



CITY OF
BAINBRIDGE ISLAND

UTILITY ADVISORY COMMITTEE
REGULAR MEETING
WEDNESDAY, MAY 3, 2023
5:30 PM
COUNCIL CHAMBERS CONFERENCE ROOM & ZOOM MEETING

UTILITY ADVISORY COMMITTEE

MAY 3, 2023

COUNCIL CHAMBERS CONFERENCE ROOM & ZOOM MEETING
280 MADISON AVENUE N., BAINBRIDGE ISLAND, WA 98110

PLEASE CLICK LINK BELOW TO JOIN WEBINAR:

<https://bainbridgewa.zoom.us/j/85322271874>

TELEPHONE: 1 253 205 0468 — WEBINAR ID: 853 2227 1874

AGENDA

1. CALL TO ORDER / ROLL CALL / ACCEPT OR MODIFY AGENDA / CONFLICT OF INTEREST DISCLOSURE
5:30 PM
2. APPROVAL OF MARCH 1, 2023 MEETING MINUTES – 5 MIN
3. REVIEW FINAL UPDATES TO RECOMMENDATIONS FOR THE WATER AND SEWER RATE STUDY (20 MIN)
4. REVIEW AND DISCUSS WINSLOW WATER AND SEWER SERVICE AREA CAPACITY MEMOS (20 MIN)
5. GROUNDWATER MANAGEMENT PLAN SUB-COMMITTEE MEMBER REPORT (20 MIN)
6. PUBLIC WORKS UPDATE – 15 MIN
7. NEXT MEETING AGENDA – 5 MIN
8. ADJOURNMENT

**CITY OF BAINBRIDGE ISLAND
UTILITY ADVISORY COMMITTEE
March 1, 2023, Meeting Minutes**

Members Present: Charles Averill (meeting chair), Svend Brandt-Erichsen, Susan Hume, Ted Jones, Andy Maron, Chris Wierzbicki

Also Present: DeWayne Pitts (Finance Director), Jon Quitslund (Council Liaison)

Meeting called to order 5:33 pm

1. The February 8, 2023 **meeting minutes were approved.**

2. Review Water and Sewer Rate Study Final Recommendations

Chris summarized the changes proposed by the UAC at the last meeting, which have been incorporated into the current draft. It was suggested to elaborate on the study's recommendation to conduct a rate study in 2025. In particular, the purpose of such a study would be to revisit the actual costs of the High School Water Tank and the implications of the proposed rates.

The meeting also reviewed and made specific recommendations to the separate draft memos to the Council from staff and from the UAC.

The study will be discussed at the April 4 Council study session.

3. Public Works Update

It was noted that COBI will share its comments to PSE on the draft franchise renewal agreement, during the month of March.

There were no further updates.

4. Next Meeting Agenda

Chris will share the draft memo regarding the sewer and water area capacity for the new subarea plan given growth projections for the area (2024-2044).

5. The meeting **adjourned** at 6:55 pm.



DEPARTMENT OF PUBLIC WORKS MEMORANDUM

Date: May 5, 2023
To: City Manager; City Council
From: Christopher Wierzbicki, Public Works Director
Subject: **Minor Revisions to Water and Sewer Rate Study Recommendations**

Background/Purpose

On April 4, 2023, the City Council received a presentation from staff regarding the recommendations for 2023-2025 Water and Sewer Utility rate increases. The Council is considering adopting the recommended rate increases by ordinance at the May 23, 2023 City Council meeting.

The purpose of this memo is to outline several minor revisions to the recommendations which were developed by staff in response to new information and updated sewer project costs. The recommendations were reviewed and accepted by the Utility Advisory Committee on May 3, 2023, and are reflected in the proposed rate ordinance.

Minor Revisions to the Water and Sewer Rate Study Recommendations

Minor revisions were made to the Water and Sewer Utility rate study recommendations resulting from new cost estimates recently received from the city's consultant related to the wastewater treatment plant (WWTP) upgrades and the WWTP outfall extension. Together, the revised costs of these projects added approximately \$5M to the 6-year Sewer Utility Capital Improvement plan. In order to adjust to these updated costs, several of the sewer pump station projects were deferred by one year to help spread the costs of improvements out more evenly across the 6 years.

Also resulting from these updated project cost increases are the following revisions to the recommendations:

- The sewer bond issuance projected in 2024 is increased from \$5.8 to \$6.1 M. An additional \$5.2M bond issuance will likely be needed to support the outfall project in 2027. Neither of these changes to the borrowing plan are expected to result in a sewer rate increase above what was originally – and presently – included in the recommendations for 2023-2028.
- System reinvestment funding levels are now set based on the amount of cash left over after operating expenses and debt service have been covered, instead of fixed amounts that drive additional rate increases. This change appropriately recognizes the expected debt burden

on both the water and sewer utilities due to the near-term capital projects. With this change in policy, the sewer utility is expected to begin funding system reinvestment in 2025 while the water utility is expected to begin funding it in 2027. To compensate for these changes, the beginning 2023 balances were adjusted to shift a greater amount of funding to the capital reserves.

- The sewer System Participation Fee, otherwise known as a “connection fee” for new development, is increased by approximately 8% over the original recommendation (for a typical single-family residential connection.)

Lastly, the staff are recommending a policy change to the city’s code section 13.16.040, eliminating the ability for owners of property to receive a binding commitment for sewer service with a nonrefundable deposit of 10% of the participation fee. This practice is not common among other municipalities and agencies, and results in both administrative and technical challenges to managing the city’s sewer availability program.



DEPARTMENT OF PUBLIC WORKS MEMORANDUM

Date: April 7, 2023

To: City Manager
City Council

From: Christopher Wierzbicki, Public Works Director

Subject: Council Request: House Bill 1220 (Housing Needs) Sewer Assessment

Background

At the Regular Meeting of March 21, 2023, the City Council was presented with an overview of a draft housing allocation process under House Bill 1220, which requires Comprehensive Plans to plan for housing for all income levels. The Council requested input from the staff on the City’s capacity for serving the housing allocation with sewer in advance of the Kitsap Regional Coordinating Council’s adoption of the allocation into the Countywide Planning policies.

Housing Allocation Summary

At the above-mentioned Council meeting, staff presented a chart that outlined the draft 20-year housing allocation. The chart is reproduced below as Figure 1.

			Permanent Housing Unit Needs by Income Level(% of Area Median Income)						
			0-30%						
		Total Units	Non-PSH	PSH	>30-50%	>50-80%	>80-100%	>100-120%	>120%
City of Bainbridge Island	Estimated Housing Supply (2020)	11,251	331	0	331	788	1,150	2,073	6,578
	Allocation Method A (2020-2044)	1,977	377	166	324	272	140	138	560
			1,139 Multi-Family Units in Winslow						

Figure 1 – House Bill 1220 Housing Draft Housing Allocation for the City of Bainbridge Island

The chart indicates that the draft 20-year housing allocation would require zoning capacity for 1,139 multi-family (MF) units to serve between 0 and 80% of area median income, which are presumed to be located in the Winslow subarea. According to the 2019 Buildable Lands Report, the Winslow subarea already has capacity for 258 MF units, as well as 144 single-family units. Therefore, the total number of planned housing units to be accommodated for sewer capacity in Winslow is 1,283 units.

Sewer Population Capacity

As outlined in in Figure 2 below, with the upgrades planned in the 2023-28 Capital Improvement Plan, the Wastewater Treatment Plant (WWTP) can accommodate approximately 85% of the current and future housing allocated for the Winslow sewer service area (this area closely, but not exactly mimics the Winslow subarea boundary.) The capacity of the WWTP is measured in equivalent residential units, or ERUs, which is calculated by multiplying the number of housing units by the number of members in each house (the average for Bainbridge Island is 2.48 per household.)

Assuming a steady annual trend in housing, future upgrades to the plant would need to be designed in 2038 for implementation in 2040. The future upgrades would include new capital infrastructure within the existing footprint of the plant site and would conservatively accommodate an additional increase in housing up to 2,110 units.

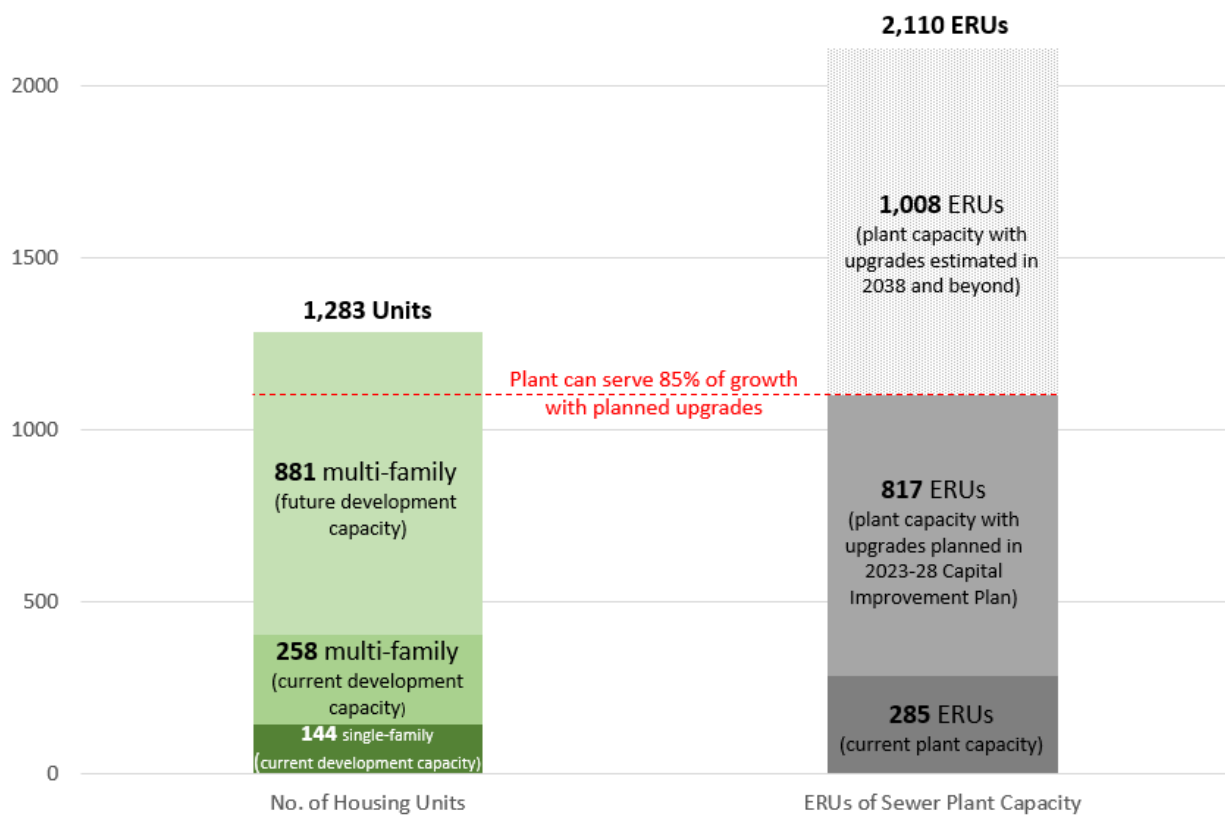


Figure 2 –Current/Planned Housing Units in Winslow Compared with Sewer Utility Capacity

Other Factors for Consideration

- Consideration should be made for any potential increases in *commercial* development, which has remained flat for the last several years, but which absorb treatment plant capacity more quickly than residential development. Planned increases in commercial development in the Winslow sewer service area must be carefully balanced along with residential population growth and reflected in future evaluations of the plant capacity.

- Within the Winslow sewer service area, the sewer population is approximately 200 housing units (500 persons) *less* than the overall population due to some houses still being served by septic systems. Some accommodation for the connection of existing homes to the sewer system should be considered as part of the analysis.
- Multifamily housing has a lower household occupancy level (2.3) for multi-family housing than average (2.48). Therefore, the analysis provided in this memo can be considered conservative on the order of 8-10%.
- Lastly, for context, the planned upgrades to the Winslow Water Tank will provide the city's water utility the capacity to serve approximately 2,600 new ERUs inside the Winslow water service area boundary, an area that closely mimics the Winslow subarea, and also includes the New Brooklyn Road corridor, Fletcher Bay, and Upper Ferncliff.

City of Bainbridge Island
Sewer Rate and SPF Model
Capital Improvement Program



No	Function	Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Useful Life (Years)	% Utility Funded	TOTAL ESCALATED COSTS
1	Pumping	Rehabilitate Pumps (Sunday Cove)	\$ -	\$ 50,000	\$ 450,000	\$ 450,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	30	100%	\$ 950,000
2	Pumping	Pump Station & Force Main (Wood Avenue)	-	50,000	-	3,925,000	-	-	-	-	-	-	50	100%	3,975,000
3	Pumping	Rehabilitate Pump Station (Lower Lovell)	-	25,000	800,000	800,000	-	-	-	-	-	-	50	100%	1,625,000
4	Pumping	Madison Avenue Reconstruction Project	-	807,000	-	-	-	-	-	-	-	-	50	100%	807,000
5	Pumping	Hawley/Irene Grinders	-	396,000	-	-	-	-	-	-	-	-	50	100%	396,000
6	Treatment	Wastewater Treatment Plant (WWTP) Upgrades	10,000	990,000	2,140,000	-	-	-	-	-	-	-	50	100%	3,140,000
7	Pumping	Ferry Terminal Pump Station Relocation	-	-	-	-	-	150,000	700,000	-	-	-	50	100%	850,000
8	Pumping	Wing Point Pump Replacement	-	100,000	650,000	650,000	-	-	-	-	-	-	50	100%	1,400,000
9	Pumping	Hawley Pump	-	-	124,000	320,000	320,000	-	-	-	-	-	50	100%	764,000
10	Pumping	North Town Woods Pump	-	-	118,000	262,000	262,000	-	-	-	-	-	50	100%	642,000
11	Pumping	Woodward Pump	-	-	133,000	-	317,000	317,000	-	-	-	-	50	100%	767,000
12	Pumping	Rehabilitate Pump Station (Island Terrace)	-	-	180,000	-	272,000	272,000	-	-	-	-	50	100%	724,000
13	Collection	Install Gravity Sewers (Sunday Cove)	-	10,000	11,000	1,600,000	-	-	-	-	-	-	50	100%	1,621,000
14	Treatment	Extend WWTP Outfall	-	350,000	700,000	-	-	5,300,000	-	-	-	-	50	100%	6,350,000
15	Collection	Ferncliff Ave Conveyance Upgrades	-	-	-	-	250,000	1,000,000	-	-	-	-	50	100%	1,250,000
16	Treatment	WWTP Air Gap	-	177,000	-	-	-	-	-	-	-	-	50	100%	177,000
17		Long-Term Replacement Projects	-	-	-	-	-	-	-	438,462	477,805	822,267	50	100%	13,399,820
Total Capital Projects			\$ 10,000	\$ 2,955,000	\$ 5,306,000	\$ 8,007,000	\$ 1,421,000	\$ 7,039,000	\$ 700,000	\$ 438,462	\$ 477,805	\$ 822,267			\$ 38,837,820



DEPARTMENT OF PUBLIC WORKS MEMORANDUM

Date: March 14, 2023

To: Winslow Sub-Area Plan Team; File

From: Christopher Wierzbicki, Public Works Director
Peter Corelis, City Engineer

CC: Paul Nylund, Development Manager

Subject: Winslow Sub-Area Plan Sewer and Water Capacity Analysis

Executive Summary

This memo provides an analysis of the city's sewer and water service capacity for the purpose of informing the Winslow Sub-Area Plan process. In summary:

- With the planned upgrades to the wastewater treatment plan (WWTP), the city's sewer utility will have the capacity to serve a residential population of approximately 10,500 (an increase of approximately 2,700) in or around the Winslow sewer service area if carefully balanced out by commercial growth. The planned upgrades, which are currently underway, will allow the WWTP to meet existing regulations, and must be completed independent of planned future growth.

Additionally, within the existing footprint of the WWTP, the facility could be further upgraded to serve a greater population, the details of which will be determined later this year.

- With the planned upgrades to the Winslow Water Tank, the city's water utility will have the capacity to serve a population of approximately 17,600 (an increase of approximately 6,600) inside the Winslow water service area boundary, an area that includes the Winslow subarea, and in addition, the New Brooklyn Road corridor, Fletcher Bay, and Upper Ferncliff. The planned tank upgrades, which are currently underway, will allow the utility to meet both existing and future system requirements and standards.

Population/Development Background Information

The following population background information was used to inform the sewer and water service area capacity analysis:

- In 2005, the city documented residential population growth in a study titled “Population Allocation Study for Year 2005 Preliminary Report” which estimated the Winslow Study Area at approximately 5,800 residents. The study predicted a 20-year average annual residential growth rate of 2.4%.
- The 2020 census population numbers for greater Winslow (census tracts 909.01 and 909.02, which combined is slightly larger than the Winslow Study area) add up to 7,967 people, which represents an actual average annual residential growth rate between 2005 and 2020 of 2.2%.
- Assuming the actual 2.2% average annual growth rate, the 2022 population of the Winslow Study Area is approximately 8,321 people. The sewer population – which is less than the overall population due to some houses still being served by septic systems - is approximately 7,769.
- The 2021 Buildable Lands Report (BLR) estimated that the maximum residential population capacity in Winslow in 2020 - under the current development regulations - was an additional approximately 1,000 residents (144 single-family units, and 258 multi-family units.) Therefore, assuming the 2019 population was 7,795 (7,967 in 2020 minus 2.2%), then the current maximum population in Winslow according to the BLR would be approximately 8,795, or an additional 474 residents.
- The 2005 population study referenced earlier estimated a 1.4% annual increase in commercial growth between 2005 and 2025. An analysis using commercial sewer and water usage rates indicates that the actual increase in commercial growth since 2005 was close to zero. Estimating the capacity for commercial growth in the future is a challenging exercise, as many commercial zoning districts allow mixed-uses and therefore need to be analyzed for capacity on a parcel-by-parcel basis to effectively measure capacity. However, the BLR estimated that there are currently 36 acres of commercial development remaining, which equates to about 14% of the total acreage (261) that allows commercial uses. Therefore, this analysis assumes a relatively low rate of commercial growth in the future, absent significant zoning changes.
- The Winslow water service area is larger than the sewer service area – the latter of which largely mimics the Winslow Study Area – and includes the New Brooklyn Road corridor, Fletcher Bay, and Upper Ferncliff. The number of Equivalent Residential Units (ERU) currently served (an approximation of single-family, multi-family, and commercial water connections in terms of single-family households) is approximately 4,775 ERUs, which equates to approximately 11,000 residents currently being served with water (assuming an average of 2.3 people per household/ERU.)

Sewer Service Analysis

The following analysis of the sewer system is based on a technical memo prepared by Tetra Tech entitled “TM1 – Analysis of Treatment Plant Flows and Loads” dated October 3, 2022.

The city's sewer service area mostly mimics the Winslow Study area, despite being slightly smaller, and includes some residences that are still served by septic systems. As mentioned previously, the system serves approximately 7,769 residents and also commercial establishments. The Tetra Tech report analyzed the sewer service area using the capacity of the wastewater treatment plant as the limiting factor on serving new growth. The plant capacity was analyzed from the perspective of both flows (volume) and loads (concentration). The plant loading is considered to be the limiting factor for serving new growth.

From a *flow* perspective, based on the trending data from 2017 to 2022, the annual average flow is projected to remain steady, with limited increases. This is due to larger commercial service areas being largely built-out – as mentioned previously, only about 14% of commercially zoned land is available for new development. Additionally, residential water consumption per capita flows are likely dropping as older fixtures and appliances are upgraded with new low-flow fixtures.

From a *loading* perspective, despite low commercial growth (commercial development contributes to higher loads than residential,) loads measured at the plant have been steadily increasing. Some of this increase is likely the result of discharges to the sewer system from commercial winery and brewery establishments. The Tetra Tech report projects that based on current trends, the plant loading will likely reach capacity by mid-year 2026 (2,642 lbs/day of biological oxygen demand (BOD)). To meet current state regulations and best serve the existing customer base, the city is currently planning near-term operational and capital upgrades that will likely increase the plant capacity by about 25% (to 3,200 lbs/day BOD). These upgrades will also serve a 25% increase in the customer base.

In terms of population growth, at current trends, the current configuration of the WWTP can be expected to serve a sewer population of 8,475 (a population increase of 706 from the time of this memo), increasing to sewer population of approximately **10,500** (a population increase of 2,700). This includes new growth, and potential new connections from existing residences in the sewer service area currently served by septic.

Sewer Service Capacity Context

For context, the growth target for the entire island over the next 20 years is estimated to be an increase of around 4,500. If one goal of the Winslow Sub-Area plan is to accommodate a majority of that growth in Winslow, *the city can only expect to serve about half of that population in the sewer service area with the planned upgrades to the treatment plant.* Larger, long-term expansions of the treatment plant capacity are also possible, and capacity forecasts are currently being developed by the city's design team. More information on the maximum capacity of the plant within the current footprint will be developed later this year.

Another factor for consideration includes any potential increases in commercial development, which have remained flat for the last several years, but which absorb treatment plant capacity more quickly than residential development. Planned expansions for commercial development in Winslow must be carefully considered in the future capacity analysis along with residential population growth.

Water Service Analysis

The Winslow water service area includes the Winslow Subarea, in addition to New Brooklyn Road corridor, Fletcher Bay, and Upper Ferncliff areas. The service area is documented in the 2017 Water System Plan, prepared by Carollo Engineers, Inc., without providing an account of system customers in the Subarea only, therefore, this capacity analysis applies to the larger service area.

The System Plan predicted water use demand in 2021 at 5,312 equivalent residential units (ERUs), which equates to 12,218 residents (assuming 2.3 people per household/ERU to estimate equivalent residents.) However, in reviewing the City's actual annual well production data from 2021, the Winslow Water System is actively supplying only 4,775 ERUs, or approximately 11,000 residents. This decrease in expected demand may have resulted from a number of factors, such as a lack of commercial businesses expansions, conditions related to the COVID-19 epidemic, inflationary pressures on construction, or the slow production of new housing stock.

To serve existing and new customers, the city is planning to replace the two existing water storage tanks serving the system with a new elevated tank in 2024. The Winslow Water Tank project addresses several system deficiencies as well as managing projected customer growth. The system deficiencies include excessive dead storage in the current tanks due to their minimal height, resulting in water quality issues, over-cycling of well-site booster pumps, limitations on serving existing high elevation customers with adequate pressure, system fire flows, and seismic resiliency of the tanks – the latter of which is a critical public safety issue. The city is temporarily addressing some of these deficits by augmenting the reservoir levels to operate in a much narrower band (i.e. maintaining higher water levels and replenishing them more often) but this configuration is not sustainable in the long-term as it creates a dead-storage column of water in the tanks that is mostly useless for daily system needs. The deficiencies have led to a reduction in estimated capacity to 5,200 ERUs (or 11,960 residents.)

With regards to customer growth, there is currently a surplus of connections totaling approximately 425 ERUs (5,200 ERUs of capacity minus 4,775 served,) which is capable of serving approximately another 1,000 residents. Accounting for 182 ERUs worth of binding reservations for water service that are not yet connected to the system, it is estimated that only 243 of the 425 total ERUs are available, which equates to an additional 559 residents. Therefore, if the population growth continues at a rate of 2.2% annually, the remaining ERUs will run out in early to mid-2024, just in time for the completion of the tank project. The new tank, which will replace 2.5M gallons of ground-tank storage with 2.0M gallons of elevated storage, will correct existing system deficiencies and add 2,866 ERUs to the system capable of serving a population of 17,600 (an increase of 6,600 residents.)

Other limiting factors on the Winslow water system include well capacity and/or the well pump's ability to deliver water from the wells; the instantaneous or total water withdrawals permitting as determined by the system's water rights; and, the volume of groundwater supply. In review of the former two factors, the city's infrastructure and available water rights are mostly sufficient to meet the system capacity that will be available when the new water tank comes online in 2024. Small deficits in infrastructure capacity will be addressed in the coming years through planned capital improvements such as well rehabilitations and booster pump upgrades. Water rights currently

exceed the needs of the planned capacity upgrades, and the availability of groundwater supply was confirmed in the city's 2016 evaluation of the groundwater model. The model is being updated and re-evaluated as part of the ongoing development of the Groundwater Management Plan.

Water Service Capacity Context

In the context of planned population growth, *the existing Winslow water system with planned improvements will be able to serve the estimated growth target for the entire island over the next 20 years*, which is estimated to be an increase of around 4,500 residents (1,953 ERUs.) Additionally, the system will also have the capacity to serve an excess population of approximately 2,100 residents (913 ERUs.) In the short-term, prior to the planned improvements, the Winslow water system can support an additional population growth of approximately 559 residents (243 ERUs).