

Summary of Freeland Sewer System Development Efforts

Abstract

The Freeland Water and Sewer District (the District) has spent years working toward the development of sewers for Freeland. It has worked with two of the top engineering companies in the nation and spent considerable funds looking for an affordable solution. All options were explored that would meet the requirements of the Growth Management Act (GMA). Despite the substantial effort, no solution was found that would not cause economic hardship to both commercial and residential properties, and the community in general. Therefore, the District has suspended work on the sewer project for the foreseeable future.

Introduction

Sewer planning in Freeland occurred as far back as 1970. There have been three recent attempts to bring sewers to Freeland: a County-developed plan in 2005, a District-amended plan developed in 2011, and the current District-amended plan developed in 2017. Significant funds were spent in the planning, environmental evaluation, funding, and design process. These latter efforts followed the designation of Freeland as a Non-Municipal Urban Growth Area (NMUGA) by Island County in 2007. The engineering efforts were made by two different engineering companies specializing in sewer systems. Experts provided assessments of hydro-geological conditions and studied financing and rates for the project.

The 2011 Sewer Plan

Summary of the 2011 plan:

- The plan's phase 1 initially covered only the business core, but was expanded to cover a very large NMUGA in an effort to secure funding that required residential service.
- Consistent with state and county growth projections, it assumed a very high growth rate of 8.9% per year.
- The phase 1 cost was \$32,177,000 with initially 610 equivalent residential units.
- The system was to be a "STEP" system (Septic Tank Effluent Pumping), where properties retain septic tanks which must still be pumped, but drain fields are eliminated.
- The method of disposal of the processed effluent was by land application on an 80-acre site southwest of Freeland. The effluent would be pumped to the site, stored in large ponds when necessary, and distributed over the land.
- Subsequent hydro-geological study indicated an impervious layer below the infiltration area so the treated water will reemerge downslope, increasing the severity and duration of an existing flooding problem in the Mutiny Bay area.
- Development of the site was estimated at over \$6,000,000 and required considerable operational expense.
- The HUD grants the District requested were not approved.

A special benefit study was performed. Local Improvement District financial assessments to property owners are limited to the amount the connection to a sewer increases the value of the property. The total benefit was estimated to be \$22,000,000. The district assessment level is limited to 25-75% of the special benefit, so the special benefit plan assumed only \$11,000,000 assessment was possible. This left a shortfall of \$21,000,000, an amount difficult to achieve via grants.

Furthermore, the assessments would be greater than 1.5% of the average customer income, an amount considered a hardship by Washington Department of Ecology (DOE). This policy limits assessments to approximately \$80/month.

The 2017 Sewer Plan

Summary of the 2017 plan:

- The size of the NMUGA was reduced after census results showed growth at less than 0.5% (the previous estimate was 18 times this).
- Phase 1a was to serve the business core of Freeland allowing additional development to absorb the forecast 20-year growth.
- A site south of the highway in Freeland was purchased by the District, both for the plant and for the effluent disposal site. This close location would reduce transport costs.
- The system would employ grinder pumps, eliminating the need for the retention of septic tanks on each property and tank pumping.
- The effluent disposal proposed was by vadose wells. A meeting was held with state and county officials, engineers and hydro-geologists to determine if the vadose well infiltration was valid for our soils. There was general concurrence that vadose wells were a reasonable option. Only later did it come to light that a vadose well had never been tried in “poor soils” such as those in Freeland. Even at sites with better soils there have been many vadose well failures. Well failures would add cost, potentially significant cost, to the project in later years.

The 2017 system cost was estimated at \$12,500,000 and would serve 164 ERU’s initially with the capacity to serve 314 ERU’s. A second phase (1b) would bring the capacity to 407 ERU’s for an additional estimated \$2,200,000.

2017 Plan Rate Study

Our engineering team identified costs for engineering, construction, operation, and maintenance of the wastewater collection and treatment system. The District retained the respected FCS Group to identify how these costs would translate into monthly costs for rate payers. The FCS Group analyzed more than 80 scenarios built around three key variables:

- How much grant money would be received (as opposed to loans)
- The growth in new connections (i.e., NMUGA growth rate)
- How much of the capital funding gap would be derived from connection charges versus loans

The connection charge is often referred to as a General Facilities Charge (GFC). An additional consideration is whether existing property owners should have a lower GFC than new development because existing owners presumably already have invested in septic systems.

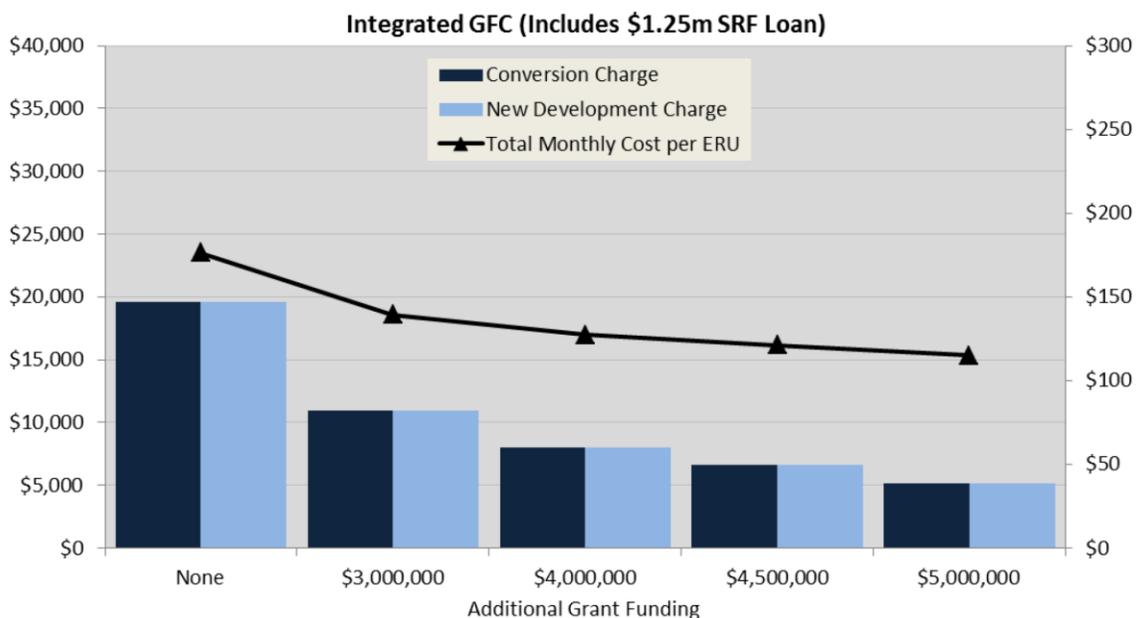
To simplify the findings, the FCS report focused on the first (planned) year of operation (2019) and a one percent growth rate to select the most promising options. The report then forecast costs for future years for the most promising options.

Figures the report labels Exhibit 2 and Exhibit 3 summarize the study. Two different scenarios were examined.

1. The first was for equal general facilities charge for existing and new connections.
2. The second scenario was driven by a court decision that allows developed properties to have the option to not connect to the sewer. The second reduces the GFC for developed properties, giving credit for abandoning a functioning septic or sewer system. New connections are then charged a higher GFC as they have not expended monies to install and abandon a septic system.

Looking at the first scenario, with no additional grant funding, the GFC is approximately \$20,000 per ERU and the monthly charge is about \$180/ERU/month. With 100% grant funding (and no construction cost overruns and good performance with the vadose wells), the GFC is \$5000/ERU and the monthly charge is \$125/ERU/month. These numbers include a small capital improvement/replacement fee not shown in exhibits 2 and 3 as if had been deferred to later years.

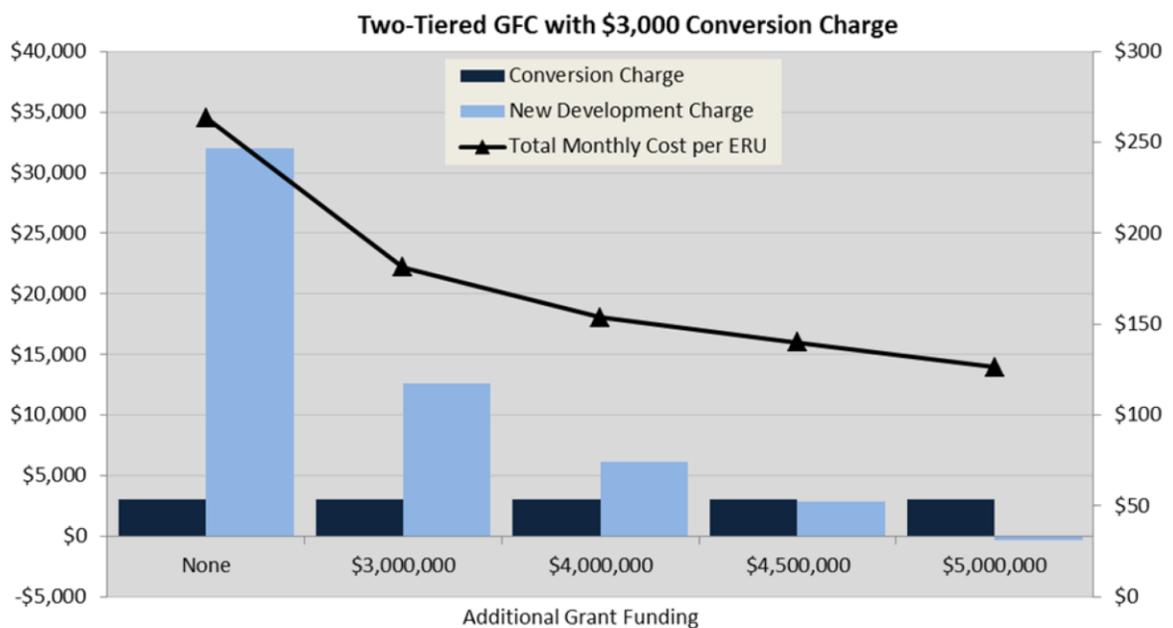
Exhibit 2: Integrated GFC Approach



With the second scenario shown in Exhibit 3, the GFC for the case of no additional grant funding, the GFC for existing properties with septic systems is \$3000/ERU and for new connections is \$32,000/ERU. Both would have a \$275/ERU/monthly charge. For the case of 100 % grant funding, the GFC drops to \$3000/ERU for both and the monthly charge to \$120/ERU/month.

Rates of course are based on engineering estimates, and in many recent examples construction costs are higher. Capital replacement is not included in the first years and will be added later. They also assume a long life for the vadose wells. If vadose well failures occur, costs will rise and possibly significantly. It is a significant risk factor.

Exhibit 3: Two-Tiered with Conversion Charge



Because of concerns with the long-term viability of the vadose wells, we also considered constructing a pipeline to Mutiny Bay and installation of a marine outfall to direct treated wastewater to Admiralty Inlet. If an outfall were used, the GFC will more than double, increasing the unfunded portion from \$5 million to \$11-13 million. This assumes that a permit for such an outfall would be approved, which is not a foregone conclusion.

The conclusions of the rate study indicate that growth will not substantially reduce the rates. To quote the study summary:

“Growth in ERUs through New Development: This turns out to be the least significant of the three major variables, because a relatively high proportion (35%) of the operating and maintenance (O&M) costs are directly proportionate to volume, so if the number of customers increases, then O&M costs increase as well.”

*“Given the operating and capital costs projected in the Comprehensive Plan for this system, our conclusion is that without a commitment from the State or County for at least \$5 million of additional grant funding, it would be **difficult to responsibly move forward** with construction of this system.”* (\$5 million means full grant funding of the project).

Despite being at the 90% design level, further work was suspended after the rate analysis was completed. The District had gone to that design level to make the District eligible for more grants, but the combination of insufficient capital funds, high operating rates, and uncertain performance of vadose wells compelled a decision to stop work on the project.

Other options

A number of other options were examined. Often at public meetings we are asked “why did you not look at....” Here are some of the options the District looked at:

1. Using the Langley outfall for effluent disposal. The piping and pumping costs for 8 miles over a hill are very high and treatment capacity would have to be purchased from Langley. Pipes and pumping alone would add approximately \$8,000,000 to the project. It would require Langley modify its permit and surely there would be a charge from Langley for this service.
2. Using local drain fields for effluent disposal. Growth would still be capped at the drain field capacity, and the property occupied by drain fields could not be developed. The operating cost would increase due to the extra piping and pumps for returning cleaned water, and it would be difficult to maintain proper flows to each drain field.
3. Use the Holmes Harbor treatment plant to treat Freeland wastewater. The Holmes Harbor system does not have capacity to dispose of additional treated water.
4. Use an outfall for disposal of effluent. One of the District goals was to recharge the aquifer by land application because Freeland is in a sole source aquifer and critical groundwater recharge area; an outfall would require this goal be abandoned.
 - a. Holmes Harbor is a confined water and is 303d listed making an outfall here impossible
 - b. Mutiny Bay property owners have expressed opposition to having an outfall there.
 - c. There are likely to be challenges obtaining a permit under the new scrutiny concerning potential impacts on to orcas and salmon. In any case a Mutiny Bay outfall would add \$6-8 million to the project.

An example of a sewer project gone wrong: Belfair

A number of other small wastewater treatment systems have turned out to be far more expensive than initially expected. Mason County constructed a sewer system for the city of Belfair. The system has 201 connections using 406 ERU's of capacity. Development was expected but did not happen. The present

cost to operate the system in \$344/ERU/month. Presently, a grant and County economic development funds are used to bring the cost down to \$97/ERU/month, but soon the rates will likely climb to \$344 causing economic hardship or potentially even bankruptcy.

Financial Certainty

WAC 365-196-320 requires “financial certainty” in regards to forming an UGA.

The capital facilities and transportation elements should identify what combination of new or existing funding will be necessary to develop the needed facilities. Funding goals should be based on what can be raised by using existing resources. Use of state and federal grants should be realistic based on past trends unless the capital facilities element identifies new programs or an increased amount of available funding from state or federal sources.

The District commissioners believe the Freeland planning efforts have consistently demonstrated that sufficient funds are not available to support a sewer system for a Freeland urban growth area.

Conclusion

It is commonly accepted that Freeland must have a sewer system because it has been designated a NMUGA. However, the Western Washington Growth Management Hearings Board concluded on March 22, 2000:

*The WWGMHB stated that the County should do a proper analysis, make provision for urban services and designate Freeland as a NMUGA **or restrict the boundaries, uses and densities allowed.***

The 2017 sewer plan was developed as the lowest cost option to meet GMA requirements. However, without significant grant funding, it remains unaffordable. Despite considerable effort by the District and the County, we simply have not obtained the grant funding levels required. Consequently, the District commissioners have suspended further work on the sewer system for the foreseeable future.