

**Port Hadlock Wastewater System  
Wastewater System Value Engineering Review  
May 2019 - Final Draft, Tetra Tech**



**Table 10: Estimated Project Cost for Initial Phase**

ESTIMATE FOR MODULAR MICROBLOX & PRESSURE SYSTEM		
<b>Initial Capital Cost</b>		
Preliminary/Other		
Land Acquisition		completed
Environmental/Cultural Review		completed
Permitting	\$40,000	completed/refresh
Other (Establish LID/Legal/Rate Study/Ordinance)	\$300,000	updated, not specific
County Project Administration	\$250,000	\$50k +Swr Proj Mgr 100k x 2 yrs
Utility Operations Startup	\$125,000	approx. first year o&m
Subtotal Preliminary		<b>\$715,000</b>
<b>Initial Wastewater Treatment Facility (Reuse &amp; Pipeline) Core Area</b>		
Construction <sup>1</sup>	<b>\$9,670,000</b>	
Design: final & bid documents	\$930,000	based on Tt design estimate
Construction Mgmt @ 8%	\$774,000	reduced from 10% to 8%
Subtotal Initial Treatment Facility		<b>\$11,374,000</b>
Total Treatment & Common		<b>\$12,089,000</b>
<b>Initial Pressurized Collection System (public R/W) Core Area</b>		
Construction <sup>2</sup>	<b>\$5,002,000</b>	\$5.002 mil public ROW
Design	\$350,000	based on Tt design estimate
Construction Mgmt @ 8%	\$400,000	reduced from 10% to 8%
LID Financing (20% of assumed \$3,900,000 LID) <sup>3</sup>	\$780,000	@ 50% spec ben, \$3.89 mil
Subtotal Initial Collection System		<b>\$6,532,000</b>
<b>Total System w/Initial Collection System</b>		<b>\$18,621,000 + Grinder Pump &amp; Side Sewer</b>
<b>Option: Include Initial Grinder Pump &amp; Side Sewers Core Area-Existing</b>		
Construction <sup>2</sup>	<b>\$3,876,000</b>	\$3.876 mil private ROW
Design	\$300,000	based on Tt design estimate
Construction Mgmt @ 8%	\$310,000	reduced from 10% to 8%
Subtotal Initial Side Sewers		<b>\$4,486,000</b>
<b>Total Estimated Project Cost</b>		<b>\$23,107,000</b>
<sup>1,2</sup> Tt estimate file 3-20-19 for Sewer VE with Microblox (Phase 1 77,000 gpd capacity) and pressure sewer for Core area only.		
<sup>3</sup> LID assumed to support 50% of special benefit (core area \$7.78 million, 2013). The cost to finance an LID includes a 10% required guaranty fund, 6.5% allowance for interim interest/financing , and 3.5% allowance for final bond financing costs (total 20% of LID financed construction).		

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**Table 11: Estimated Project Cost per ERU Initial Phase - Public Sewer**

<b>WITH FUTURE GRANTS</b>		<b>FUTURE GRANTS/APPROPRIATIONS SCENARIOS:</b>				
Port Hadlock Wastewater Treatment		<b>\$0</b>	<b>\$7,000,000</b>	<b>\$9,000,000</b>	<b>\$11,000,000</b>	<b>\$13,000,000</b>
<b>CONNECTION CHARGES FOR COMMON &amp; SHARED TREATMENT/REUSE FACILITIES + LID FOR COLLECTION</b>						
This alternative divides Initial Costs by Initial Capacity + Core Collection by 20-year Core ERU						
<b>a. Connection Charge due upon connecting</b>						
Preliminary/Other		\$715,000	\$715,000	\$715,000	\$715,000	\$715,000
Initial Wastewater Treatment Facility - Common		\$11,374,000	\$11,374,000	\$11,374,000	\$11,374,000	\$11,374,000
Less: Future Grants		\$0	-\$4,000,000	-\$6,000,000	-\$8,000,000	-\$10,000,000
Subtotal Initial Treatment Facility		\$12,089,000	\$8,089,000	\$6,089,000	\$4,089,000	\$2,089,000
Initial Capacity ERU's	446					Ovivo Ph. 1 capacity 446 ERU
<b>a. Connection Charge due upon connecting</b>		<b>\$27,200</b>	<b>\$18,200</b>	<b>\$13,700</b>	<b>\$9,200</b>	<b>\$4,700 per ERU</b>
<b>b. + LID Assessment</b>						
Core Area Collection System Costs		\$6,532,000	\$6,532,000	\$6,532,000	\$6,532,000	\$6,532,000
Less: Future Grants		\$0	-\$3,000,000	-\$3,000,000	-\$3,000,000	-\$3,000,000
Subtotal Core Area Collection System Cost		\$6,532,000	\$3,532,000	\$3,532,000	\$3,532,000	\$3,532,000
20-Year Core Area ERU's	478					356 ERU + 1.49% growth/yr
<b>b. LID Assessment paid over 20-years</b>		<b>\$13,700</b>	<b>\$7,400</b>	<b>\$7,400</b>	<b>\$7,400</b>	<b>\$7,400 per ERU</b>
<b>Total Estimated Cost per ERU - Initial Core Area</b>		<b>\$40,900</b>	<b>\$25,600</b>	<b>\$21,100</b>	<b>\$16,600</b>	<b>\$12,100 per ERU + On-Site Costs</b>
<i>This funding alternative divides Initial Costs by Initial Capacity ERU + Core Collection by 20-year Core ERU</i>						
<i>This alternative assumes the LID will finance up to 50% of the special benefit, or up to \$3.9 million</i>						

**Table 12: Estimated Project Cost per ERU – Side Sewers**

<b>Estimated Initial On-Site Project Costs</b>		<b>FUTURE GRANTS/APPROPRIATIONS SCENARIOS:</b>				
Average per typical residence	# of ERUs	<b>\$0</b>	<b>\$7,000,000</b>	<b>\$9,000,000</b>	<b>\$11,000,000</b>	<b>\$13,000,000</b>
Estimated Side Sewer & Grinder Pump Cost		\$4,486,000	\$4,486,000	\$4,486,000	\$4,486,000	\$4,486,000
Initial Core Area ERUs	356					2019 existing per water usage
<b>c. On-Site Costs per Initial Core Area ERU</b>		<b>\$12,600</b>	<b>\$12,600</b>	<b>\$12,600</b>	<b>\$12,600</b>	<b>\$12,600 per ERU + Conn Chg &amp; LID</b>
<b>TOTAL COST PER ERU (a+b+c)</b>		<b>\$53,500</b>	<b>\$38,200</b>	<b>\$33,700</b>	<b>\$29,200</b>	<b>\$24,700 per ERU</b>

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**Table 14: Estimated Operating Cost per ERU for Initial Phase**

Port Hadlock Annual Sewer Program	Annual Budget	Cost per ERU
<b>Operations &amp; Maintenance</b>		
Labor (@ .30 FTE + growth)	\$39,200	
Other Annual O&M Costs	\$83,800	
Total Annual O&M Costs (unescalated)	\$123,000	<b>\$29.00</b>
<b>Administration</b>		
Annual Administration (@ 90% x O&M) <sup>1</sup>	\$111,000	
Subtotal Administration	\$111,000	<b>\$26.00</b>
<b>Short-Lived Assets</b> <sup>2</sup>	\$87,000	<b>\$20.00</b>
<b>Build up Emergency Reserve</b> <sup>3</sup>	\$50,000	<b>\$12.00</b>
<b>Estimated Operating Budget</b>	<b>\$371,000</b>	<b>\$87.00</b>
<sup>1</sup> Admin. (estimated based on local examples at \$100,000 or 90% x O&M. Budgets typical at 75% but actuals at 100%) includes cost of administration, billing & accounting, state tax, insurance, overhead/shared professional services, etc.		
<sup>2</sup> Short-lived assets based on annual average to fund replacement of 15-year assets.		
<sup>3</sup> Build up Emergency Reserve of \$300,000 over 6 years.		



**Table 16: Summary Cost per ERU With & Without Future Grants**

COST ELEMENT	DESCRIPTION	PAYMENT METHOD	WHEN TO PAY?	WITH FUTURE GRANTS = \$0	WITH FUTURE GRANTS = \$13 MILLION
Shared General Facilities	Shared portions of system – treatment facilities & reuse area	Sewer Connection Charge	Upon connection to sewer system	\$27,200	\$4,700
Collection System Local Facilities	Collection system – sewer line in neighborhood	Local Improvement District (LID) Assessment	Pay over 20 years when sewer line comes to neighborhood	\$13,700	\$7,400
On-Site Connection	Grinder pump & side sewer to connect home/building to sewer stub at edge	Up to property owner	Upon connection to sewer system	\$12,600	\$12,600
Total Estimate Cost per ERU				\$53,500	\$24,700

*\*One equivalent residential unit (ERU) is equal to one residence or 4,000 gallons of monthly water usage for commercial.*

**+ MONTHLY SEWER O&M ESTIMATED COST = \$87.00 PER ERU**



**SUMMARY**

Port Hadlock Wastewater Treatment - Initial LID Property Examples  
 Estimated Initial Collection System to be funded by grants & LID

**CAUTION - EXAMPLES ONLY!!**

**THIS SCENARIO INCLUDES \$7 MILLION IN FUTURE GRANTS/APPROPRIATIONS**

**ALL PROPERTIES WITHIN THE LID WILL RECEIVE AN ASSESSMENT - TO BE PAID OVER 20 YEARS** + **CONNECTION CHARGES ARE PAID WHEN CONNECTING TO SEWER** + **ON-SITE COSTS**

Additional Grant Toward Initial Collection System = \$3,000,000
<b>Total LID Assessments this Scenario</b> <span style="float: right;"><b>\$3,532,000</b></span>

Additional Grant Toward Common & Shared = \$4,000,000
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Property Use	Example Properties	Estimated Assessment - Pay Over 20 Years
1 Restaurant 1	Small Restaurant property @ 16,000 sq ft lot size	\$6,800
2 Restaurant 2	Large Restaurant property @ 54,000 sq ft lot size	\$18,200
3 Restaurant 3	Small Restaurant property @ 13,000 sq ft lot size	\$6,800
4 Grocery	Large Grocery with parking @ 150,000 sq ft (multiple lots)	\$161,200
5 Gas Station	Gas Station property @ 19,000 sq ft lot size	\$6,800
6 Laundry	Laundry property @ 30,000 sq ft (2 lots)	\$29,500
7 School	Primary School Campus @ 470,000 sq ft	\$77,200
8 Library	Library Property @ 120,000 sq ft	\$27,200
9 Building Supply etc.	Building Supply property @ 108,000 sq ft	\$27,200
10 Building Supply etc.	Nursery property @ 17,000 sq ft	\$6,800
11 Building Supply etc.	Equipment Rental property @ 38,000 sq ft	\$18,200
12 Vacant	Vacant property @ 30,000 sq ft, comm'l on highway	\$27,200
13 Multiple Units	Small Motel (12 units)	\$6,800
14 Multiple Units	Senior Housing Complex (32 units, 4 buildings)	\$40,900
15 Multiple Units	Apartment Complex	\$81,700
16 Mobile Home Park	Mobile Home Park @ 922,000 sq ft (77 units, 2 lots)	\$90,800
17 Strip Mall	Small Strip Mall/Shopping (3 lots, 3 buildings, 5 stores)	\$59,000
18 Professional Office	Medical/Dental/Vet property @ 8,000 sq ft	\$6,800
19 Professional Office	Medical/Dental/Vet property @ 38,000 sq ft	\$18,200
20 Auto Works	Auto Mechanic property @ 44,000 sq ft	\$15,900
21 Residential - Sing Fam	Single Family Res @ <15,000 sq ft (Core RR-5 - UGA-C)	\$6,800
22 Residential - Sing Fam	Single Family Res @ <15,000 sq ft (Core RR-5 - UGA-C)	\$11,300

ERU's for Connection Charge	Estimated Connection Charge	Based on existing water meter usage
\$18,200 per ERU		
2	\$36,400	1 meter
7	\$127,400	1 meter
3	\$54,600	1 meter
23	\$418,600	1 meter
2	\$36,400	1 meter
34	\$618,800	2 meters
5	\$91,000	1 meter
7	\$127,400	2 meters
2	\$36,400	1 meter
3	\$54,600	1 meter
1	\$18,200	1 meter
to be determined		no meter
5	\$91,000	1 meter
7	\$127,400	4 meters
30	\$546,000	1 meter
77	\$1,401,400	1 meter
6	\$109,200	3 meters
1	\$18,200	1 meter
3	\$54,600	1 meter
1	\$18,200	1 meter
1	\$18,200	per sing fam connection
1	\$18,200	per sing fam connection

**\$12,600** per ERU

On-site costs include building/home to the sewer stub at the property line. The costs will vary by property.

**CAUTION - EXAMPLES ONLY!!**

**Assumptions for This Set of Examples:**

LID Assessments will be one per parcel, these examples may be grouped/consolidated for discussion purposes only.

Connection Charges are based on average monthly water usage shown as ERU's.

Single Family residence = 1 ERU

For all others, 1 ERU = 3,960 gallons per month of metered water usage



**SUMMARY**

Port Hadlock Wastewater Treatment - Initial LID Property Examples  
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**ON-SITE COSTS**

Additional Grant Toward Initial Collection System = \$3,000,000	
<b>Total LID Assessments this Scenario</b>	<b>\$3,532,000</b>

Additional Grant Toward Common & Shared = \$10,000,000
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1 Restaurant 1	Small Restaurant property @ 16,000 sq ft lot size	\$6,800
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22 Residential - Sing Fam	Single Family Res @ <15,000 sq ft (Core RR-5 - UGA-C)	\$11,300

ERU's for Connection Charge	\$4,700 per ERU Estimated Connection Charge	Based on existing water meter usage
2	\$9,400	1 meter
7	\$32,900	1 meter
3	\$14,100	1 meter
23	\$108,100	1 meter
2	\$9,400	1 meter
34	\$159,800	2 meters
5	\$23,500	1 meter
7	\$32,900	2 meters
2	\$9,400	1 meter
3	\$14,100	1 meter
1	\$4,700	1 meter
to be determined		no meter
5	\$23,500	1 meter
7	\$32,900	4 meters
30	\$141,000	1 meter
77	\$361,900	1 meter
6	\$28,200	3 meters
1	\$4,700	1 meter
3	\$14,100	1 meter
1	\$4,700	1 meter
1	\$4,700	per sing fam connection
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**\$12,600** per ERU

On-site costs include building/home to the sewer stub at the property line. The costs will vary by property.

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Single Family residence = 1 ERU

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CAUTION: This sample has been prepared for discussion purposes only and is not intended to indicate what the actual interest rate or payments will be. The interest rate will be determined by the market when project financing is complete and final.



**CAUTION - EXAMPLES ONLY!!**

**SAMPLE LID ASSESSMENT**

**ASSUMPTIONS:**

ANNUAL PAYMENTS:	15
PAYMENTS PER YR	1
ANNUAL INTEREST	3.50%

**CAUTION - EXAMPLES ONLY!!**

**SAMPLE LID ASSESSMENT**

**ASSUMPTIONS:**

ANNUAL PAYMENTS:	20
PAYMENTS PER YR	1
ANNUAL INTEREST	3.50%

PRINCIPAL AMOUNT:	SAMPLE ASSESSMENT CALCULATION				
	\$6,800	\$11,300	\$22,700	\$40,900	\$59,000
YEAR 1	691	1,149	2,308	4,158	5,998
YEAR 2	675	1,122	2,255	4,063	5,861
YEAR 3	660	1,096	2,202	3,967	5,723
YEAR 4	644	1,070	2,149	3,872	5,585
YEAR 5	628	1,043	2,096	3,776	5,448
YEAR 6	612	1,017	2,043	3,681	5,310
YEAR 7	596	991	1,990	3,586	5,172
YEAR 8	580	964	1,937	3,490	5,035
YEAR 9	564	938	1,884	3,395	4,897
YEAR 10	549	912	1,831	3,299	4,759
YEAR 11	533	885	1,778	3,204	4,622
YEAR 12	517	859	1,725	3,108	4,484
YEAR 13	501	832	1,672	3,013	4,346
YEAR 14	485	806	1,619	2,918	4,209
YEAR 15	469	780	1,566	2,822	4,071
<b>TOTAL PAYMENTS</b>	<b>\$8,704</b>	<b>\$14,464</b>	<b>\$29,056</b>	<b>\$52,352</b>	<b>\$75,520</b>

ASSESSMENT:	EXAMPLES OF SAMPLE ASSESSMENTS & RELATED ANNUAL PAYME				
	\$6,800	\$11,300	\$22,700	\$40,900	\$59,000
YEAR 1	578	961	1,930	3,477	5,015
YEAR 2	566	941	1,890	3,405	4,912
YEAR 3	554	921	1,850	3,333	4,809
YEAR 4	542	901	1,810	3,262	4,705
YEAR 5	530	881	1,771	3,190	4,602
YEAR 6	519	862	1,731	3,119	4,499
YEAR 7	507	842	1,691	3,047	4,396
YEAR 8	495	822	1,651	2,975	4,292
YEAR 9	483	802	1,612	2,904	4,189
YEAR 10	471	783	1,572	2,832	4,086
YEAR 11	459	763	1,532	2,761	3,983
YEAR 12	447	743	1,493	2,689	3,879
YEAR 13	435	723	1,453	2,618	3,776
YEAR 14	423	703	1,413	2,546	3,673
YEAR 15	411	684	1,373	2,474	3,570
YEAR 16	400	664	1,334	2,403	3,466
YEAR 17	388	644	1,294	2,331	3,363
YEAR 18	376	624	1,254	2,260	3,260
YEAR 19	364	605	1,214	2,188	3,157
YEAR 20	352	585	1,175	2,117	3,053
<b>TOTAL PAYMENTS</b>	<b>\$9,299</b>	<b>\$15,453</b>	<b>\$31,042</b>	<b>\$55,931</b>	<b>\$80,683</b>

**CAUTION - EXAMPLES ONLY!!**

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**Table 16: Summary Cost per ERU With & Without Future Grants**

COST ELEMENT	DESCRIPTION	PAYMENT METHOD	WHEN TO PAY?	WITH FUTURE GRANTS = \$0	WITH FUTURE GRANTS = \$13 MILLION
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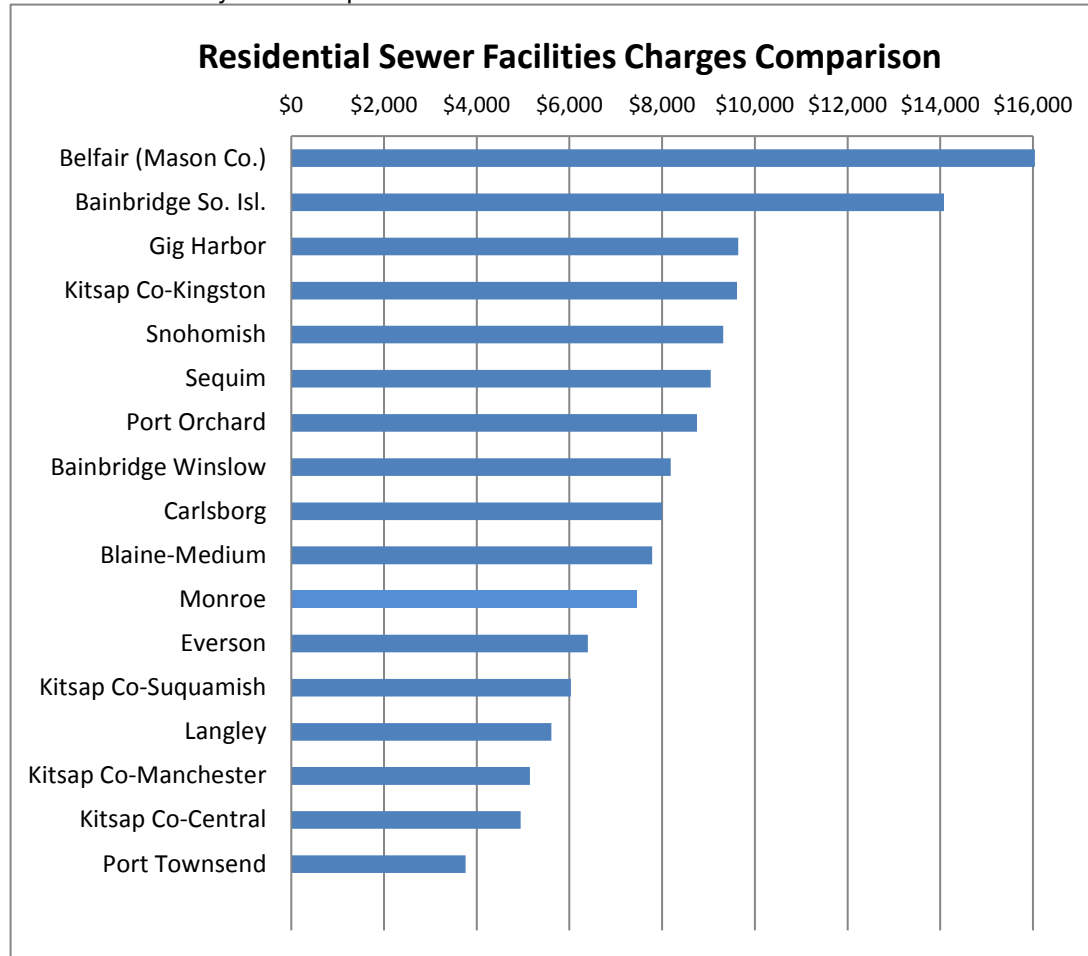
*\*One equivalent residential unit (ERU) is equal to one residence or 4,000 gallons of monthly water usage for commercial.*

**+ MONTHLY SEWER O&M ESTIMATED COST = \$87.00 PER ERU**



Compare Sewer Connections 2019

Compares a single family residential sewer capital facilities charge (also known as general facilities charge, system development fee, etc.). Excludes design review, sewer permit or inspection fees, separate local facilities charge, LID assessments, latecomer recovery or developer extensions and side sewer installation.

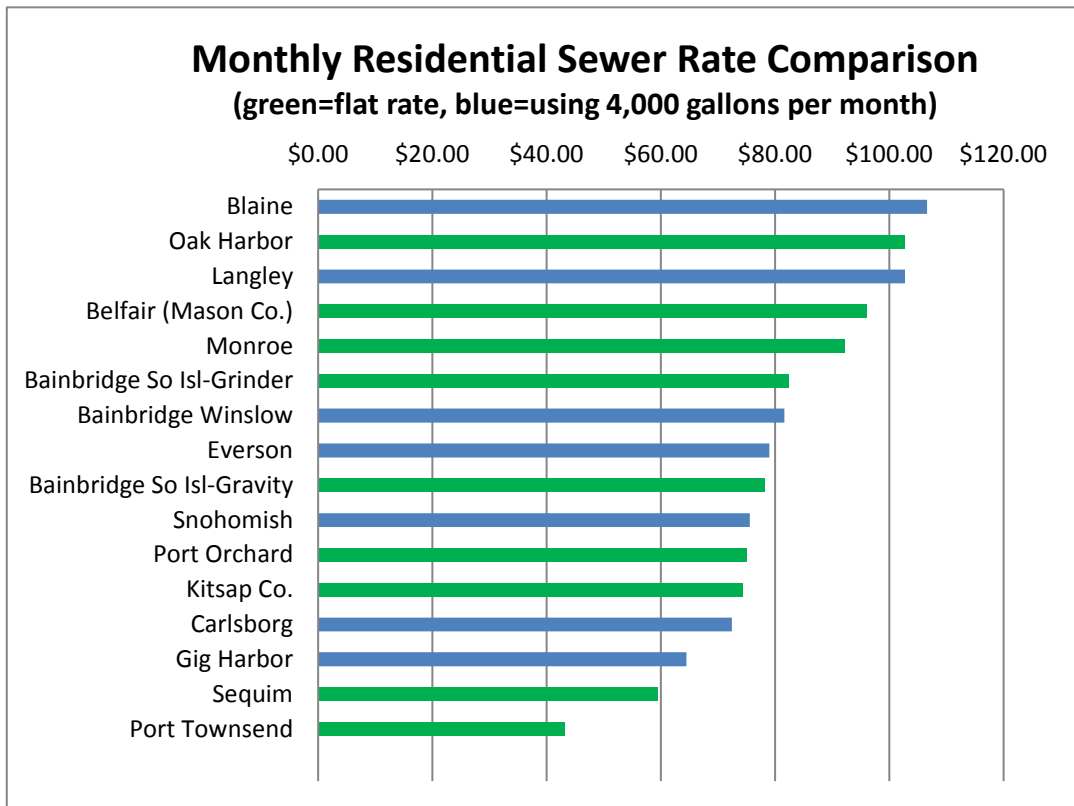


Prepared by: Katy Isaksen & Associates, June 2019  
Based on information available on websites



Compare Sewer Rates 2019

Compares a monthly single family residential sewer rate; flat rate that does not vary (green); base + volume rate (blue) and based on 4,000 gallons of water usage per month (535 cubic feet).



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Based on information available on websites

