Wastewater

Mural on Columbia Street, near 5th Avenue

Wastewater

Effective wastewater system management is essential to public and environmental health. The challenges of effective management are increasing as the Olympia area population grows, land use densities increase, and development occurs in outlying areas that are further away from the LOTT Clean Water Alliance treatment facility. Strong management of our public and private infrastructure is necessary.

Capital facility funding is the key to the heavily infrastructure-dependent Wastewater Utility. The public system maintained by Olympia is comprised of approximately 184 miles of gravity pipe and 30 regional pump stations. The Utility is also responsible for the operation and maintenance of approximately 1870 STEP sewer systems that utilize individual effluent pumps at residences and 27 miles of associated STEP pressure mains. Additionally, the continued use of over 4,200 septic systems in Olympia and its Urban Growth Area creates long-term public health and water quality concerns.

Path near City Maintenance Center on Eastside Street

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. This work effort will continue in the years to come with subsequent inclusion of projects in the CFP.

In 2007, the City Council adopted and made part of the Olympia Municipal Code the recently completed Wastewater Management Plan. The plan focuses on repair and replacement of existing pipes and pumps, extensions of major trunk lines, and conversions of onsite sewage system to conventional gravity service. The projects contained in the CFP are funded annually through Wastewater Utility rates and General Facilities Charges (GFCs). State low interest loans and grants are pursued as available. The 2007 Wastewater Management Plan includes a financial strategy involving a combination of cash and debt financing of capital projects.

Growth Related Projects

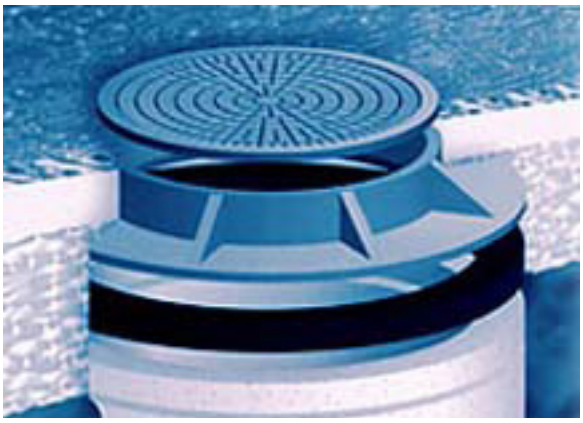
Projects that fall under this category are associated with work needed to accommodate new development and are funded by General Facility Charge (GFC) revenue. When a project serves both new and existing development, a portion of the project cost will also be funded through Wastewater Utility rates.

- South Bay Road Sewer Extension — While this project is currently scheduled to be funded in 2014, the schedule and funding for this project (and other growth related projects) will be revisited in more detail as part of the Wastewater Management Plan update that will begin in 2012 under the Infrastructure Pre-Design and Planning project.

Asphalt Overlay Adjustments—Sewer Program (Program #9021)	
Location	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 section
Description	The work of the City's annual overlay and street reconstruction projects makes it necessary to replace and adjust wastewater utility castings within the street section. This is a pass-through amount that is used by the Transportation Street Repair and Reconstruction Project for wastewater facilities.
Justification (Need/Demand)	Asphalt overlay and street reconstruction projects 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 in order to provide access to the facilities for maintenance and to provide a safe surface for the public to use.
Comprehensive Plan and Functional Plan(s) Citations	*Goals:* PF 9: Assure proper disposal of sewage. PF 11: Efficiently develop and manage the City's sewer system.

Asphalt Overlay Adjustments—Sewer Program

Asphalt Overlay



Sewer System Casting

CAPITAL COSTS	2012	2013-2017	Total
Construction	$64,300	$362,500	$426,800
TOTAL	$64,300	$362,500	$426,800

FUNDING SOURCES	2012	2013-2017	Total
Rates	$64,300	$362,500	$426,800
TOTAL	$64,300	$362,500	$426,800

Annual Operations and Maintenance

Estimated Costs	Should decrease maintenance costs
Estimated Revenues	None
Anticipated Savings Due to Project	Decreases likelihood of system failure
Department Responsible for Operations	Public Works
Quadrant Location	Citywide

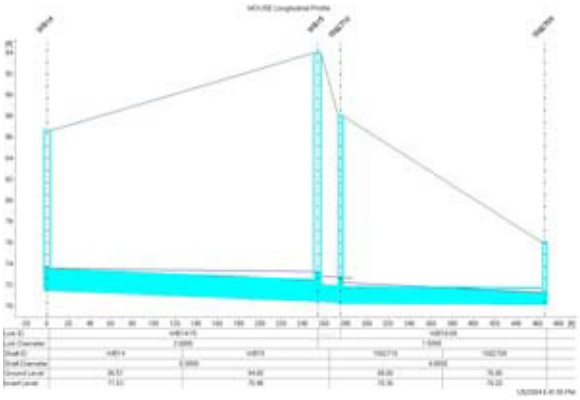
Infrastructure Pre-Design and Planning—Sewer Program (Program #9903)

Location	City sewer service area
Links to Other Projects or Facilities	Not yet determined
Description	Perform pre-design evaluation and analysis of wastewater project alternatives in order to recommend projects and refine project scopes identified in the 2007 Wastewater Management Plan. This program also provides support to other City project planning requirements that occur outside of the annual CFP process.
Project List	

YEAR	PROJECT	COST ESTIMATE
2012	*Wastewater Management Plan*	$100,000
2012 - 2017	*Pre-Design and Planning*	$223,900

Justification (Need/Demand)	The City of Olympia'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 done at the time the Plan was developed and may not include enough detail in the scope to accurately assess project costs. This program evaluates these projects prior to their appropriation in the annual Capital Facilities Plan. 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 public or environmental risks while long-term funding is secured. No construction activities are funded through this pre-design and planning program.
Comprehensive Plan and Functional Plan(s) Citations	*Goals:* PF 9.1: Future sewer system plans should be designed to protect and enhance Olympia and Thurston County ground and surface water resources. PF 11: Efficiently develop and manage the City's sewer system. PF 12: Use sewer facility planning as a means of accomplishing land use, environmental and economic development, and growth management goals.

Infrastructure Pre-Design and Planning—Sewer Program



Wastewater Analysis

Wastewater Analysis

CAPITAL COSTS	2012	2013-2017	Total
Pre-Design & Planning	$133,700	$290,200	$423,900
TOTAL	$133,700	$290,200	$423,900

FUNDING SOURCES	2012	2013-2017	Total
Rates	$133,700	$290,200	$423,900
TOTAL	$133,700	$290,200	$423,900

Annual Operations and Maintenance

Estimated Costs	N/A
Estimated Revenues	N/A
Anticipated Savings Due to Project	N/A
Department Responsible for Operations	Public Works
Quadrant Location	Citywide

Lift Stations—Sewer Program (Program #9806)

Location	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
2012	*West Bay Station Upgrade (W:B4)**	$1,754,600
2013	*Woodcrest Upgrade (S:E6)***	$484,200
2014	*Water Street Generator. (DT:C5)* Replaces aging equipment to ensure backup power for a critical lift station.	$97,300
2015	*Old Port II Station Upgrade (W:A4)**	$160,000
2017	*Miller and Ann Upgrade (N:B6)**	$58,400

* Provides increased pumping capacity.
** Provides increased pumping and storage capacity and upgrades to equipment consistent with Department of Ecology design criteria.

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 to prevent sewer overflows.
Comprehensive Plan and Functional Plan(s) Citations	*Goals:* PF 9: Assure proper disposal of sewage. PF 11: Efficiently develop and manage the City's sewer system. PF 12: Use sewer facility planning as a means of accomplishing land use, environmental and economic development, and growth management goals.

Lift Stations—Sewer Program

Lift Station

Lift Station

CAPITAL COSTS	2012	2013-2017	Total
Design & Engineering	$350,920	$159,980	$510,900
Construction	$1,403,680	$639,920	$2,043,600
TOTAL	$1,754,600	$799,900	$2,554,500

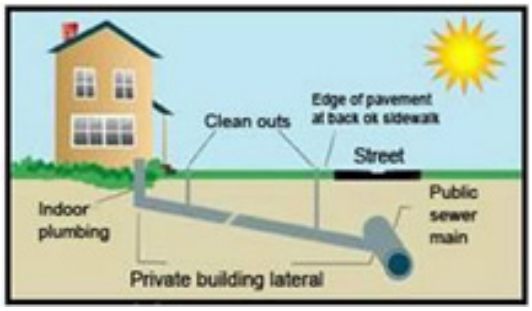
FUNDING SOURCES	2012	2013-2017	Total
Rates	$1,754,600	$799,900	$2,554,500
TOTAL	$1,754,600	$799,900	$2,554,500

Annual Operations and Maintenance

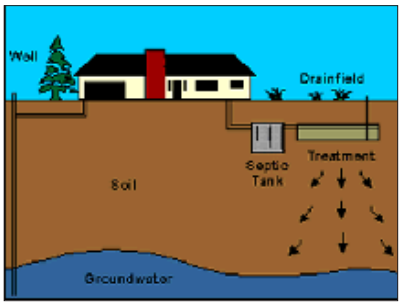
Estimated Costs	Not yet determined
Estimated Revenues	None
Anticipated Savings Due to Project	Decreases likelihood of system failure
Department Responsible for Operations	Public Works
Quadrant Location	Citywide

Onsite Sewage System Conversions—Sewer Program	
Location	Citywide prioritized areas
Links to Other Projects or Facilities	Sewer Pipe Extensions—Sewer Program
Description	Install neighborhood-scale sewer projects in support of efforts to gradually convert onsite sewage systems to gravity systems. Projects will be identified and prioritized based on neighborhood and City goals and feasibility consistent with the 2007 Wastewater Management Plan. At this time, there are no projects identified in this program, so no funds are being allocated. The Olympia "Septic to Sewer" Program is voluntary; therefore, projects require a high level of interest and participation from neighborhoods. Projects will be recommended for funding when neighborhood interest grows and priority projects are identified.
Justification (Need/Demand)	Given potential future land use densities in Olympia, onsite sewage systems may present risks to public and environmental health. This work fulfills one of the primary goals of the 2007 Wastewater Management Plan and builds on the past evaluation of areas served by septic systems, especially where septic failures are beginning to occur.
Comprehensive Plan and Functional Plan(s) Citations	*Goals:* PF 9: Assure proper disposal of sewage. PF 11: Efficiently develop and manage the City's sewer system. PF 12: Use sewer facility planning as a means of accomplishing land use, environmental and economic development and growth management goals.

Onsite Sewage System Conversions—Sewer Program



Gravity Sewer System



Septic Sewer System

CAPITAL COSTS	2012	2013-2017	Total
Design & Engineering			
Construction			
TOTAL	$0	$0	* $0

FUNDING SOURCES	2012	2013-2017	Total
Rates			
TOTAL	$0	$0	* $0

** At this time, there are no projects identified in this program, so no funds are allocated. Projects will be recommended for funding once identified.*

Annual Operations and Maintenance

Estimated Costs	Not yet determined
Estimated Revenues	None
Anticipated Savings Due to Project	N/A
Department Responsible for Operations	Public Works
Quadrant Location	Citywide

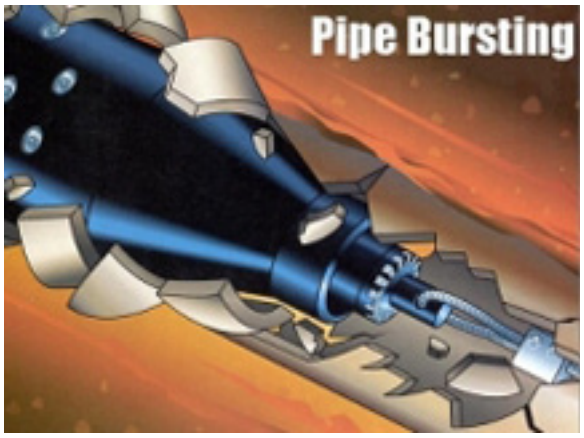
Pipe Capacity Upgrades—Sewer Program (Program #9810)

Location	Citywide
Links to Other Projects or Facilities	N/A
Description	Pipe capacities need to accommodate gradually increased wastewater flows from new development. Many of these capacity upgrades involve improvements to collector systems some distance from the newly developed areas.
Project List	

YEAR	PROJECT/LOCATION (Quadrant: Map Coordinate)	COST ESTIMATE
2013	*Goldcrest Force Main.* This project replaces an aging pressurized pipe. (W:B3)	$256,000

Justification (Need/Demand)	Without capacity upgrades, public and environmental health is at risk.
Comprehensive Plan and Functional Plan(s) Citations	*Goals:* PF 9: Assure proper disposal of sewage. PF 11: Efficiently develop and manage the City's sewer system. PF 12: Use sewer facility planning as a means of accomplishing land use, environmental and economic development, and growth management goals.

Pipe Capacity Upgrades—Sewer Program



Pipe Bursting Example

Wastewater Pipe

CAPITAL COSTS	2012	2013-2017	Total
Design & Engineering		$51,200	$51,200
Construction		$204,800	$204,800
TOTAL		$256,000	$256,000

FUNDING SOURCES	2012	2013-2017	Total
Rates		$256,000	$256,000
TOTAL		$256,000	$256,000

Annual Operations and Maintenance

Estimated Costs	Not yet determined
Estimated Revenues	None
Anticipated Savings Due to Project	Decreases likelihood of system failure
Department Responsible for Operations	Public Works
Quadrant Location	West

Sewer Pipe Extensions—Sewer Program (Program #9809)

Location	Citywide sewer service area
Links to Other Projects or Facilities	Onsite Sewage Systems Conversion — Sewer Program
Description	Sewer extensions provide infrastructure needs in a timely manner to accommodate emerging service needs. Extensions are often incorporated into street construction projects at considerable financial savings to the Wastewater Utility.
Project List	

YEAR	PROJECT/LOCATION (Quadrant: Map Coordinate)	COST ESTIMATE
2014	*South Bay Road Extension.* This project will install initial sewer main and lift station in northeast urban growth area. This project is funded by general facility charges (GFCs). (N:C7)	$5,390,500

Justification (Need/Demand)	Sewer extensions help meet our long-term goals for effectiveness and efficiency, especially when installed as a component of street construction. Construction of the sewer system backbone in developed neighborhoods allows for future infill and for the conversion of onsite sewage systems in situations where potential new development is inadequate to finance an extensive sewer system.
Comprehensive Plan and Functional Plan(s) Citations	*Goals:* PF 9: Assure proper disposal of sewage. PF 11: Efficiently develop and manage the City's sewer system. PF 12: Use sewer facility planning as a means of accomplishing land use, environmental and economic development, and growth management goals.

Sewer Pipe Extensions—Sewer Program

Sewer Line Construction

Sewer Line Construction

CAPITAL COSTS	2012	2013-2017	Total
Design & Engineering		$1,078,100	$1,078,100
Construction		$4,312,400	$4,312,400
TOTAL		$5,390,500	$5,390,500

FUNDING SOURCES	2012	2013-2017	Total
General Facility Charges (GFCs)		$5,390,500	$5,390,500
TOTAL		$5,390,500	$5,390,500

Annual Operations and Maintenance

Estimated Costs	South Bay Road Sewer Extension—$21,400 annually
Estimated Revenues	None
Anticipated Savings Due to Project	Decreases likelihood of system failure
Department Responsible for Operations	Public Works
Quadrant Location	North

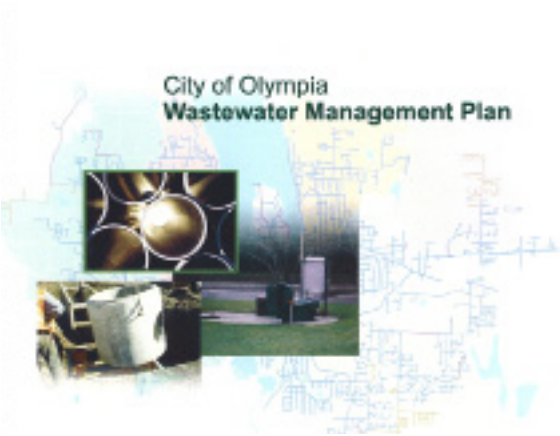
Sewer System Planning—Sewer Program (Program #9808)

Location	Within the City's Urban Growth Area
Links to Other Projects or Facilities	N/A
Description	Planning efforts necessary to address long-term infrastructure and program needs
Project List	

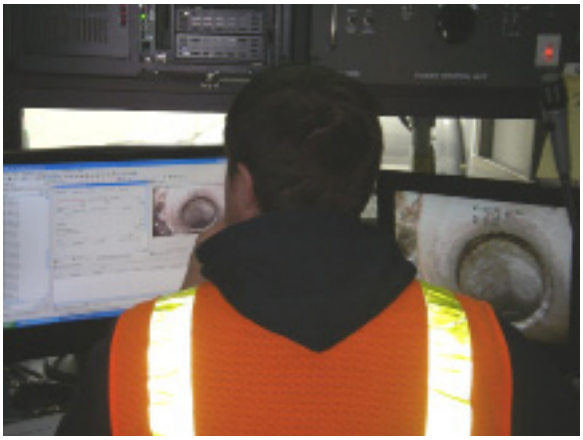
YEAR	PROJECT	COST ESTIMATE
2012-2017	*Sewer System Televising and Condition Rating Program.* This project provides pipe condition monitoring support to operations staff.	$387,900

Justification (Need/Demand)	Funds are contributed annually in order to fund system flow monitoring and condition rating programs consistent with the 2007 Wastewater Management Plan. This effort includes modeling the City's sewer system. Sewer model accuracy depends on comparing model results with measurements of actual sewer flows, which change as new customers are added, new sewer system expansion projects are completed, and infiltration and inflow changes occur.
Comprehensive Plan and Functional Plan(s) Citations	*Goals:* PF 1.4: The City should maintain up-to-date detailed maps and utility data showing the location of all City utilities and their capacity, and identify any known or potential constraints. PF 11: Efficiently develop and manage the City's sewer system. PF 12.5: The City of Olympia should maintain a workable Sewer Management Plan, updating it at appropriate intervals. ENV 3.7: Regularly review the effectiveness and adequacy of ordinances and requirements. ENV 6.1: Include environmental protection and enhancement as an integral part of all its planning efforts.

Sewer System Planning—Sewer Program



Wastewater Management Plan



Telemetry Equipment

CAPITAL COSTS	2012	2013-2017	Total
Design & Engineering	$5,850	$32,940	$38,790
Construction	$52,650	$296,460	$349,110
TOTAL	$58,500	$329,400	$387,900

FUNDING SOURCES	2012	2013-2017	Total
Rates	$58,500	$329,400	$387,900
TOTAL	$58,500	$329,400	$387,900

Annual Operations and Maintenance

Estimated Costs	N/A
Estimated Revenues	N/A
Anticipated Savings Due to Project	N/A
Department Responsible for Operations	Public Works
Quadrant Location	Citywide

Transmission & Collection Projects—Sewer Program (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. When possible, trenchless technologies are used to minimize disruptions and costs.

YEAR	PROJECT/LOCATION (Quadrant: Map Coordinate)	COST ESTIMATE
2012–2017	*Allocation of Prioritized Repairs—Citywide*	$3,355,700

Justification (Need/Demand)	This program provides improvements to the basic 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.
Comprehensive Plan and Functional Plan(s) Citations	*Goals:* PF 9: Assure proper disposal of sewage. PF 11: Efficiently develop and manage the City's sewer system. PF 12: Use sewer facility planning as a means of accomplishing land use, environmental and economic development, and growth management goals.

Transmission & Collection Projects—Sewer Program

Sewer Line Televising/Inspection

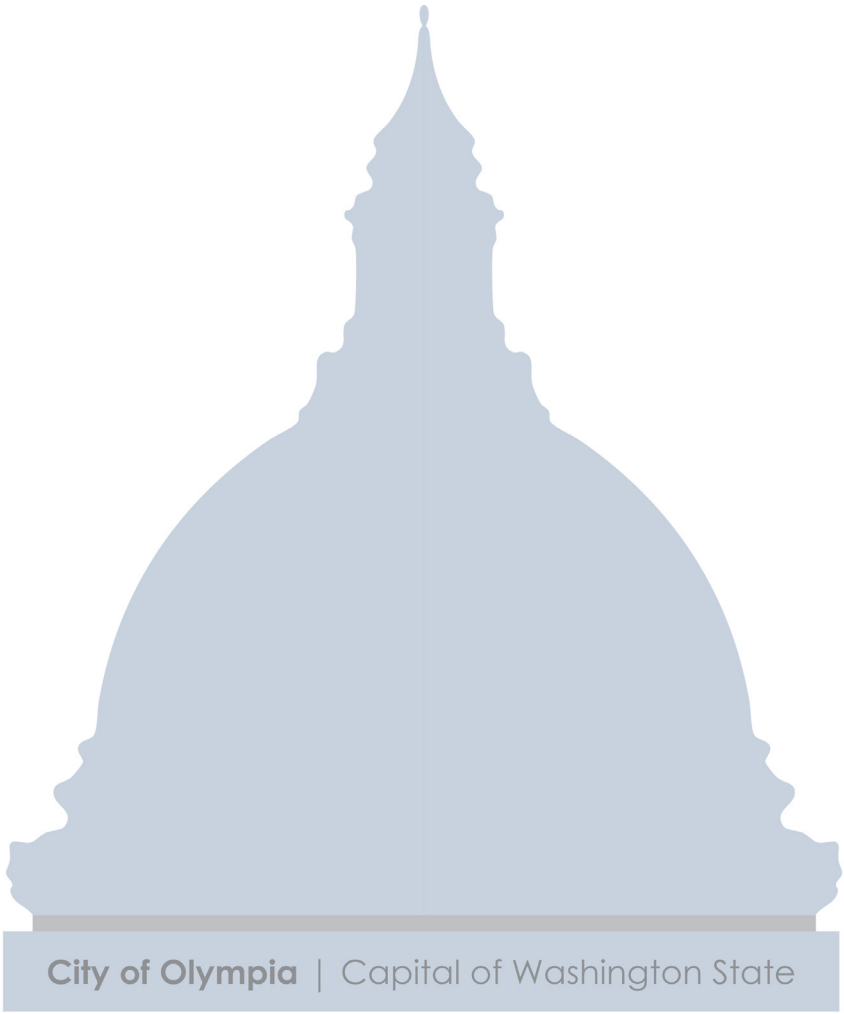
Sewer Line Televising/Inspection

CAPITAL COSTS	2012	2013-2017	Total
Design & Engineering	$101,200	$569,940	$671,140
Construction	$404,800	$2,279,760	$2,684,560
TOTAL	$506,000	$2,849,700	$3,355,700

FUNDING SOURCES	2012	2013-2017	Total
Rates	$506,000	$2,849,700	$3,355,700
TOTAL	$506,000	$2,849,700	$3,355,700

Annual Operations and Maintenance

Estimated Costs	Should decrease maintenance costs
Estimated Revenues	N/A
Anticipated Savings Due to Project	Decreases likelihood of system failure, sewage release and emergency repair
Department Responsible for Operations	Public Works
Quadrant Location	Citywide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