especially when installed as a component of street construction.
Comprehensive Plan and Functional Plan(s) Citations	This program implements the following Olympia Comprehensive Plan goals and policies: GU 8: The City and its growth area are served by a City-owned wastewater collection and transmission system that is designed to minimize leakage, overflows, infiltration and inflows so as to provide sufficient capacity for projected demand. PU 8.1: Extend the wastewater gravity collection system through both public and private development projects.

Capital Costs:	2016	2017-2021	Total
Construction	\$ 630,400	\$ -	\$ 630,400
Design & Engineering	\$ 157,600	\$ -	\$ 157,600
TOTAL	\$ 788,000	\$ -	\$ 788,000

Funding Sources:	2016	2017-2021	Total
General Facility Charges (GFCs)	\$ 788,000	\$ -	\$ 788,000
TOTAL	\$ 788,000	\$ -	\$ 788,000

Annual Operations and Maintenance	
Estimated Costs	None
Estimated Revenues	Supports future wastewater customers
Anticipated Savings Due to Project	Reduced overall project costs by incorporation into a street reconstruction project
Department Responsible for Operations	Public Works
Quadrant Location	Citywide





Sewer System Planning—Sewer (Program #9808)

Location	Within the City’s Urban Growth Area.
Links to Other Projects or Facilities	N/A
Description	Planning and evaluation efforts necessary to address long-term infrastructure and program needs. At this point in time, projects are limited to ongoing televising and condition rating evaluations.

Project List	YEAR	PROJECT	COST ESTIMATE
	2016-2021	Sewer System Televising and Condition Rating Program—The ongoing work effort provides pipe condition monitoring support to planning and operations staff. Repair and replacement projects stem from the condition rating program.	\$ 132,000

Justification (Need/Demand)	Funds are contributed annually for investigation of pipe structural conditions and overall troubleshooting. This work supports repairs of existing infrastructure.
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Comprehensive Plan and Functional Plan(s) Citations	<p>This program implements the following Olympia Comprehensive Plan goals and policies:</p> <p>GU 8: The City and its growth area are served by a City-owned wastewater collection and transmission system that is designed to minimize leakage, overflows, infiltration and inflows so as to provide sufficient capacity for projected demand.</p> <p>PU 8.8: Evaluate the structural integrity of aging wastewater facilities and repair and maintain as needed.</p> <p>GU 9: The Utility will facilitate the implementation and use of new technology and management systems.</p>
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Capital Costs:	2016	2017-2021	Total
Construction	\$ 19,800	\$ 99,000	\$ 118,800
Design & Engineering	\$ 2,200	\$ 11,000	\$ 13,200
TOTAL	\$ 22,000	\$ 110,000	\$ 132,000

Funding Sources:	2016	2017-2021	Total
Rates	\$ 22,000	\$ 110,000	\$ 132,000
TOTAL	\$ 22,000	\$ 110,000	\$ 132,000

Annual Operations and Maintenance	
Estimated Costs	None
Estimated Revenues	None
Anticipated Savings Due to Project	Proactive investigation of potential infrastructure problems
Department Responsible for Operations	Public Works
Quadrant Location	Citywide



