



**UTILITIES COMMITTEE**  
**JANUARY 9, 2015**  
**4:00 P.M.**  
**COUNCIL CHAMBERS**

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1. **WASTEWATER COMPREHENSIVE PLAN – PLANNING COMMISSION RECOMMENDATION**  
*BRANDON McALLISTER, UTILITIES ENGINEER*  
*RYAN ANDREWS, PLANNING MANAGER*  
(ATTACHMENT)



**UTILITIES COMMITTEE**  
**January 9, 2015**

**SUBJECT:** Draft Wastewater Comprehensive Plan

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**RECOMMENDATION:** Staff will brief the Utility Committee on the Planning Commission's recommendation on the draft Wastewater Comprehensive Plan

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**STAFF CONTACT:** Scott Spence, City Manager *SS*  
Scott Egger, Public Works Director *SE*  
Rick Walk, Director of Community Development *RW*  
Ryan Andrews, Planning Manager *RA*  
Brandon McAllister, Utilities Engineer *BM*

**ORIGINATED BY:** Public Works & Community Development

**ATTACHMENTS:**

1. [Planning Commission Staff Report from December 2, 2014](#)
2. [Attachment "A" \(Sewered Areas\)](#)
3. [Attachment "B" \(Zoning and Basin Boundary\)](#)

**PRIOR REVIEW:** City Council Utilities Committee (05/13, 01/14, 06/14)  
City Council Finance Committee (08/14)  
Planning Commission (08/14, 12/14)  
Public Open House (10/14)  
Public Hearing (11/14)

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**BACKGROUND:**

The City operates the wastewater collection system serving Lacey and its Urban Growth Area. All wastewater is discharged to the LOTT Clean Water Alliance for treatment; as such, the City's system operates under the umbrella of LOTT's NPDES permit.

The Wastewater Comprehensive Plan, last updated in 2006, is the utility's long-range planning document. Its purpose is to provide documentation of the existing utility, provide guidance for future operation and expansion, and to ensure the utility's sustainability into the future. Topics addressed in the plan include utility service and extension policies, population and flow projections, analysis of existing facilities, documentation of operation

and maintenance practices, capital improvement plan, and financial plan. The City does not need to directly address treatment as part of its Wastewater Comprehensive Plan (sometimes referred to as a General Sewer Plan) since LOTT provides the service. The plan's review and approval is required through the Department of Ecology.

Analyses in this plan utilize a combination of Lacey and LOTT flow monitoring data to establish current wastewater generation rates and baseline conditions. Future flow rates are then derived using population forecasts provided by TRPC, North Thurston Public Schools, which are informed by the Land Use Element of the City's Comprehensive Plan. The existing collection system is then analyzed for its ability to accommodate future flows. Where deficiencies are found, improvements are recommended for inclusion in the Capital Improvement Plan. New infrastructure is sized to accommodate the land use designations for which it serves.

As part of this plan, staff evaluated the relative cost of service per connection for various system alternatives. It was found that traditional lift stations have a relatively consistent fixed O&M cost regardless of size or number of connections served. This is in contrast to on-lot pressure systems where O&M costs are much more proportional to the number of connections served. This analysis led staff to recommend a minimum basin size for future lift stations based on a break-even point with on-lot pressure systems. To ensure that smaller basins can still be adequately served staff also recommended that individual grinder pumps be allowed as a substitute for lift stations when the basin size is sufficiently small. Individual STEP may also be considered when adjacent to existing STEP areas and where odor and corrosion can be controlled.

It should be noted that the unit cost of installing STEP or grinder systems is not necessarily less than the total unit cost of installing a gravity system and lift station. The developer pays 100% of the upfront cost of the gravity system and lift station. When STEP and grinder are installed, the developer pays for the installation of the sewer main in the street and the home builder pays for the installation of the STEP system or grinder. The new home buyer pays for all costs. With either system, the City is responsible for the long term cost of operation and maintenance.

Other policy recommendations include the ownership and maintenance of individual grinder systems. Staff is currently proposing that the City own and maintain new installations of these systems in order to provide those customers an equal level of service as is provided to STEP customers.

In recent years, there has been growing concern regarding the number of septic systems located throughout urban Thurston County and their impact to ground and surface water quality. This plan recommends that Lacey continue to explore options for a regional solution and to participate in the "Septic Summit" led by LOTT.

The 6-year capital improvement program includes 28 projects totaling \$22.8 million. A significant number of projects found in the CIP target operational improvements and preservation of existing infrastructure. These projects include upgrades and/or

replacement of aging facilities, which minimizes long-term maintenance and operation expenses and reduces the potential for expensive emergency repairs. The proposed CIP follows Lacey's longstanding tradition that "growth pays for growth".

The accompanying financial plan is designed to fully fund the proposed CIP while maintaining current customer service levels and minimizing rate impacts. The financial plan includes one additional FTE for the operation and maintenance division to accommodate future growth of the wastewater collection system. A 5-year rate schedule has been developed to allow for smaller incremental rate adjustments and to provide predictability for existing customers. This plan 4.25% annual rate increases over the 5-year period, as well as, \$5.4 million in bond revenue.

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### **RECOMMENDATION:**

The Planning Commission held a public hearing on the Wastewater Comprehensive Plan on November 4, 2014. They held an additional meeting on December 2, 2014, to follow up on concerns voiced during public testimony at the hearing. Ultimately the Planning Commission voted to recommend approval of the Draft Wastewater Comprehensive Plan to the City Council. The City Council will consider approval of all Comprehensive Plan updates in June 2015. A Worksession will be scheduled prior to the June meeting to brief the Council on all updates. No action is needed on this item at this time.



## PLANNING COMMISSION STAFF REPORT

December 2, 2014

**SUBJECT:** Draft Wastewater Comprehensive Plan

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**RECOMMENDATION:** Make a formal recommendation on the proposed Wastewater Comprehensive Plan to the City Council.

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**TO:** Lacey Planning Commission

**STAFF CONTACTS:** Rick Walk, Director of Community Development  
Ryan Andrews, Planning Manager *RA*  
Brandon McAllister, Utilities Engineer *BRM*

**ATTACHMENT(S):** Attachment "A" (Sewered Areas)  
Attachment "B" (Zoning and Basin Boundary)

**PRIOR COUNCIL/  
COMMISSION/**

**COMMITTEE REVIEW:** City Council Utilities Committee (05/13, 01/14, 06/14)  
City Council Finance Committee (08/14)  
Planning Commission (08/14)  
Public Open House (10/14)  
Public Hearing (11/14)

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### BACKGROUND:

On November 4, 2014 the Lacey Planning Commission held a public hearing regarding the Wastewater Comprehensive Plan. During the hearing, representatives of Three's Company LLC provided comment regarding the method by which they were to provide sewer service to their proposed residential development adjacent to 15<sup>th</sup> Ave NE. Their primary points were that the installation of a traditional gravity/pump station sewer collection system would be cost prohibitive and that other nearby properties had been allowed to utilize pressure sewer collection systems such as STEP and Grinder pumps. The Planning Commission granted Three's Company one month to provide further analysis before making a formal recommendation to the Lacey City Council. City staff has provided additional information to the representatives of Three's Company for use in their analysis, as requested.

## STAFF ANALYSIS:

The Wastewater Comprehensive Plan is intended to be a planning tool and does not attempt to address sewer system design issues on a project specific level. Instead, the Wastewater Plan attempts to divide the entire sewer service area into smaller basins delineated primarily based on topography and existing infrastructure. This results in smaller areas that are expected to share common characteristics such as a common type of sewer service or a common discharge location. Because the intent is to provide a high-level overview of the entire utility, minor changes and deviations from the plan are to be expected when reviewed on a project specific level, Policy #13 provides developers the ability to request such deviations through the Public Works Department.

Three's Company correctly pointed out that two other projects in the area have been allowed to utilize either STEP or Grinder sewer systems, the location of these projects are shown in Attachment "A" and are identified as Burton Ray Gardens and Woodland Creek Estates. Burton Ray Gardens, approximately 30 single family homes, had obtained a written agreement some years ago from a prior Public Works Director. This agreement pre-dates the current gravity/pump station proposal for this basin and the City was obligated to honor the previous agreement even though sewer plans for this basin had since changed. Woodland Creek Estates is an existing development which was required to convert from septic systems to sewer due to public and environmental health concerns. During the design phase of this project several alternative sewer systems were considered and ultimately STEP was found to be the best alternative. A gravity/pump station collection system was ruled out due to elevation conflicts with the existing plumbing originating from the homes and because the potential pump station sites were too close to Woodland Creek.

During development of the Wastewater Plan staff analyzed the typical life-cycle costs of various types of sewer service. This analysis included costs for the initial installation, operation/maintenance, and the eventual repair/replacement over a 100 year period. The results showed that both STEP and Grinder collection systems are cost competitive when serving areas of approximately 150 residential service connections, when serving areas larger than 150 residential service connections it was found that the installation of a central pump station became more cost effective (these results can be found in section 4.3 of the Wastewater Plan). This led to the additional qualifiers found in Policy #13, where the various basins would be identified as either STEP or gravity. STEP basins would be located where existing STEP infrastructure is already in place. In all other areas, gravity would be the preferred method of sewer service, but where gravity is not feasible due to topography either a pump station or individual grinder pumps would be allowed depending on the 150 service connections mentioned previously. The final version of the Wastewater Plan will include a map that more clearly illustrates the distinction between STEP basins and gravity basins.

In 2007 Hatton Godat Pantier completed a sewer basin study in this area of 15<sup>th</sup> Ave NE, which serves as the basis for the current gravity/pump station concept. Their analysis showed that there was sufficient development potential in this basin to justify a pump station. Their estimates showed that as many as 900 equivalent dwelling units (EDU's) could potentially be served either directly or indirectly by a pump station in this area. In fact, the developer had actually started the project and installed a portion of the necessary sewer infrastructure prior to the recession when the project failed. Attachment "A" shows the parcels which are currently connected to sewer in the vicinity of 15<sup>th</sup> Ave NE, while Attachment "B" shows the current zoning for the same area. These two figures together suggest that there is still a

significant amount of development potential in this area, which staff believes can be more effectively served by a traditional gravity/pump station arrangement. When accounting for only undeveloped parcels in this area and assuming average densities for each zoning category it's likely that 450 - 600 additional EDU's will ultimately need access to sewer. Even if the entire area were to build-out at the minimum permissible densities, the estimated number of additional EDU's would be 250, easily exceeding the 150 EDU threshold.

The original infrastructure design included a gravity sewer main in 15<sup>th</sup> Ave NE with a maximum depth of roughly 25 ft. While installation of deep sewers, along with the associated roadway restoration can be a financial challenge; it's important to remember that each project along 15<sup>th</sup> Ave NE will also be responsible for roadway widening and frontage improvements that somewhat mitigate the restoration expense associated with the sewer installation. Additionally, the current infrastructure design was based on a specific development proposal at that time. Staff is willing to entertain alternative sewer alignments and pump station locations that may allow for reduced installation costs, provided that those alternatives are compatible with the land use goals in this area. The City also offers Latecomer Agreements as a way for developers to recoup a portion of their initial investment or ULID's as a means for financing the project over time.

Even beyond the question of cost-effectiveness, there are additional operational and logistic concerns that lead staff to believe a gravity/pump station arrangement is a better alternative for this basin. By reviewing the zoning designations shown in Attachment "B" it becomes clear that the City's vision for the 15<sup>th</sup> Ave corridor includes high density housing options, including multi-family and townhome type structures. STEP sewer collection systems do not tend to fit well in these types of neighborhoods. STEP systems work like a septic system, except that they pump to a sewer system rather than a drain-field. This generally requires that a tank be installed in the front yard for each home. Low density residential housing typically allows enough front yard space to accommodate these tanks, but high density housing generally does not, making tank placement and maintenance access nearly impossible. Adopting STEP as a sewer alternative for this area would likely limit the densities achievable along this corridor. Grinder pump systems face a similar challenge, since they also utilize an on-lot pumping system. Grinder pump collection systems also require that a minimum line velocity be met to move solids in the waste stream, this limits the ability to size infrastructure for future growth in areas that may build-out slowly over time. Gravity and pump station collection systems are better suited for the types of housing normally found in high and moderate residential zoning areas. Gravity systems don't require the on-lot tanks that the other alternatives do, allowing for much higher densities and multi-family options. They are also better able to accommodate over-sizing of infrastructure, which allows growth to occur over time.

Staff believes that it's important to choose sewer alternatives based on a basin wide scale that will be able to accommodate the full range of land uses identified for an area. Given the topography, development potential, and the City's desire to promote multi-family housing options along the 15<sup>th</sup> Ave NE corridor; staff recommends a gravity/pump station sewer collection system as the best alternative for this basin.

#### **RECOMMENDATION:**

The Planning Commission is asked to refer the Draft Wastewater Comprehensive Plan to the Lacey City Council for adoption as part the 2015 Comprehensive Plan updates.

# Attachment "A" (Sewered Areas)



