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**EQUITY AND SOCIAL JUSTICE
REVIEW OF FACILITIES:**
ASSESSMENT OF RESIDENTIAL-AREA
PUMP STATIONS

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Executive Summary

The Equity and Social Justice Initiative, mandated by *Fair and Just* Ordinance 16948, demands equity in county practices. This translates to services and facilities that provide equal quality in design, construction, operations and maintenance throughout our service area, regardless of the surrounding community's social, economic and political circumstances.

In 2013, the King County Department of Natural Resources and Parks (DNRP) – Wastewater Treatment Division (WTD) investigated an evenly distributed sample of wastewater treatment and conveyance facilities to determine any possible inequities in the utility's practices, as it pertains to design, odor and maintenance of the regional clean-water system. The initial review included a subset of pump stations, and suggested that there may be a very weak correlation between higher income and higher quality of design, as well as a weak correlation between higher income and increased quality of maintenance.

As a result of these findings, and with the desire to eliminate potential inequities system-wide, WTD made the decision to review the design and maintenance of all the pump stations within or adjacent to residential zones. For those that are found to be below median-level, improvements will be outlined that will – when implemented – bring the facility to a median-level quality of service. The goal of this review is to assure that all of the pump stations attain at least a median-level quality of service within residential communities throughout our service area, and to ensure that there is a standard applied to all future pump station projects.

For this analysis, WTD conducted a survey of 30 pump stations that were identified to be within residential areas. "Within a residential area" is defined as a pump station that has residentially-zoned parcels abutting at least one side of the property, or residential properties directly across the street from the pump station.

The specific question that this study attempts to answer is:

Does the quality of our pump stations' design and maintenance meet a median level of quality throughout our service area?

To address this question, each pump station was visited by two WTD staff members travelling to the site together. During the site visit, they photographed the facility and recorded answers to the following series of questions to address characteristics measured.

Characteristic	Measurement of
<i>Aesthetics and Art</i>	
Questions:	
• Quality of landscape installation	Maintenance
• Presence and extent of art	Design
• Quality of landscape installation	Design
• Views into the site	Design
<i>Building</i>	
Questions:	
• Level of architectural finish	Design
• Physical conditions of overall facility	Maintenance
<i>Facility</i>	
Questions:	
• Noticeable odor	Odor
• Public amenities (on-site)	Design
• Effectiveness of public safety measures*	Design
• General overall impression	General Impression
<i>Surroundings</i>	
Questions:	
• Effect on regional view	Design
• View blockage by facility	Design
• Intrusiveness of lighting (trespass and noise)*	Design
• Noise originating from facility*	Design
<i>Overall</i>	
Questions:	
• Overall site review	General Impression

*Questions not asked during the initial November 2013 study

The qualitative results from the site visits were quantified on a scale of 1-5 for each of the questions asked, ascending from lowest to highest, with a numerical value of 0 for non-applicable characteristics. The separate quantitative results were averaged for the multiple staff completing the review during the same site visit. Each category – maintenance, design, odor and general impression – were normalized to reflect an equalized score.

In the results, scores are recorded as a percentage of total potential points, and are reflected in a summarized score, which was sorted in ascending order and analyzed by statistical distribution.

Figures 7 and 8 found in Chapter 3 outline all quantitative scores, portraying the design, maintenance, odor and general impressions of the utility's residential-area pump stations.

The following five figures in Chapter 3 – 9, 10, 11, 12 and 13 – array the characteristics in order of their statistical distribution: first in a summary of total percent scored by each pump station, then separately for each characteristic.

Figures 11, 12, 13 and 14 are divided into four groups to provide context of how service quality is distributed across residential-area pump stations. The median scores are highlighted in dark blue, with one standard deviation identified above and below the median. These close neighbors to the median are all within an acceptable statistical range to be considered “median-level” and are, for the purposes of this study, considered to meet the median standard that answers our key question, which sets the goal for all pump stations within residential areas.

Figure 15 portrays the linear regression of area median income versus equalized grand total of points for all of the pump stations. This is clear evidence – from the reviewing of pump stations – that no correlation is found between higher income and quality of design and maintenance. This sets aside the concern from the smaller sample review in 2013 that indicated weak correlations between design and maintenance and surrounding income.

The focus of our upgrade efforts will be those facilities that fall below the median of the total percent scored by all facilities minus one standard deviation.

Seven pump stations have been found to fall below overall median status, based on the aggregate scores of all characteristics:

- Juanita Bay (East)
- Yarrow Bay
- Hollywood
- Bunker Trail
- Sunset
- Wilburton
- Lakeland Hills

As a result of these findings – and the objective of this study – recommendations have been developed for each of these seven pump stations that would ultimately allow them to reach the current median level of service quality. With the completion of the improvements recommended at each facility, WTD should reach the goal of a median-level of design and maintenance system-wide for pump stations within residential areas. **For recommendations please see Chapter 4.**

Chapter 1

Introduction

Purpose

In 2013, the King County Department of Natural Resources and Parks (DNRP) – Wastewater Treatment Division (WTD) investigated an evenly distributed sample of wastewater treatment and conveyance facilities to determine any possible inequities in the utility’s practices, as it pertains to the design, odor and maintenance of the regional clean-water system. The initial review included a subset of pump stations, and suggested that there may be a very weak correlation between higher income and higher quality of design, as well as a weak correlation between higher income and increased quality of maintenance.

As a result of these findings, and with the desire to eliminate inequities system-wide, WTD made the decision to review the design and maintenance of all the pump stations within or adjacent to residential zones. For those that are found to be below median-level, improvements will be outlined that will – when implemented – bring the facility to the identified median-level quality of service. The goal of this review is to assure that all of the pump stations attain at least a median-level quality of service within residential communities throughout our service area.

Equity and Social Justice Background

2008: Former King County Executive Ron Sims launched the Initiative on Equity and Social Justice (ESJ). Executive Sims asked each department to make an annual commitment to the initiative.

2010: The Metropolitan King County Council unanimously passed Ordinance 16948, establishing definitions and direct implementation steps related to the “Fair and Just” principle of the 2010 King County Strategic Plan. The ordinance establishes the following:

- Expands the inter-agency team to include all agencies and branches of King County government through the Inter-Branch Team (IBT)
- Annual reports on ESJ measures, with results available to the public
- Definitions and identification of approaches to implement the “Fair and Just” principle of the King County Strategic Plan

Definitions

Equity – People have full and equal access to opportunities that enable them to attain their full potential

Social Justice – All aspects of justice, including legal, political and economic, requires the fair distribution of public goods, institutional resources and life opportunities for all people

Fair and Just – The County serves all residents by promoting fairness and opportunity and eliminating inequities through actions to which Equity and Social Justice

foundational practices are applied

Determinants of Equity – the social, economic, geographic, political, physical and environmental conditions in which the people of King County are born, grow, live work and age that lead to the creation of a fair and just society.

Current Links: Websites, reports and resources developed for implementation of the Equity and Social Justice Initiative:

- Ordinance 16948 Signature Report:
 - <http://your.kingcounty.gov/mkcc/clerk/OldOrdsMotions/Ordinance%2016948.pdf>
- King County Executive: Equity and Social Justice:
 - <http://www.kingcounty.gov/elected/executive/equity-social-justice.aspx>
- 2014 Equity and Social Justice Annual Report:
 - http://www.kingcounty.gov/elected/executive/~/_media/E0F8D7012D5C4CBA9D15B9542338FEF8.ashx
- 2010-2014 King County Strategic Plan:
 - http://www.kingcounty.gov/~/_media/exec/PSB/documents/CWSP/1007_1182_KCStratPlan7_0727.ashx?la=en
- DNRP Equity & Social Justice Programs and Activities:
 - <http://your.kingcounty.gov/dnrp/measures/equity.aspx>
- WTD Equity & Social Justice:
 - <http://wtdweb/www/wtd/ESJ/index.htm>

Chapter 2

Methodology

The “Fair and Just” principle of the King County Strategic Plan – further mandated by Ordinance 16948 – demands equity in all county practices. For WTD, this calls for consistent standards in design, construction, operations and maintenance of all facilities, regardless of neighborhood circumstances.

To determine if the requirements of Ordinance 16948 are being met for pump stations within residential areas, WTD conducted a survey of 30 pump stations that were identified to be within residential areas. “Within a residential area” is defined as a pump station that has residentially-zoned parcels abutting at least one side of the property, or residential properties directly across the street from the pump station.

Field Research

Geospatial analysis revealed that the following thirty pump stations fall within residential areas:

Figure 1: List of surveyed pump stations

- | | | |
|-------------------|-----------------------------|-----------------------------|
| 1. Lake Ballinger | 11. Yarrow Bay | 21. West Seattle |
| 2. Richmond Beach | 12. East Pine | 22. 63 rd Avenue |
| 3. Hidden Lake | 13. Medina | 23. Rainier |
| 4. Carkeek | 14. Bellevue | 24. Murray |
| 5. York | 15. Wilburton | 25. South Mercer |
| 6. Hollywood | 16. North Mercer | 26. Barton |
| 7. Juanita Bay | 17. 53 rd Avenue | 27. Henderson |
| 8. North Beach | 18. Swaylocken | 28. Bunker Trail (1 to 4) |
| 9. Matthews Park | 19. Heathfield | 29. Black Diamond |
| 10. Belvoir | 20. Sunset | 30. Lakeland Hills |

This study focuses specifically on the design, maintenance and odor control at these pump stations. Odor control, or the lack thereof, can be a design or maintenance issue depending on the facility, therefore, it is listed separately from both maintenance and design categories in this study. The specific question that this study attempts to answer is:

Does the quality of our pump stations’ design and maintenance meet a median level of quality throughout our service area?

To address this question, each pump station in 2014 was visited by two WTD staff members travelling to the site together. During the site visit, they photographed the facility and recorded answers to the following series of questions.

The questions were selected from the original WTD study performed in 2013. The questions were

further refined to address the issues within this study. Moreover, three additional questions were added. The assessment criteria attempts to understand every characteristic of each particular pump station, and addresses the aforementioned key question. The questions, many of which were asked in the initial assessment of facilities in 2013, attempt to provide thorough and fair judgment of every pump station's characteristics. They are as follows:

Figure 2: Characteristics measured

Characteristic	Measurement of
<i>Aesthetics and Art</i>	
Questions:	
• Quality of landscape installation	Maintenance
• Presence and extent of art	Design
• Quality of landscape installation	Design
• Views into the site	Design
<i>Building</i>	
Questions:	
• Level of architectural finish	Design
• Physical conditions of overall facility	Maintenance
<i>Facility</i>	
Questions:	
• Noticeable odor	Odor
• Public amenities (on-site)	Design
• Effectiveness of public safety measures*	Design
• General overall impression	General Impression
<i>Surroundings</i>	
Questions:	
• Effect on regional view	Design
• View blockage by facility	Design
• Intrusiveness of lighting (trespass and noise)*	Design
• Noise originating from facility*	Design
<i>Overall</i>	
Questions:	
• Overall site review	General Impression

*Questions not asked during the initial November 2013 study

The eight pump stations already examined in November 2013 were revisited to assess the three questions added to this study, but otherwise used the same data from the 2013 study. Summarized scores and select images are available in Appendix A for each of the thirty pump stations examined.

Figure 3: Scoring scale

Scoring Scale	
Not applicable	0
Poor	1
Below standard	2
Standard	3
Above standard	4
Excellent	5

The qualitative results from the site visits were quantified on a scale of 1-5 for each of the questions asked, ascending from lowest to highest, with a numerical value of 0 for non-applicable characteristics. The separate quantitative results were averaged for the multiple staff completing the review during the same site visit.

Data Analysis

Each category – maintenance, design, odor and general impression – were normalized to reflect an equalized score. Examples are shown below:

Figure 4: Hypothetical scoring of a perfect pump station

Type	Raw	→	Final
Maintenance (M)	10	× 5	50
Design (D)	50	× 1	50
Odor (O)	5	× 10	50
General (G)	10	× 5	50
Grand total			200

The above table reflects a hypothetical pump station that has scored perfect marks. The “Raw” column reflects the total score under that category. The “Final” column displays the raw scores of each category weighted equally to one another, equalizing to the highest quantified category: design.

Figure 5: Example score from Hidden Lake Pump Station

Type	Raw	→	Final
Maintenance (M)	10	× 5	50
Design (D)	40	× 1	40
Odor (O)	4.5	× 10	45
General (G)	4.875	× 5	24.375
Grand total			159.75
Maintenance and general, and odor equalized by a factor of 5 and 10, respectively.			

This table displays the scores received by Hidden Lake Pump Station, drawn from page six of Appendix A.

Chapter 3

Results

In the results, the percent of total points possible in a summarized score was sorted in ascending order and analyzed by statistical distribution. Conclusions are drawn within Chapter 4: Recommendations.

Figure 6: Statistical distribution of overall pump station scores by percent earned

MEAN	73.60568966
STANDARD DEVIATION (σ)	14.78137738
MINIMUM	44.125
MED – σ	63.21862262
MEDIAN (MED)	78
MED + σ	92.78137738
MAX	93.625

Figures 7 and 8 on the following two pages outline all quantitative scores, portraying the design, maintenance, odor and general impressions of the utility’s residential-area pump stations. The distribution data is provided above.

- Figure 7 on the following page lists all summarized scores for each characteristic measured at each pump station.
- Figure 8 lists the total overall scores attained by each pump station in raw, equalized and summarized percentages.

The following five figures – 9, 10, 11, 12 and 13 – array the pump station characteristics in order of their statistical distribution: first in a summary of total percent scored by each pump station, with a column noting the area median income (AMI) of each pump station. Followed by separate figures for each characteristic:

- Figure 10 summarizes equalized maintenance scores
- Figure 11 summarizes equalized design scores
- Figure 12 summarizes equalized odor control scores
- Figure 13 summarizes equalized scores of general impressions.

Figures 10, 11, 12 and 13 are divided into four groups to provide context of how service quality is distributed across residential-area pump stations. The median is highlighted in dark blue, with one standard deviation identified above and below the median. These close numeric neighbors to the median are all within an acceptable statistical range to be considered “median-level” and are, for the purposes of this study, considered to meet the median standard that answers our key question, which

sets the goal for all pump stations within residential areas.

The focus of our efforts will be those facilities that fall below one standard deviation of the median of the total percent scored by all facilities: those highlighted in pink in Figures 10, 11, 12 and 13.

As we look at the individual pump stations that fall below the median range, we will be able to identify the specific characteristics in Figures 10, 11, 12 and 13 that contribute to its below-median performance. This helps us understand where improvements on each particular pump station should be focused in order to bring it to the median standard.

Figure 14 allows all summarized characteristics in percent totals to be arrayed in one location for every pump station. The characteristics that are below median, taking into account one standard deviation, are highlighted in light pink. As you can see, it is possible for a facility to score within the acceptable median range for total percent score, but still have individual characteristics that fall below acceptable standards. This figure also shows the area median income of each pump station.

Figure 15 portrays the linear regression of area median income versus equalized grand total of points for all pump stations reviewed. This analysis shows a statistical correlation of 0.0133. Correlations range from -1 to 1, with close scores to -1 indicating high negative correlation, scores close to 1 indicating high positive correlation, and scores close to 0 indicating little correlation.

Figure 7: Complete table of characteristics scores

	LAKE BALLINGER	RICHMOND BEACH	HIDDEN LAKE	CARKEEK	YORK	HOLLYWOOD	JUANITA BAY (EAST)	JUANITA BAY (WEST)	NORTH BEACH	MATTHEWS PARK	BELVOIR	YARROW BAY	EAST PINE	MEDINA	BELLEVUE	WILBURTON	NORTH MERCER	53 RD AVENUE	SWEYOLOCKEN	HEATHFIELD	SUNSET	WEST SEATTLE	63 RD AVENUE	RAINIER	MURRAY	SOUTH MERCER	BARTON	HENDERSON	BUNKER TRAIL (#1-4)	BLACK DIAMOND	LAKELAND HILLS	
MAINTENANCE																																
Quality of maintenance on landscape	5	5	5	3.25	4	3.25	2.5	4.5		3.75	4	3	3.5	4	3	2	2.5	0	3.25	4	3.5	4	3	4	4.25	4		2.5	1.5	2	2	
Physical conditions of overall facility	3	4	5	4	4.25	3.75	3.25	5		4.25	3	3.75	3.25	4	5	2.5	2.75	5	3.5	4	1.5	4.75	4	4	4.5	4		4.25	2.5	3	1.5	
DESIGN																																
Presence and extent of art	0	4.5	0	0	4	0	0	2	Under construction	0	3	0	0	0	5	0	0	0	3.5	0	0	5	4.5	0	0	0	Under construction	5	0	0	0	
Quality of landscape installation	4	5	5	3.75	4	2.25	2.5	4.25		3.25	4	2.5	3.5	4	3	2.25	2	0	3.25	4	3	4.5	3	3.5	3.75	4		4	1.5	2	2	
Views into site	5	5	5	5	4	3	3.5	3.75		4	5	2.5	4	4	4	3	3.25	5	3.5	4	4.5	5	4	4	4.5	4		3.5	1.75	3	2.5	
Level of architectural finish	3	3.75	5	4.5	4.5	3.25	3	5		3.25	3	4	5	4	5	3	3	3	3.5	4	1	5	3.75	4.25	0	3		5	1.5	3	1	
Public amenities (on-site)	3	5	3.5	0	4	2	3	4.5		4.25	4	0	4.25	0	3	0	0	2	2	0	0	0	5	1	5	4		3.75	0	0	1	
Effectiveness of public safety measures	3	4.5	4.5	4	3.75	4	2.75	4.5		4.75	5	3	4	4	5	2	3.5	4	3.5	2	2.5	4.5	4.25	3.5	4	4		3.5	1.75	2	1	
Effect on regional view	5	4.5	5	4.5	4	4	4	4.25		5	5	2.5	5	5	4	4	5	5	3.5	5	3.5	4.5	4.5	3.5	5	5		4	2.5	3	1.5	
View blockage by facility	5	4.5	4.5	5	4	4.5	4	4.25		4.75	5	3.5	5	5	5	2.75	4.75	5	4	5	4.5	4.5	5	3.5	5	5		5	4.5	5	3	
Intrusiveness of lighting and noise	2	4.5	5	4.5	4	3.5	3.5	4.5		4	4	3.5	4	5	5	4	3.5	5	4	2	3.5	4.5	3	3.75	5	3		4	4.25	4	3.5	
Noise originating from facility	3	3.5	2.5	3.25	4.25	3	2	4.5		5	3	3	4	5	5	2.5	3.25	5	3.5	3.5	2.5	4.5	4	4	5	2		5	4.25	2	4	
ODOR																																
Noticeable odor	3	5	4.5	4	5	1.5	4	5		5	5	3	5	4	5	2.75	4.5	5	4	5	2.5	4.5	4	4	5	4		5	4.25	3	3.5	
GENERAL IMPRESSION																																
General overall impression	4	4.5	5	3.75	4.25	3.25	2.5	4.75		4.25	5	2.75	4	3	5	1.75	3.25	4	3.25	4	1.5	4.5	4	4	5	5		3.25	2.5	3	1.25	
Overall site review	4	5	4.75	3.5	4.5	2.25	3	5		4.25	5	2.5	4.25	4	5	2.5	2.5	4	3.75	4	2.5	5	4	4	5	4		3.5	1.75	3	2	

Figure 8: Total scores – Raw, Equalized and Summarized Percentages

	LAKE BALLINGER	RICHMOND BEACH	HIDDEN LAKE	CARKEEK	YORK	HOLLYWOOD	JUANITA BAY (EAST)	JUANITA BAY (WEST)	NORTH BEACH	MATTHEWS PARK	BELVOIR	YARROW BAY	EAST PINE	MEDINA	BELLEVUE	WILBURTON	NORTH MERCER	53 RD AVENUE	SWEYOLOCKEN	HEATHFIELD	SUNSET	WEST SEATTLE	63 RD AVENUE	RAINIER	MURRAY	SOUTH MERCER	BARTON	HENDERSON	BUNKER TRAIL (#1-4)	BLACK DIAMOND	LAKELAND HILLS	
RAW TOTALS																																
Maintenance	8	9	10	7.25	8.25	7	5.75	9.5		8	7	6.75	6.75	8	8	4.5	5.25	5	6.75	8	5	8.75	7	8	8.75	8		6.75	4	5	3.5	
Design	33	44.75	40	34.5	40.5	29.5	28.5	41.5		38.25	41	24.5	38.75	36	44	23.5	28.25	34	34.25	29.5	25	42	41	31	37.25	34		42.75	22	24	19.5	
Odor	3	5	4.5	4	5	1.5	4	5		5	5	3	5	4	5	2.75	4.5	5	4	5	2.5	4.5	4	4	5	4		5	4.25	5	3.5	
General impression	8	9.5	9.75	7.25	8.75	5.5	5.5	9.75		8.5	10	6.25	8.25	7	10	4.25	5.75	8	7	8	4	9.5	8	8	10	9		6.75	4.25	6	3.25	
EQUALIZED TOTALS																																
Maintenance	40	45	50	36.25	41.25	31.5	28.75	47.5	Under construction	40	35	33.75	33.75	40	40	22.5	26.25	25	33.75	40	25	43.75	35	40	43.75	40	Under construction	33.75	20	25	17.5	
Design	33	44.75	40	34.5	40.5	29.5	28.25	41.75		38.25	41	24.5	38.75	36	44	23.5	28.25	34	34.25	29.5	25	42	41	31	37.25	34		42.75	22	24	19.5	
Odor	30	50	45	40	50	15	40	50		50	50	30	50	40	50	27.5	45	50	40	50	25	45	40	40	50	40		50	42.5	50	35	
General impression	40	47.5	24.375	36.25	43.75	27.5	27.5	47.5		42.5	50	26.25	41.25	35	50	21.25	28.75	35	35	40	20	47.5	40	40	50	45		33.75	21.25	30	16.25	
Grand total	143	187.25	159.375	147	175.5	107	124.5	186.5		170.75	176	114.5	163.75	151	184	94.75	128.25	144	143	159.5	95	178.25	156	151	181	159		160.25	105.75	129	88.25	
Percent total	71.5	93.625	79.69	73.5	87.75	53.5	62.25	93.25		85.375	88	57.25	81.875	75.5	92	47.375	64.125	72	71.5	79.75	47.5	89.125	78	78.5	90.5	79.5		80.125	52.875	64.5	44.125	

Figure 9: Total Percent Scored by All Facilities: Statistical Distribution

Legend	Facility	Site #	% Score	AMI Rank
Maximum	Richmond Beach	2	93.625	5
	Juanita Bay (West)	7	93.25	4
Median + σ	Bellevue	14	92	5
	Murray	24	90.5	5
	West Seattle	21	89.125	4
	Belvoir	10	88	7
	York	5	87.75	6
	Matthews Park	9	85.375	5
	East Pine	12	81.875	8
	Henderson	27	80.125	3
	Heathfield	19	79.75	5
	Hidden Lake	3	79.69	4
	South Mercer	25	79.5	8
	Rainier	23	78.5	3
Median	63rd Avenue	22	78	4
Median - σ	Medina	13	75.5	8
	Carkeek	4	73.5	4
	53rd Avenue	17	72	5
	Lake Ballinger	1	71.5	4
	Sweyolocken	18	71.5	2
	Black Diamond	29	64.5	5
	North Mercer	16	64.125	5
Minimum	Juanita Bay (East)	7	62.25	4
	Yarrow Bay	11	57.25	5
	Hollywood	6	53.5	5
	Bunker Trail (#1-4)	28	52.875	8
	Sunset	20	47.5	5
	Wilburton	15	47.375	6
	Lakeland Hills	30	44.125	6

Statistical Distribution:	
Mean	73.60569
Standard Deviation (σ)	14.78138
Min	44.125
Med - σ	63.21862
Median (Med)	78
Med + σ	92.78138
Max	93.625

Area Median Income (AMI) Rankings:	
Below \$35,000	1
\$35k – \$50k	2
\$50k – \$65k	3
\$65k – \$80k	4
\$80k – \$95k	5
\$95k – \$110k	6
\$110k – \$125k	7
\$125k & Greater	8

Figure 10: Equalized Maintenance Scores of all Facilities: Statistical Distribution

Legend	Facility	Site #	Eq. Total
Maximum	Hidden Lake	3	50
	Juanita Bay (West)	7	47.5
	Richmond Beach	2	45
	Murray	24	43.75
	West Seattle	21	43.75
Median + σ	York	5	41.25
	Bellevue	14	40
	Matthews Park	9	40
	Heathfield	19	40
	South Mercer	25	40
	Rainier	23	40
	Medina	13	40
	Lake Ballinger	1	40
	Carkeek	4	36.25
Median	Belvoir	10	35
	63rd Avenue	22	35
Median - σ	East Pine	12	33.75
	Henderson	27	33.75
	Sweyolocken	18	33.75
	Yarrow Bay	11	33.75
	Hollywood	6	31.5
	Juanita Bay (East)	7	28.75
Minimum	North Mercer	16	26.25
	53rd Avenue	17	25
	Black Diamond	29	25
	Sunset	20	25
	Wilburton	15	22.5
	Bunker Trail (#1-4)	28	20
	Lakeland Hills	30	17.5

Statistical Distribution:	
Mean	34.96551724
Standard Deviation (σ)	8.391301868
Min	17.5
Med - σ	26.6087
Median (Med)	35
Med + σ	43.3913
Max	50

Figure 11: Equalized Design Scores of all Facilities: Statistical Distribution

Legend	Facility	Site #	Eq. Total
Maximum	Richmond Beach	2	44.75
	Bellevue	14	44
	Henderson	27	42.75
	West Seattle	21	42
	Juanita Bay (West)	7	41.75
Median + σ	Belvoir	10	41
	63rd Avenue	22	41
	York	5	40.5
	Hidden Lake	3	40
	East Pine	12	38.75
	Matthews Park	9	38.25
	Murray	24	37.25
	Medina	13	36
	Carkeek	4	34.5
Median	Sweyolocken	18	34.25
Median - σ	South Mercer	25	34
	53rd Avenue	17	34
	Lake Ballinger	1	33
	Rainier	23	31
	Heathfield	19	29.5
	Hollywood	6	29.5
	Juanita Bay (East)	7	28.25
	North Mercer	16	28.25
Minimum	Sunset	20	25
	Yarrow Bay	11	24.5
	Black Diamond	29	24
	Wilburton	15	23.5
	Bunker Trail (#1-4)	28	22
	Lakeland Hills	30	19.5

Statistical Distribution:	
Mean	33.88793
Standard Deviation (σ)	7.319124
Min	19.5
Med - σ	26.93088
Median (Med)	34.25
Med + σ	41.56912
Max	44.75

Legend	Facility	Site #	Eq. Total	
Maximum	Richmond Beach	2	50	
	Bellevue	14	50	
	Henderson	27	50	
	Juanita Bay (West)	7	50	
	Belvoir	10	50	
	York	5	50	
	East Pine	12	50	
	Matthews Park	9	50	
	Murray	24	50	
	53rd Avenue	17	50	
	Heathfield	19	50	
	Black Diamond	29	50	
	Median + σ	West Seattle	21	45
Hidden Lake		3	45	
North Mercer		16	45	
Median	Bunker Trail (#1-4)	28	42.5	
	63rd Avenue	22	40	
	Medina	13	40	
	Carkeek	4	40	
	Sweyolocken	18	40	
	South Mercer	25	40	
	Rainier	23	40	
	Juanita Bay (East)	7	40	
Median - σ	Lakeland Hills	30	35	
	Lake Ballinger	1	30	
	Yarrow Bay	11	30	
	Wilburton	15	27.5	
	Sunset	20	25	
	Minimum	Hollywood	6	15

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REVIEW OF RESIDENTIAL PUMP STATIONS • MARCH 2015

Figure 13: Equalized General Impression Scores of all Facilities: Statistical Distribution

Legend	Facility	Site #	Eq. Total
Maximum	Belvoir	10	50
	Bellevue	14	50
	Murray	24	50
	Richmond Beach	2	47.5
	Juanita Bay (West)	7	47.5
	West Seattle	21	47.5
Median + σ	South Mercer	25	45
	York	5	43.75
	Matthews Park	9	42.5
	East Pine	12	41.25
	Sweyolocken	18	40
	Heathfield	19	40
	63rd Avenue	22	40
	Rainier	23	40
Median	Carkeek	4	36.25
Median + σ	Lake Ballinger	1	35
	Medina	13	35
	53rd Avenue	17	35
	Henderson	27	33.75
	Black Diamond	29	30
	North Mercer	16	28.75
	Hollywood	6	27.5
	Juanita Bay (East)	7	27.5
	Yarrow Bay	11	26.25
Minimum	Hidden Lake	3	24.375
	Wilburton	15	21.25
	Bunker Trail (#1-4)	28	21.25
	Sunset	20	20
	Lakeland Hills	30	16.25

Statistical Distribution:	
Mean	35.96983
Standard Deviation (σ)	10.02172
Min	16.25
Med - σ	26.22828
Median (Med)	36.25
Med + σ	46.27172
Max	50

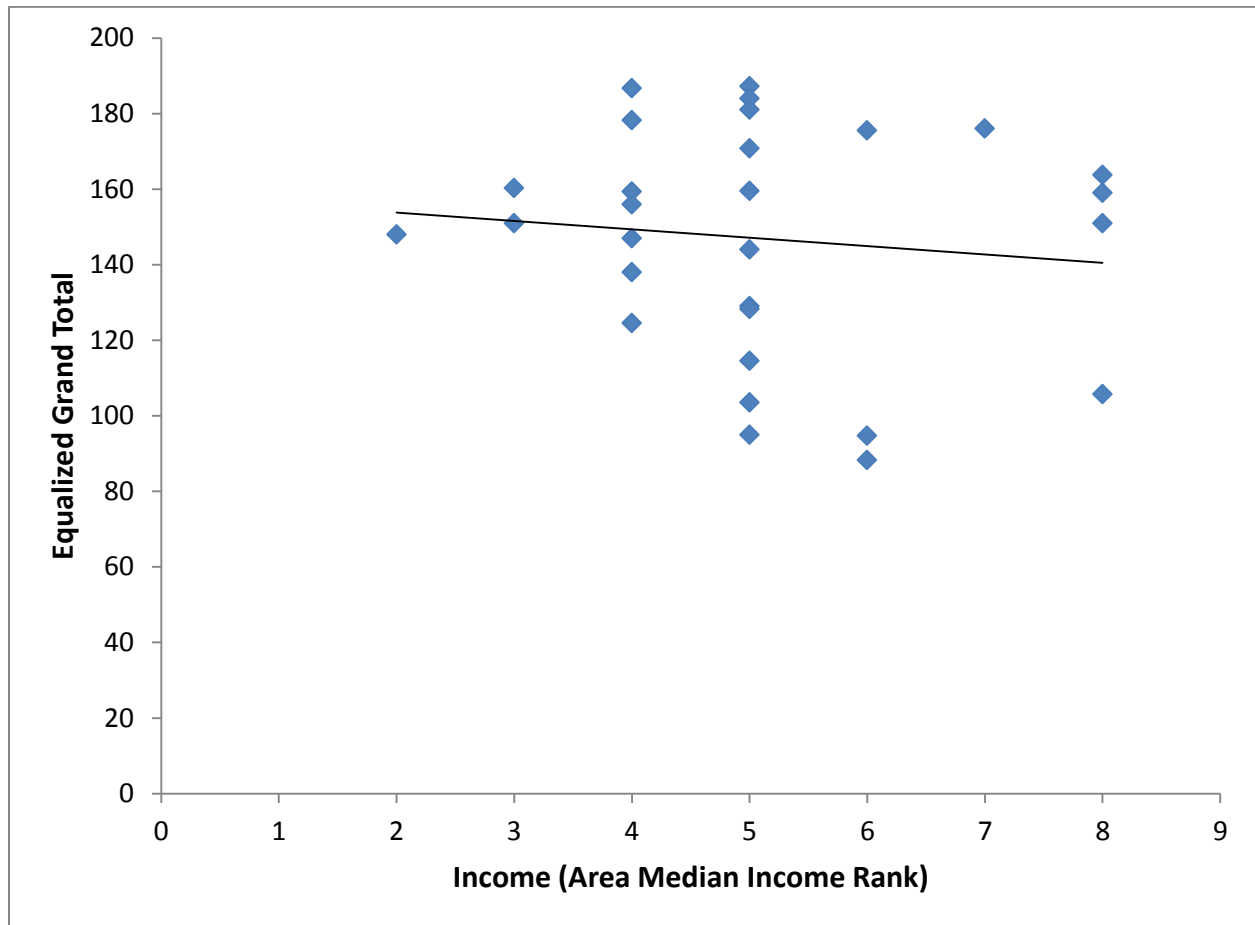
Figure 14: All Equalized Scores in order of Percent Totals Statistical Distribution

Facility Name	Site #	M	D	O	GI	% Score	AMI (\$k)	AMI Rank
Richmond Beach	2	45	44.75	50	47.5	93.625	80-95	5
Juanita Bay (West)	7	47.5	41.75	50	47.5	93.25	65-80	4
Bellevue	14	40	44	50	50	92	80-95	5
Murray	24	43.75	37.25	50	50	90.5	80-95	5
West Seattle	21	43.75	42	45	47.5	89.125	65-80	4
Belvoir	10	35	41	50	50	88	110-125	7
York	5	41.25	40.5	50	43.75	87.75	95-110	6
Matthews Park	9	40	38.25	50	42.5	85.375	80-95	5
East Pine	12	33.75	38.75	50	41.25	81.875	125+	8
Henderson	27	33.75	42.75	50	33.75	80.125	50-65	3
Heathfield	19	40	29.5	50	40	79.75	80-95	5
Hidden Lake	3	50	40	45	24.375	79.69	65-80	4
South Mercer	25	40	34	40	45	79.5	125+	8
Rainier	23	40	31	40	40	78.5	50-65	3
63rd Avenue	22	35	41	40	40	78	65-80	4
Medina	13	40	36	40	35	75.5	125+	8
Carkeek	4	36.25	34.5	40	36.25	73.5	65-80	4
53rd Avenue	17	25	34	50	35	72	80-95	5
Lake Ballinger	1	40	33	30	35	71.5	65-80	4
Sweylocken	18	33.75	34.25	40	40	71.5	35-50	2
Black Diamond	29	25	24	50	30	64.5	80-95	5
North Mercer	16	26.25	28.25	45	28.75	64.125	80-95	5
Juanita Bay (East)	7	28.75	28.25	40	27.5	62.25	65-80	4
Yarrow Bay	11	33.75	24.5	30	26.25	57.25	80-95	5
Hollywood	6	31.5	29.5	15	27.5	53.5	80-95	5
Bunker Trail (#1-4)	28	20	22	42.5	21.25	52.875	125+	8
Sunset	20	25	25	25	20	47.5	80-95	5
Wilburton	15	22.5	23.5	27.5	21.25	47.375	95-110	6
Lakeland Hills	30	17.5	19.5	35	16.25	44.125	95-110	6
Statistical Distribution:		M	D	O	GI	% Score		
Mean		34.96552	33.88793	42.06897	35.96983	73.60569		
Standard Deviation		8.391302	7.319124	9.235727	10.02172	14.78138		
Minimum		17.5	19.5	15	16.25	44.125		
Median – Standard Deviation		26.6087	26.93088	35.76427	26.22828	63.21862	Target Baseline Range	
Median		35	34.25	45	36.25	78		
Median + Standard Deviation		43.3913	41.56912	54.23573	46.27172	92.78138		
Maximum		50	44.75	50	50	93.625		

Color Coding Legend (based on %):	
$x > M + \sigma$	
$M < x < M + \sigma$	
Median (M)	
$M > x > M - \sigma$	
$x < M - \sigma$	

Area Median Income (AMI) Rankings:	
Below \$35,000	1
\$35k – \$50k	2
\$50k – \$65k	3
\$65k – \$80k	4
\$80k – \$95k	5
\$95k – \$110k	6
\$110k – \$125k	7
\$125k & Greater	8

Figure 15: Linear regression of Area Median Income versus Equalized Grand Total



Area Median Income (AMI) Rankings:	
Below \$35,000	1
\$35k – \$50k	2
\$50k – \$65k	3
\$65k – \$80k	4
\$80k – \$95k	5
\$95k – \$110k	6
\$110k – \$125k	7
\$125k & Greater	8

Linear regression tests for a relationship between two continuous variables. When all pump stations within residential areas were reviewed, a resulting correlation of 0.0133 indicated that no relationship was found between income and pump station quality of design, maintenance, odor and general impression.

Chapter 4

Recommendations

Seven pump stations have been found to fall below the median range in overall score:

- Juanita Bay (East)
- Yarrow Bay
- Hollywood
- Bunker Trail
- Sunset
- Wilburton
- Lakeland Hills

As a result of these findings – and consistent with the objective of this study – recommendations have been developed for each of these seven pump stations. If implemented, these recommendations would ultimately allow them to reach the median level of service quality identified in this study. With the completion of the improvements recommended at each facility, WTD should reach the goal of a median-level design and maintenance system-wide, for pump stations within residential areas. As evidenced by Figure 15, no correlation was found between higher income and higher quality of design or maintenance in this board level sampling of pump stations. Those found to be below a median level of service represent four income groups with higher income categories.

Juanita Bay (East) Pump Station:

The main issue found at the Juanita Bay (East) facility, which brought it below the median range, was the constant level of noise emitting from the facility. Technical review of this facility should be completed to determine how to reduce the noise that leaves the property line, which currently affects the neighboring residential units that abut the parcel on the northern edge, and neighbor it to the east. Installation of sound attenuation material within the facility may address this problem.

The second issue that should be addressed in order to bring this pump station to a median level is the on-site landscape, which is currently in disrepair. It is in need of general maintenance: the replanting of dead or missing plants, as well as the removal of invasive ivy that is climbing the trees, beginning to stress them, eventually leading to their death. The ivy should be replaced with a non-invasive ground cover.

With these two issues addressed, this facility would meet median standards.

Approximate cost of Improvements for Juanita Bay (East): Landscape improvements \$50,000 or less.
Noise reduction improvements likely \$50,000 or less

Yarrow Bay Pump Station:

This facility is directly surrounded by multiple-story condominiums, with windows of the adjacent units directly overlooking the pump station and its odor control stack, which is less than 20 feet from the nearest units. Noticeable odor was detected during the site visit.

Because of the facility's location, which is extremely near residential neighbors, odor should be the first issue to be addressed to bring this facility to median standards. Technical review would have to be done to determine the appropriate solution to the odor issues at this facility.

The second major issue to be addressed is the unsightly view of the portable generator that appears to stay parked at the front of this facility at all times. No screening is provided for the generator and it disrupts the overall aesthetic of this relatively nice-looking small facility. A screening system should be installed that is carefully designed to integrate into the condominium complex that surrounds this facility, and screen the generator at the front of the facility from view, in addition to screening a number of electrical boxes on the sides of the facility.

With these two issues addressed, the facility would meet median standards.

Approximate cost of improvements: Screening system \$50,000-100,000

Improvements to odor control system: Cost can be developed following a technical review of the odor control system.

Hollywood Pump Station:

The Hollywood pump station sits in the Sammamish River valley with underground vaults directly adjacent to the heavily used Burke-Gillman Trail. These vaults emit very strong odor, and are the main reason this facility falls below median standards. The odor issue must be addressed at this facility.

With this issue addressed the facility would meet median standard.

Approximate cost of Improvements: Cost can be developed following a technical review of the odor control system.

Bunker Trail Pump Station:

In reality, this facility is composed of a series of four small facilities that in turn form the Bunker Trail Pump Station. Each element of this group needs simple improvements to bring it up to median standards. Each of the facilities should be repainted in a color that allows the facilities to more seamlessly blend into the environment. The first part to the facility is at the base of a steep hill, and includes a small retaining wall that is in need of repair. A section of the wall needs to be rebuilt and the entire wall needs to be repainted in the same color that is selected for the other elements of this facility.

At the top of the hill, the fourth and final element of the facility will also require painting, as well as the repair or replacement of the screen fence that surrounds the final portion of the facility.

With these issues addressed this pump station will meet median standards.

Approximate cost of improvements: \$50,000 or less

Sunset Pump Station:

This pump station sits directly on Lake Sammamish with a Park to one side, near neighbors to the other, and residences on the hillside above.

Three issues rose to the top during the review of this facility, and will need to be addressed: noise, odor and the blue structures on the site that appear to be post-construction additions to the facility, which lack architectural features and are visually disruptive to the aesthetic. The noise that is emitted from the facility should be addressed with sound attenuation designed to address the specific issues found. Odor was found to be unpleasant at the fence line. Improvements should be implemented to reduce odors based on a technical review of the odor control system. The blue box structures should be repainted to allow them to recede from view and better blend into the surrounding landscape.

With these issues addressed, this pump station will meet median standards.

Approximate cost of improvements: \$25,000 or less, plus the additional cost of required odor control upgrades and noise reduction improvements.

Wilburton Pump Station:

This pump station has several issues that bring it below median standards. The pink and silver structures that appear to be post-construction additions to the facility should be repainted to allow them to recede into the surrounding- landscape, therefore improving the architectural looks of the facility, and reducing the intrusion into the landscape setting.

The landscape is in need of care, with the most important facet being invasive ivy that is entering the surrounding woodlands and climbing neighboring trees. All ivy should be removed and replanted with a non-invasive ground cover.

The fence with barbed wire on the top – some tight, some loose – does not appear to be providing security. It should be repaired if it is required, or removed if it is not.

Odor was found to be unpleasant at the fence line. Improvements should be implemented to reduce odors based on a technical review of the odor control system.

With these issues addressed, this pump station will meet median standards.

Approximate cost of improvements: \$75,000 or less excluding odor control improvements.

Lakeland Hills Pump Station:

This is the lowest rated pump station found in the system. This facility sits directly adjacent to, and in full view, of a public parking area for a riverside park that appears to be heavily used. The structure is a large white box with no architectural features whatsoever. The metal doors of the facility are badly

dented, and in very bad repair. The facility has no screening, nor fencing of any kind surrounding it, failing to filter views of the facility from the abutting public use areas.

The structure and the vaults spotted above-grade on the site should be repainted a dark color to allow them to better blend into the landscape. The doors to the facility must be replaced. Screening and/or decorative fencing should be installed to filter views, and add architectural detailing to the unattractive structure and surrounding service area.

With these issues addressed this pump station will meet median standards.

Approximate cost of improvements: \$75,000 or less

Additional maintenance issues that should be addressed at facilities that currently meet median standards:

North Mercer Pump Station: Invasive ivy was planted as an element of the landscape design. It has grown wild and has encroached into the adjacent woodlands. Ivy is very aggressive, and will eventually kill the trees on the parcel and in surrounding woodlands. This ivy should be removed as soon as possible from all ground area and from the trees that it has begun to climb. A non-invasive ground cover should be planted after the removal of ivy is complete.

General Comments:

English Ivy is a Class C Noxious Weed, and should be removed from any facility where it cannot be kept to strictly confined areas. When replaced, ivy should be replaced with a non-invasive ground cover.

The use of barbed wire on fencing that surrounds some but not all of WTD's pump station facilities should be revisited; is it required or not? Its use changes the look and character of the facilities on which it has been installed. The look and feel of a friendlier and more community-related facility can be developed with its removal if it is not necessary. Based on newer WTD facilities, the utility seems to be shying away from barbed wire as a public safety measure. In many cases, the building itself is used to form the security, and fencing is not installed.

EQUITY AND SOCIAL JUSTICE REVIEW OF FACILITIES:
ASSESSMENT OF RESIDENTIAL-AREA PUMP STATIONS JUNE 2015

APPENDIX A: INDIVIDUAL SITE ANALYSES BASED ON SITE VISITS



King County

Department of Natural Resources and Parks
Wastewater Treatment Division

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Lake Ballinger Pump Station

Characteristic	Score	Type	Comments
Aesthetic and Art			
Quality of maintenance on landscape	5	M	Good quality and well maintained landscaping. Facility is surrounded by native trees and dense forest.
Presence and extent of art	0	D	None.
Quality of landscape installation	4	D	Good to high quality. Dense and mature native trees installed. Landscape allows good screening of the site.
Views into the site	5	D	The only view into the site is from the entrance driveway. The site is surrounded by a well-designed fence.
Building			
Level of architectural finish	3	D	Simple industrial; simple concrete building with modern design. Standby generator and electrical transformers are unsightly but tucked out of sight.
Physical conditions of overall facility	3	M	Generally good. No visible repairs required. Could use power washing to improve cleanliness.
Facility			
Noticeable odor	3	O	Faint odor noticeable during visit.
Public amenities (on-site)	3	D	Bat house for habitat improvement. No access to immediate facilities.
Effectiveness of public safety measures*	3	D	Gate constantly closing and opening.
General overall impression	4	G	Good quality landscape and building. Clean and modern building. Very well screened with mature native vegetation. Faint odor noticed. Considerably quiet pump station.
Surroundings			
Effect on regional view	5	D	None. Facility blends well with natural surroundings.
View blockage by facility	5	D	None.
Intrusiveness of lighting (trespass and noise)*	2	D	Tree buffer helps, but lights are on during the daytime and are a bit excessive.
Noise originating from facility*	3	D	White noise, drowned out by adjacent major highway.
Overall			
Overall site review	4	G	Good screening and construction preserved a large part of the surrounding native forest. Good property to have as a neighbor. The facility has slight noticeable odor and low hum.

This facility was scored during the 2013 study. Asterisk marks a score from a 2015 site visit, unique to this report.

Scoring Scale					
0	1	2	3	4	5

Not Applicable	Poor	Below Standard	Standard	Good	Excellent
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Lake Ballinger Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	8	40
Design (D)	33	33
Odor (O)	3	30
General (G)	4	40
Grand total		143

71.5%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



View into the site from the adjacent roadway



View from adjacent public trail



Electrical panel and bat house located at the back of facility

Richmond Beach Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	5	M	Looks good and well cared for.
Presence and extent of art	4.5	D	As a result of city surface use improvements.
Quality of landscape installation	5	D	In good shape and well-designed.
Views into the site	5	D	Screened by vegetation.
<i>Building</i>			
Level of architectural finish	3.75	D	Simple modern.
Physical conditions of overall facility	4	M	All looks good, older simple-modern building.
<i>Facility</i>			
Noticeable odor	5	O	None.
Public amenities (on-site)	5	S	Surface use given to the City of Shoreline for public access.
Effectiveness of public safety measures	4.5	D	Set back from Richmond Beach Drive fence.
General overall impression	4.5	G	
<i>Surroundings</i>			
Effect on regional view	4.5	D	Very limited.
View blockage by facility	4.5	D	None, maybe some from wetland vegetation.
Intrusiveness of lighting (trespass and noise)	4.5	D	Good shielding on light spread off the property line.
Noise originating from facility	3.5	D	Opportunity for noticeable white noise improvements.
<i>Overall</i>			
Overall site review	5	G	

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Richmond Beach Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	9	45
Design (D)	44.75	44.75
Odor (O)	5	50
General (G)	4.75	47.5
Grand total		187.25

93.625%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



Park trail, viewpoint and fence line.



View of the pump station from the park fence line.



Park playground on park property, as a result of city use improvements.

Hidden Lake Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	5	M	Beautiful, brand new
Presence and extent of art	0	D	
Quality of landscape installation	5	D	Very well maintained
Views into the site	5	D	Fits neighborhood – new, aesthetically pleasing
<i>Building</i>			
Level of architectural finish	5	D	New, pressure washed, well-manicured
Physical conditions of overall facility	5	M	
<i>Facility</i>			
Noticeable odor	4.5	O	
Public amenities (on-site)	3.5	D	Enhanced sidewalk
Effectiveness of public safety measures	4.5	D	Minimal fencing, incorporated non-intrusive lighting
General overall impression	5	G	
<i>Surroundings</i>			
Effect on regional view	5	D	
View blockage by facility	4.5	D	
Intrusiveness of lighting (trespass and noise)	5	D	
Noise originating from facility	2.5	D	White noise
<i>Overall</i>			
Overall site review	4.75	G	

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Hidden Lake Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	10	50
Design (D)	40	40
Odor (O)	4.5	45
General (G)	4.875	48.75
Grand total		183.75

91.875%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



Front view of hidden lake from across the street.

Carkeek Pump Station

Characteristic	Score	Type	Comments
Aesthetic and Art			
Quality of maintenance on landscape	3.25	M	No landscaping on site, since the facility is very set into the forest.
Presence and extent of art	0	D	None
Quality of landscape installation	3.75	D	Almost none, since the facility is in a forest setting.
Views into the site	5	A	Almost no views, since the facility is hidden from the road and set into a forest in Carkeek Park
Building			
Level of architectural finish	4.5	D	Good, high-quality design, except for the two front arches that looks like they were repaired after original construction.
Physical conditions of overall facility	4	M	A little dirty, could use a power wash.
Facility			
Noticeable odor	4	O	No odor.
Public amenities (on-site)	0	D	<i>Not applicable</i>
Effectiveness of public safety measures	4	D	Fenced.
General overall impression	3.75	G	Good quality
Surroundings			
Effect on regional view	4.5	D	Little to no views.
View blockage by facility	5	D	No blockage in forested park.
Intrusiveness of lighting (trespass and noise)	4.5	D	Very limited lighting on site.
Noise originating from facility	3.25	D	Audible noise from adjacent CSO facility.
Overall			
Overall site review	3.5	G	Adjacent to CSO facility.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Carkeek Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	7.25	36.25
Design (D)	34.5	34.5
Odor (O)	4	40
General (G)	3.625	36.25
Grand total		147

73.5%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



View of the front door of the pump station.



View of the property line. Note the barbed wire fence.



View of the back of the pump station.

York Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	4	M	Quality brick exterior
Presence and extent of art	4	D	Salmon on top of building. Overall architecture looks like farm houses.
Quality of landscape installation	4	D	Well maintained.
Views into the site	4	D	
<i>Building</i>			
Level of architectural finish	4.5	D	Farm themed
Physical conditions of overall facility	4.25	M	
<i>Facility</i>			
Noticeable odor	5	O	No
Public amenities (on-site)	4	D	Habitat mitigation
Effectiveness of public safety measures	3.75	D	High quality fence around above-ground equipment – minimal.
General overall impression	4.25	G	
<i>Surroundings</i>			
Effect on regional view	4	D	Looks like area uses – farm
View blockage by facility	4	D	
Intrusiveness of lighting (trespass and noise)	4	D	Mild lighting
Noise originating from facility	4.25	D	
<i>Overall</i>			
Overall site review	4.5	G	

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

York Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	8.25	41.25
Design (D)	40.5	40.5
Odor (O)	5	50
General (G)	4.375	43.75
Grand total		175.5

87.75%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



York Pump Station from the entryway



Wetland mitigation area



Reclaimed water facility

Hollywood Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	3.25	M	
Presence and extent of art	0	D	None.
Quality of landscape installation	2.25	D	
Views into the site	3	D	Right on the Sammamish River.
<i>Building</i>			
Level of architectural finish	3.25	D	Clear style. Three separate structures.
Physical conditions of overall facility	3.75	M	
<i>Facility</i>			
Noticeable odor	1.5	O	Yes, very strong over vents and manholes.
Public amenities (on-site)	2	D	Wetland mitigation, bike rack and benches on site.
Effectiveness of public safety measures	4	D	
General overall impression	3.25	G	
<i>Surroundings</i>			
Effect on regional view	4	D	Along the Sammamish River trail.
View blockage by facility	4.5	D	
Intrusiveness of lighting (trespass and noise)	3.5	D	
Noise originating from facility	3	D	Noticeable noise coming from facility, but nearby highway washes out the sound.
<i>Overall</i>			
Overall site review	2.25	G	

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Hollywood Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	7	31.5
Design (D)	29.5	29.5
Odor (O)	1.5	15
General (G)	2.75	27.5
Grand total		107

53.5%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



From the Sammamish River trail, view of buffer, odorous manholes and wetland mitigation area; pump station to the left side of the photograph



View of Hollywood Pump Station from the access road; note some barbed wires on the left



Manholes on pump station property adjacent to the Sammamish River trail emitting strong odors

Juanita Bay (East) Pump Station

Characteristic	Score	Type	Comments
Aesthetic and Art			
Quality of maintenance on landscape	2.5	M	Ivy should be removed from trees, could use a bit of re-planting.
Presence and extent of art	0	D	<i>None</i>
Quality of landscape installation	2.5	D	Originally okay.
Views into the site	3.5	D	Could use landscape clean-up.
Building			
Level of architectural finish	3	D	Not bad, old building.
Physical conditions of overall facility	3.25	M	Building in better shape than landscape
Facility			
Noticeable odor	4	O	None
Public amenities (on-site)	3	D	None, but there's a sidewalk
Effectiveness of public safety measures	2.75	D	None provided, possibly none needed.
General overall impression	2.5	G	High noise level.
Surroundings			
Effect on regional view	4	D	
View blockage by facility	4	D	
Intrusiveness of lighting (trespass and noise)	3.5	D	
Noise originating from facility	2	D	
Overall			
Overall site review	3	G	

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Juanita Bay (East) Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	5.75	28.75
Design (D)	28.25	28.25
Odor (O)	4	40
General (G)	2.75	27.5
Grand total		124.5

62.25%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



Front entry to Juanita Bay (East) Pump Station.



Side view of Juanita Bay (East) Pump Station.



Rear of Juanita Bay (East) Pump Station.

Juanita Bay (West) Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	4.5	M	Well-done.
Presence and extent of art	2	D	Art around piping.
Quality of landscape installation	4.25	D	Well done.
Views into the site	3.75	D	Rear view isn't as nice, the other three sides are very nice.
<i>Building</i>			
Level of architectural finish	5	D	New facility. Great design that matches land use.
Physical conditions of overall facility	5	M	Great shape, just finished
<i>Facility</i>			
Noticeable odor	5	O	None
Public amenities (on-site)	4.5	D	Nice sidewalks surrounding, nice landscaped edge.
Effectiveness of public safety measures	4.5	D	High concrete walls and fencing.
General overall impression	4.75	G	Very nice.
<i>Surroundings</i>			
Effect on regional view	4.25	D	
View blockage by facility	4.25	D	
Intrusiveness of lighting (trespass and noise)	4.5	D	
Noise originating from facility	4.5	D	
<i>Overall</i>			
Overall site review	4.75	G	Well done. Very nice park across the street.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Juanita Bay (West) Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Design (D)	9.5	47.5
Maintenance (M)	41.75	41.75
Odor (O)	5	50
General (G)	4.75	47.5
Grand total		186.75

93.375%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



Landscape and architecture of Juanita Bay (West) Pump Station.



North side of Juanita Bay (West) Pump Station.



Driveway access gate to Juanita Bay (West) Pump Station.

North Beach Pump Station

Characteristic	Score	Type	Comments
Aesthetic and Art			<div>Under construction: This site was not reviewed for this study</div>
Quality of maintenance on landscape		M	
Presence and extent of art		D	
Quality of landscape installation		D	
Views into the site		D	
Building			
Level of architectural finish		D	
Physical conditions of overall facility		M	
Facility			
Noticeable odor		O	
Public amenities (on-site)		D	
Effectiveness of public safety measures		D	
General overall impression		G	
Surroundings			
Effect on regional view		D	
View blockage by facility		D	
Intrusiveness of lighting (trespass and noise)		D	
Noise originating from facility		D	
Overall			
Overall site review		G	

Matthew's Park Pump Station

Characteristic	Score	Type	Comments
Aesthetic and Art			
Quality of maintenance on landscape	3.75	M	Well-cared for lawn.
Presence and extent of art	0	D	<i>None</i>
Quality of landscape installation	3.25	D	Fine forested and fenced facility.
Views into the site	4	D	Set off from the main street, hidden ¾ of the way into the forest.
Building			
Level of architectural finish	3.25	D	A clean, modern brick square building, with some visual interest.
Physical conditions of overall facility	4.25	M	Seems in good condition.
Facility			
Noticeable odor	5	O	<i>None</i>
Public amenities (on-site)	4.25	D	Creek in front, in the woodland landscape set back from the street.
Effectiveness of public safety measures	4.75	D	Set back from street, with high fencing.
General overall impression	4.25	G	Good quality dense buffer landscape.
Surroundings			
Effect on regional view	5	D	Can see from street next to forested area, buffered on ½ of complete site by trees & shrubs.
View blockage by facility	4.75	D	<i>None.</i>
Intrusiveness of lighting (trespass and noise)	4	D	Limited effective lighting, set back from the street and park.
Noise originating from facility	5	D	No noise.
Overall			
Overall site review	4.25	G	

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Matthew’s Park Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	8	40
Design (D)	38.25	38.25
Odor (O)	5	50
General (G)	4.25	42.5
Grand total		170.75

85.375%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



Matthew’s Park Pump Station from the access road.



Pedestrian bridge over creek leading into trail, adjacent to facility.



Street view of the pump station, with original Metro sign and City Park to the right.

Belvoir Pump Station

Characteristic	Score	Type	Comments
Aesthetic and Art			
Quality of maintenance on landscape	4	M	High level of maintenance. Hedges and grass are well maintained. Blackberries have been recently removed.
Presence and extent of art	3	D	Waterfowl silhouettes on the railing system of the rooftop viewing platform are well suited to their location.
Quality of landscape installation	4	D	High. Simple landscape that blends with the neighborhood. By incorporating hedges, the facility blends well with its residential neighbors.
Views into the site	5	D	Site is not visible from the main street or neighboring homes. Care was taken to place the building into the slope which removes it from view.
Building			
Level of architectural finish	3	D	Medium to low. Simple finish but meets the needs. The concrete building is painted.
Physical conditions of overall facility	3	M	Good, older facility.
Facility			
Noticeable odor	5	O	None.
Public amenities (on-site)	4	D	Overlook viewing platform on the facility roof and access is provided to wetland and trail system.
Effectiveness of public safety measures*	5	D	Thoughtful fencing that blends in well with the neighborhood.
General overall impression	5	G	Excellent screening and blending with the neighborhood. Building is almost unnoticeable. Good odor control.
Surroundings			
Effect on regional view	5	D	None.
View blockage by facility	5	D	None.
Intrusiveness of lighting (trespass and noise)*	4	D	2 flood lights facing the wetland do not impede on residences
Noise originating from facility*	3	D	Faint.
Overall			
Overall site review	5	G	Good neighbor. Facility completely removed from view. Very nice site that is well-maintained.

This facility was scored during the November 2013 study. Asterisk marks a score from a 2015 site visit, unique to this report.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Belvoir Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	7	35
Design (D)	41	41
Odor (O)	5	50
General (G)	5	50
Grand total		176

88%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



Pump station tucked into site to screen from roadway and adjacent residential areas



Rooftop overlook is the only portion of the facility seen from roadway and residential development



View across the site looking north and bordering sidewalk and adjacent roadway

Yarrow Bay Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	3	M	Limited green space with invasive species present.
Presence and extent of art	0	D	
Quality of landscape installation	2.5	D	Limited green space on a small site.
Views into the site	2.5	D	Portable generator parked in front with no screening.
<i>Building</i>			
Level of architectural finish	4	D	Nice for its time period.
Physical conditions of overall facility	3.75	M	
<i>Facility</i>			
Noticeable odor	3	O	Not too bad, but noticeable.
Public amenities (on-site)	0	D	
Effectiveness of public safety measures	3	D	No real fencing
General overall impression	2.75	G	Nice building, 3 sides of okay vegetation, one side no screening and could use it.
<i>Surroundings</i>			
Effect on regional view	2.5	D	Local view front(east) of facility could be screened a lot better
View blockage by facility	3.5	D	
Intrusiveness of lighting (trespass and noise)	3.5	D	Okay, minimal lighting.
Noise originating from facility	3	D	Limited, faint noise.
<i>Overall</i>			
Overall site review	2.5	G	Building good, front paved area needs odor control; noticeable 50' from 12 or more condos.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Yarrow Bay Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	6.75	33.75
Design (D)	24.5	24.5
Odor (O)	3	30
General (G)	2.625	26.25
Grand total		114.5

57.25%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



Front entry to Yarrow Bay Pump Station



Side of Yarrow Bay, view of invasive ivies



Emergency generator placed in front of Yarrow Bay

East Pine Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	3.5	M	Well maintained.
Presence and extent of art	0	D	None
Quality of landscape installation	3.5	D	Limited, but correct for the location.
Views into the site	4	D	Very limited, stone covered building tucked into the hillside.
<i>Building</i>			
Level of architectural finish	5	D	High, perfect for the location.
Physical conditions of overall facility	3.25	M	Good condition.
<i>Facility</i>			
Noticeable odor	5	O	None
Public amenities (on-site)	4.25	D	Public stair to take to the lake side trail.
Effectiveness of public safety measures	4	D	Fenced, barbed wire not in great repair.
General overall impression	4	G	Well suited to location.
<i>Surroundings</i>			
Effect on regional view	5	D	None.
View blockage by facility	5	D	None.
Intrusiveness of lighting (trespass and noise)	4	D	Very limited.
Noise originating from facility	4	D	Very limited.
<i>Overall</i>			
Overall site review	4.25	G	Great older stone covered building with property available to the public on the water's edge.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

East Pine Pump Station **Photos and Total Survey Scores**

Type	Raw	Final
Maintenance (M)	6.75	33.75
Design (D)	38.75	38.75
Odor (O)	5	50
General (G)	4.125	41.25
Grand total		163.75

81.875%
Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



Stone pump station walls, with adjacent public staircase leading to the shoreline trail.



View of the pump station from the sidewalk, looking down to the public open space.



View of the pump station facing north, opposite the staircase.

Medina Pump Station

Characteristic	Score	Type	Comments
Aesthetic and Art			
Quality of maintenance on landscape	4	M	Good, well maintained, and well suited to the location
Presence and extent of art	0	D	None.
Quality of landscape installation	4	D	High. Landscape around the building and driveway. Nicely done.
Views into the site	4	D	Views are partially screened from surrounding streets. The view of the building is also nice.
Building			
Level of architectural finish	4	D	Simple, but well done. Two color brick with creative brick placement on the circular building that improves the looks.
Physical conditions of overall facility	4	M	Good. Roof flashing needs painting.
Facility			
Noticeable odor	4	O	Very slight to none. Exhaust fan noise noticeable.
Public amenities (on-site)	0	D	None.
Effectiveness of public safety measures*	4	D	Natural tree buffer and adequate lighting.
General overall impression	3	G	Nice facility. Clean and nice building. Facility blends well into surroundings.
Surroundings			
Effect on regional view	5	D	None.
View blockage by facility	5	D	None.
Intrusiveness of lighting (trespass and noise)*	5	D	Minimal.
Noise originating from facility*	5	D	None.
Overall			
Overall site review	4	G	Well-designed but not overdone, well suited for the surrounding area. Small interesting building. Nice partial screening to enhance the views of the site.

This facility was scored during the November 2013 study. Asterisk marks a score from a 2015 site visit, unique to this report.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Medina Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	8	40
Design (D)	36	36
Odor (O)	4	40
General (G)	3.5	35
Grand total		151

75.5%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



View of the pump station looking into the site from the roadway.



Side view of the site and landscaping.



Back view of the site from the driveway.

Bellevue Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	3	M	Young landscape that looks a little but under planted. Weeding needed. A few dead trees need to be removed.
Presence and extent of art	5	D	Free standing delightful elf and cloud sculpture. BPS symbols in two locations are a nice touch.
Quality of landscape installation	3	D	Good. Under-planted on the East side.
Views into the site	4	D	Wide open view from 3 sides. Nice looking building from all directions.
<i>Building</i>			
Level of architectural finish	5	D	High. Excellent use of brick pattern, banding and windows. Nice detailing.
Physical conditions of overall facility	5	M	Very high. New facility.
<i>Facility</i>			
Noticeable odor	5	O	None.
Public amenities (on-site)	3	D	Public art.
Effectiveness of public safety measures*	5	D	Minimal fencing and lighting.
General overall impression	5	G	Excellent design for site and neighborhood. Art is a very nice addition. Nice brick building.
<i>Surroundings</i>			
Effect on regional view	4	D	None. Good addition to neighborhood.
View blockage by facility	5	D	None. Good addition to neighborhood.
Intrusiveness of lighting (trespass and noise)*	5	D	Minimal lighting.
Noise originating from facility*	5	D	None.
<i>Overall</i>			
Overall site review	5	G	Excellent facility. Long lived, substantial public structure, very nice building.

This facility was scored during the November 2013 study. *Asterisk marks a score from a 2015 site visit, unique to this report.*

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

**Type of Characteristic Measured
And Total Survey Scores**

Type	Raw	Final
Maintenance (M)	8	40
Design (D)	44	44
Odor (O)	5	50
General (G)	5	50
Grand total		184

92%
Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



View into the site from the roadway.



View into the site looking north.



South elevation of the building showing landscaping and whimsical public art.

Wilburton Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	2	M	Ivy that has run wild into woodland
Presence and extent of art	0	D	
Quality of landscape installation	2.25	D	No landscape areas, invasive species surround the site
Views into the site	3	D	Not great, off street and hidden from view
<i>Building</i>			
Level of architectural finish	3	D	Interesting roof, not bad main building. Consider repainting the pink box.
Physical conditions of overall facility	2.5	M	Landscape in disrepair – why do we need a silver hat on pink box?
<i>Facility</i>			
Noticeable odor	2.75	O	Yes, unpleasant at fence edge
Public amenities (on-site)	0	D	
Effectiveness of public safety measures	2	D	Extensive barbed wire fence surrounds site for no reason
General overall impression	1.75	G	Old and not in great repair, odor too.
<i>Surroundings</i>			
Effect on regional view	4	D	Paint could help this disappear
View blockage by facility	2.75	D	Pink box is the worst
Intrusiveness of lighting (trespass and noise)	4	D	
Noise originating from facility	2.5	D	Faint noise, not bad
<i>Overall</i>			
Overall site review	2.5	G	Bad fence, ivy run wild into woods, really bad paint color

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Wilburton Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	4.5	22.5
Design (D)	23.5	23.5
Odor (O)	2.75	27.5
General (G)	2.125	21.25
Grand total		94.75

47.375%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



Street view of Wilburton Pump Station



View to the pump station from the entry roadway.



Note invasive species and extensive use of barbed wire fencing

North Mercer Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	2.5	M	Surrounded by invasive species. Ivy must be removed, as it is growing wild and moving into the woods.
Presence and extent of art	0	D	None.
Quality of landscape installation	2	D	Very limited, with English Ivy surrounding the adjacent woodlands.
Views into the site	3.25	D	Not bad.
<i>Building</i>			
Level of architectural finish	3	M	Moderate, clean and simple design. Looks like a house, and is set back from the street.
Physical conditions of overall facility	2.75	M	Good condition except for landscaping. Large quantity of invasive species.
<i>Facility</i>			
Noticeable odor	4.5	O	No noticeable odor.
Public amenities (on-site)	0	D	None
Effectiveness of public safety measures	3.5	D	Fenced tanks, locked building and no unnecessary fencing.
General overall impression	3.25	G	Property matches surrounding residences. Worst thing is ivies taking off into the woods.
<i>Surroundings</i>			
Effect on regional view	5	D	None.
View blockage by facility	4.75	D	None.
Intrusiveness of lighting (trespass and noise)	3.5	D	None.
Noise originating from facility	3.25	D	Limited hum.
<i>Overall</i>			
Overall site review	2.5	G	Invasive species must be dealt with.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

North Mercer Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	5.25	26.25
Design (D)	28.25	28.25
Odor (O)	4.5	45
General (G)	2.875	28.75
Grand total		128.25

64.125%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



View down the entryway to North Mercer Pump Station.



Front doors and fenced-area of North Mercer Pump Station.



Street view, note invasive species encroaching into woodlands.

53rd Avenue Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	0	M	None.
Presence and extent of art	0	D	None.
Quality of landscape installation	0	D	None.
Views into the site	5	D	All underground and paved.
<i>Building</i>			
Level of architectural finish	3	D	Patterned concrete paving with grates and access doors.
Physical conditions of overall facility	5	M	New, good quality.
<i>Facility</i>			
Noticeable odor	5	O	None. No noise noted.
Public amenities (on-site)	2	D	Paved plaza over facility, overlooking Puget Sound.
Effectiveness of public safety measures*	4	D	
General overall impression	4	G	Blends perfectly with the location
<i>Surroundings</i>			
Effect on regional view	5	D	None.
View blockage by facility	5	D	None.
Intrusiveness of lighting (trespass and noise)*	5	D	Scored during Nov 2013 Review of Facilities. Lighting was not assessed.
Noise originating from facility*	5	D	Scored during Nov 2013 Review of Facilities. Noise was not assessed.
<i>Overall</i>			
Overall site review	3	G	Good site and well-maintained. Lost opportunity to incorporate public amenities. This would have been a great place for public art and educational panels in paved roof surface (public sidewalk). Seems an appropriate place to add public benches and binoculars.

This facility was scored during the November 2013 study. Asterisk marks a score from a 2015 site visit, unique to this report.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

53rd Avenue Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	5	25
Design (D)	34	34
Odor (O)	5	50
General (G)	3.5	35
Grand total		144

72%
Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



East view of site showing buried pump station beneath public walkway.



View to the west showing small electrical vault.



View of the exhaust stacks, electrical vault and public walkway on top of the pump station.

Sweyolocken Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	3.25	M	Matches surrounding area: the Mercer Slough.
Presence and extent of art	3.5	D	Yes – artistic fence.
Quality of landscape installation	3.25	D	
Views into the site	3.5	D	Not visible from street.
<i>Building</i>			
Level of architectural finish	3.5	D	Cinderblock
Physical conditions of overall facility	3.5	M	Good.
<i>Facility</i>			
Noticeable odor	4	O	Little to no odor.
Public amenities (on-site)	2	D	Near park entrance – next to the Mercer Slough.
Effectiveness of public safety measures	3.5	D	Yes, security gate fencing detracts from park entrance. Unnecessary green barbed wire fencing surrounding empty gravel lot.
General overall impression	3.25	G	Not visible.
<i>Surroundings</i>			
Effect on regional view	3.5	D	None
View blockage by facility	4	D	None
Intrusiveness of lighting (trespass and noise)	4	D	Mild lighting, very limited.
Noise originating from facility	3.5	D	Mild noise.
<i>Overall</i>			
Overall site review	3.75	G	Not bad. Remove barbed wire and install new fence.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Sweyolocken Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	6.75	33.75
Design (D)	34.25	34.25
Odor (O)	4	40
General (G)	3.5	35
Grand total		143

71.5%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



View from the park looking south to the pump station.



Adjacent yard space, surrounded by barbed wire fencing on the north side of the pump station.



View from the park looking north at the facility.

Heathfield Pump Station

Characteristic	Score	Type	Comments
Aesthetic and Art			
Quality of maintenance on landscape	4	M	Mature trees and shrubs. Dense and quite good quality. Some weeds present.
Presence and extent of art	0	D	None.
Quality of landscape installation	4	D	Good quality, native in character. Mature trees and shrubs that seems to have been retained during construction. Well screened from residential area.
Views into the site	4	D	Limited view of building and site.
Building			
Level of architectural finish	4	D	Medium to high. Metal siding in good shape.
Physical conditions of overall facility	4	M	Good. Could use weeding of landscape.
Facility			
Noticeable odor	5	O	None.
Public amenities (on-site)	0	D	None.
Effectiveness of public safety measures*	2	D	Barbed wire fencing, excessive signage and lighting.
General overall impression	4	G	Very well sited and designed. Good solution, design that disappears yet is interesting.
Surroundings			
Effect on regional view	5	D	None. 75% of the site is hidden by trees.
View blockage by facility	5	D	None.
Intrusiveness of lighting (trespass and noise)*	2	D	Lights are excessive, on during the daytime.
Noise originating from facility*	3.5	D	Noticeable noise.
Overall			
Overall site review	4	G	Well-sited, recedes in view, hidden on 3 sides by mature vegetation, quiet and a good neighbor.

This facility was scored during the November 2013 study. Asterisk marks a score from a 2015 site visit, unique to this report.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

**Type of Characteristic Measured
And Total Survey Scores**

Type	Raw	Final
Maintenance (M)	8	40
Design (D)	29.5	29.5
Odor (O)	5	50
General (G)	4	40
Grand total		159.5

79.75%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



View into site from roadway of the north face of the pump station.



Back view, south side of the pump station, and landscaping.



View to the rear of the property, directly behind the pump station.

Sunset Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	3.5	M	Great buffer between the roadway and neighborhood.
Presence and extent of art	0	D	None.
Quality of landscape installation	3	D	Buffered from streets and neighborhood.
Views into the site	4.5	D	Well-buffered.
<i>Building</i>			
Level of architectural finish	1	D	Awful, bright blue boxes.
Physical conditions of overall facility	1.5	M	
<i>Facility</i>			
Noticeable odor	2.5	O	
Public amenities (on-site)	0	D	
Effectiveness of public safety measures	2.5	D	Barbed wire fencing.
General overall impression	1.5	G	Needs work.
<i>Surroundings</i>			
Effect on regional view	3.5	D	Good, might be troublesome from the lake.
View blockage by facility	4.5	D	
Intrusiveness of lighting (trespass and noise)	3.5	D	Lighting seems moderately excessive.
Noise originating from facility	2.5	D	Loud noise from the lakeside.
<i>Overall</i>			
Overall site review	2.5	G	

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Sunset Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	5	25
Design (D)	25	25
Odor (O)	2.5	25
General (G)	2	20
Grand total		95

47.5%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



View from uphill residence, looking on to the entry roof to the pump station. Note extensive barbed wire fencing.



Side view of pump station, leading to rooftop and roadway.



View of facility from adjacent dock.

West Seattle Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	4	M	Well maintained
Presence and extent of art	5	D	Building and wall tiles, NW native American art elements are very nice. Some of the best so far.
Quality of landscape installation	4.5	D	Native vegetation, well done.
Views into the site	5	D	Very nice views into the site.
<i>Building</i>			
Level of architectural finish	5	D	High level of finish. Relatively new facility.
Physical conditions of overall facility	4.75	M	Could use a power wash.
<i>Facility</i>			
Noticeable odor	4.5	O	None.
Public amenities (on-site)	0	D	.
Effectiveness of public safety measures	4.5	D	High quality heavy duty fencing. Black chain link fencing as well.
General overall impression	4.5	G	Very nice facility, well sited and constructed.
<i>Surroundings</i>			
Effect on regional view	4.5	D	Tucked into hillside.
View blockage by facility	4.5	D	None
Intrusiveness of lighting (trespass and noise)	4.5	D	Low level.
Noise originating from facility	4.5	D	None.
<i>Overall</i>			
Overall site review	5	G	

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

West Seattle Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	8.75	43.75
Design (D)	42	42
Odor (O)	4.5	45
General (G)	4.75	47.5
Grand total		178.25

89.125%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



West Seattle Pump Station’s walls, and landscaping on the front of pump station property.



Native American inspired art on West Seattle’s south elevation.



Native American inspired art on the north side of West Seattle Pump Station

63rd Avenue Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	3	M	Not bad, not great.
Presence and extent of art	4.5	D	Very nice, little art on sea life adjacent to public walkway.
Quality of landscape installation	3	D	
Views into the site	4	D	Good, and limited. Great view of the Sound.
<i>Building</i>			
Level of architectural finish	3.75	D	Almost entirely hidden from view.
Physical conditions of overall facility	4	M	Facility in good condition.
<i>Facility</i>			
Noticeable odor	4	O	
Public amenities (on-site)	5	D	Design incorporates a plaza with an amazing view of Puget Sound.
Effectiveness of public safety measures	4.25	D	Could use low level lighting around plaza, fences and railing.
General overall impression	4	Fact	Well designed and integrated, presents amazing views of the Sound.
<i>Surroundings</i>			
Effect on regional view	4.5	D	None, well-integrated.
View blockage by facility	5	D	None
Intrusiveness of lighting (trespass and noise)	3	D	None, additional lighting would serve us well.
Noise originating from facility	4	D	White noise. Not bad.
<i>Overall</i>			
Overall site review	4	Fact	Protects amazing views.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

63rd Avenue Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	7	35
Design (D)	41	41
Odor (O)	4	40
General (G)	8	40
Grand total		156

78%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



Art installation on the north side of the pump station.



53rd Avenue Pump Station from the lower driveway, looking east.



Public facility rooftop deck with views to Puget Sound.

Rainier Valley Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	4	M	Looks good. Well maintained.
Presence and extent of art	0	D	None.
Quality of landscape installation	3.5	D	Well done. Interesting.
Views into the site	4	D	Nice views into the property.
<i>Building</i>			
Level of architectural finish	4.25	D	Interesting design from concrete, high level of design and finish.
Physical conditions of overall facility	4	M	In good repair.
<i>Facility</i>			
Noticeable odor	4	O	None
Public amenities (on-site)	1	D	None
Effectiveness of public safety measures	3.5	D	Night safety lighting in rear.
General overall impression	4	G	Very interesting piece of architecture.
<i>Surroundings</i>			
Effect on regional view	3.5	D	Little to none.
View blockage by facility	3.5	D	
Intrusiveness of lighting (trespass and noise)	3.75	D	Little to none from flood lights in rear.
Noise originating from facility	4	D	Limited white noise.
<i>Overall</i>			
Overall site review	4	G	Nice piece of architecture.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Rainier Valley Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	8	40
Design (D)	31	31
Odor (O)	4	40
General (G)	4	40
Grand total		151

75.5%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



View of Rainier Valley Pump Station (South elevation)



North elevation of pump station.



West side of pump station.

Murray Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	4	M	Mowed lawn.
Presence and extent of art	0	D	None.
Quality of landscape installation	3.75	D	Below-grade with a view.
Views into the site	4.5	D	Below grade.
<i>Building</i>			
Level of architectural finish	0	D	Below grade, does not apply.
Physical conditions of overall facility	4.5	M	Under construction.
<i>Facility</i>			
Noticeable odor	5	O	None.
Public amenities (on-site)	5	D	Becomes a part of the park.
Effectiveness of public safety measures	4	D	None required.
General overall impression	5	G	
<i>Surroundings</i>			
Effect on regional view	5	D	None.
View blockage by facility	5	D	None.
Intrusiveness of lighting (trespass and noise)	5	D	None.
Noise originating from facility	5	D	None.
<i>Overall</i>			
Overall site review	5	G	Totally hidden, no impact to community.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Murray Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	8.75	43.75
Design (D)	37.25	37.25
Odor (O)	5	50
General (G)	5	50
Grand total		181

90.5%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



Sidewalk next to Murray Pump Station, during construction of the adjacent CSO Control facility.



View of Murray Pump Station, below grade facilities set in public park land.

South Mercer Station

Characteristic	Score	Type	Comments
Aesthetic and Art			
Quality of maintenance on landscape	4	M	Good. The trees are mature so that it covers and hides facility from water views.
Presence and extent of art	0	D	
Quality of landscape installation	4	D	Good for location. Forest area at the back/waterfront provides natural character.
Views into the site	4	D	This site is screened from view. Rooftop acts as driveway/parking, overlooking lake.
Building			
Level of architectural finish	3	D	Medium to high.
Physical conditions of overall facility	4	M	Facility is in good condition.
Facility			
Noticeable odor	4	O	Very faint odor near the water's edge.
Public amenities (on-site)	4	D	Rooftop driveway forms an overlook to the lake.
Effectiveness of public safety measures*	4	D	Minimal fencing, good lighting and thoughtful vegetation placement.
General overall impression	5	G	Very clean, neat and hidden facility. Nice waterfront and dense landscaping.
Surroundings			
Effect on regional view	5	D	
View blockage by facility	5	D	
Intrusiveness of lighting (trespass and noise)*	3	D	Slightly excessive.
Noise originating from facility*	2	D	Yes
Overall			
Overall site review	4	G	One would not know this is an industrial facility. Clean, neat and well maintained. Low level of noise noticed as the facility is located below the grade from roadway.

This facility was scored during the November 2013 study. Asterisk marks a score from a 2015 site visit, unique to this report.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

South Mercer Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	8	40
Design (D)	34	34
Odor (O)	4	40
General (G)	4.5	45
Grand total		159

79.5%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



View onto the rooftop of the pump station from the street end looking east.



View from rooftop looking onto the landscape screening of the west side of the facility.



View from the back of the facility looking east.

Barton Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			<div><i>Under construction:</i></div> <div><i>This site was not reviewed for this study</i></div>
Quality of maintenance on landscape		M	
Presence and extent of art		D	
Quality of landscape installation		D	
Views into the site		D	
<i>Building</i>			
Level of architectural finish		D	
Physical conditions of overall facility		M	
<i>Facility</i>			
Noticeable odor		O	
Public amenities (on-site)		D	
Effectiveness of public safety measures		D	
General overall impression		Fact	
<i>Surroundings</i>			
Effect on regional view		D	
View blockage by facility		D	
Intrusiveness of lighting (trespass and noise)		D	
Noise originating from facility		D	
<i>Overall</i>			
Overall site review		Fact	

Henderson Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	2.5	M	Interior of site is not well cared for
Presence and extent of art	5	D	Really nice brick wall mural
Quality of landscape installation	4	D	Not bad outside, needs updating inside
Views into the site	3.5	D	Good, needs cleanup
<i>Building</i>			
Level of architectural finish	5	D	Great 50s/60s building
Physical conditions of overall facility	4.25	M	Good, landscape needs work
<i>Facility</i>			
Noticeable odor	5	O	None
Public amenities (on-site)	3.75	D	Building as art, no amenities
Effectiveness of public safety measures	3.5	D	Seems okay
General overall impression	3.25	Fact	Great building, landscape needs care
<i>Surroundings</i>			
Effect on regional view	4	D	Good
View blockage by facility	5	D	None
Intrusiveness of lighting (trespass and noise)	4	D	Very limited
Noise originating from facility	5	D	None
<i>Overall</i>			
Overall site review	3.5	Fact	Landscape care needed.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Henderson Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	6.75	33.75
Design (D)	42.75	42.75
Odor (O)	5	50
General (G)	3.375	33.75
Grand total		160.25

80.125%
 Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



Fence line, lawn, and public art on the facility wall of Henderson Pump Station



View of fence line and neighboring property.

Bunker Trail Pump Stations (#1-4)

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	1	M	
Presence and extent of art	0	D	
Quality of landscape installation	1	D	Built retaining wall on facility #1, falling apart in the corner.
Views into the site	1.25	D	Un-buffered, industrial unfiltered
<i>Building</i>			
Level of architectural finish	1	D	Green painted wall north end falling apart
Physical conditions of overall facility	2.5	M	Vault and metal utility boxes.
<i>Facility</i>			
Noticeable odor	4.5	O	None.
Public amenities (on-site)	0	D	None.
Effectiveness of public safety measures	1.25	D	Rail around vault/only safety feature
General overall impression	2.5	Fact	Boxes and vaults besides roads
<i>Surroundings</i>			
Effect on regional view	2.5	D	Nothing to look at
View blockage by facility	4.5	D	Tucked into hillside
Intrusiveness of lighting (trespass and noise)	4.25	D	None.
Noise originating from facility	4.25	D	None.
<i>Overall</i>			
Overall site review	1.75	Fact	

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Bunker Trail (1-4) Pump Stations

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	4	20
Design (D)	22	22
Odor (O)	4.25	42.5
General (G)	2.125	21.25
Grand total		105.75

52.875%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



View of retaining wall structure and hand rail at the north end of the series of four pump stations.



Pump station element abutting a residence, one element of four pumping facilities.



Open vault, occupied by O&M crews, at the north end of the facilities.

Black Diamond Pump Station

Characteristic	Score	Type	Comments
Aesthetic and Art			
Quality of maintenance on landscape	2	M	Only grass (some overgrown) around the site. Right next to a wetland. Should be landscaped.
Presence and extent of art	0	D	None.
Quality of landscape installation	2	D	Low, only grass installed. Missed opportunity to enhance adjacent wetland area.
Views into the site	3	D	Limited visibility. Visible only from the road, tucked in with a long driveway.
Building			
Level of architectural finish	3	D	Good. Possibly copper roofing on dormers. Brick building.
Physical conditions of overall facility	3	M	Good for the building (4 locks to secure the fence. Fencing seems excessive, could be reduced.
Facility			
Noticeable odor	3	O	None.
Public amenities (on-site)	0	D	None.
Effectiveness of public safety measures	2	D	Fencing is excessive, intrusion alarms seem unnecessary.
General overall impression	2.5	Fact	Nice building, good location. Needs landscaping, low hum heard when pump is working.
Surroundings			
Effect on regional view	3	D	A house looks partially down on the facility.
View blockage by facility	5	D	None.
Intrusiveness of lighting (trespass and noise)	4	D	Fair.
Noise originating from facility	2	D	Hum while pump station is in operation.
Overall			
Overall site review	3	Fact	Good neighbor but could be improved with landscaping and reduced fencing. Nice location.

This facility was scored during the November 2013 study. Asterisk marks a score from a 2015 site visit, unique to this report.

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Black Diamond Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	5	25
Design (D)	24	24
Odor (O)	3	30
General (G)	3	30
Grand total		109

54.5%

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



The view into the site, down the entry roadway to the pump station from roadway.



Front view of the pump station.



Side view of additional building and electrical transformers.

Lakeland Hills Pump Station

Characteristic	Score	Type	Comments
<i>Aesthetic and Art</i>			
Quality of maintenance on landscape	2	M	Natural, no landscape design recognizable
Presence and extent of art	0	D	No art.
Quality of landscape installation	2	D	Natural screening, no landscaping
Views into the site	2.5	D	Very industrial, old dented doors, painted box
<i>Building</i>			
Level of architectural finish	1	D	Painted box
Physical conditions of overall facility	1.5	M	Dented doors make it look really bad, cinderblock building structure
<i>Facility</i>			
Noticeable odor	3.5	O	Yes, but not bad
Public amenities (on-site)	1	D	
Effectiveness of public safety measures	1	D	
General overall impression	1.25	Fact	Lowest level facility in the system so far
<i>Surroundings</i>			
Effect on regional view	1.5	D	Near Auburn Riverside High School
View blockage by facility	3	D	
Intrusiveness of lighting (trespass and noise)	3.5	D	
Noise originating from facility	4	D	A little, not a lot
<i>Overall</i>			
Overall site review	2	Fact	

Scoring Scale					
0	1	2	3	4	5
Not Applicable	Poor	Below Standard	Standard	Good	Excellent

Lakeland Hills Pump Station

Photos and Total Survey Scores

Type	Raw	Final
Maintenance (M)	3.5	17.5
Design (D)	19.5	19.5
Odor (O)	3.5	35
General (G)	1.625	16.25
Grand total		88.25

44.125

Maintenance and General Impression raw totals were equalized by a factor of 5. Odor by a factor of 10.



View of the pump station from the north, looking south



Note the dented door on the box.
North elevation on the pump station building.



Manholes to below-grade structures,
east of the pump station.

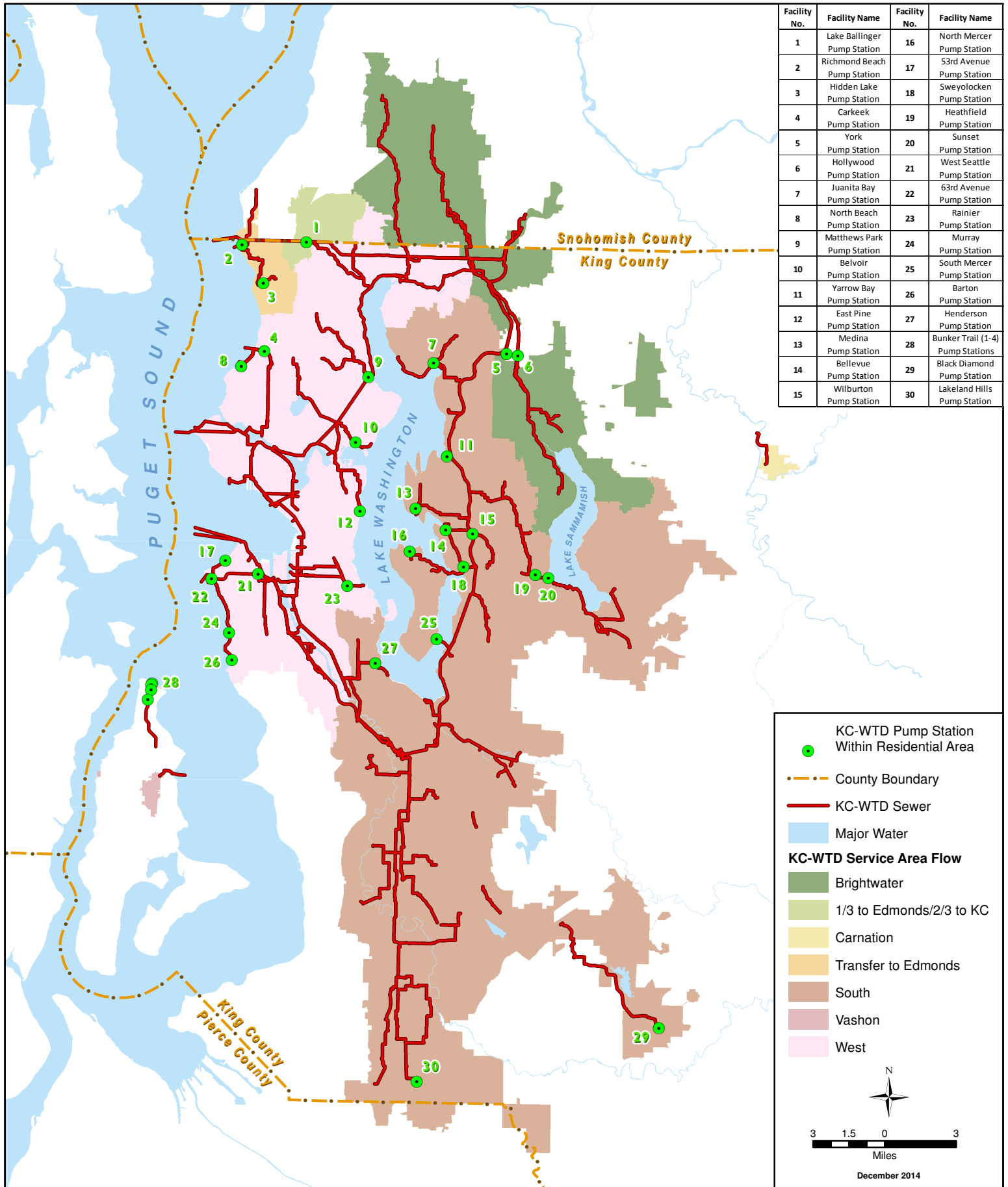
EQUITY AND SOCIAL JUSTICE REVIEW OF FACILITIES:
ASSESSMENT OF RESIDENTIAL-AREA PUMP STATIONS JUNE 2015

APPENDIX B: GIS MAPS OF RESIDENTIAL-AREA PUMP STATONS AND SURROUNDING LAND USES



King County

Department of Natural Resources and Parks
Wastewater Treatment Division


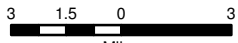


Facility No.	Facility Name	Facility No.	Facility Name
1	Lake Ballinger Pump Station	16	North Mercer Pump Station
2	Richmond Beach Pump Station	17	53rd Avenue Pump Station
3	Hidden Lake Pump Station	18	Sweyolocken Pump Station
4	Carkeek Pump Station	19	Heathfield Pump Station
5	York Pump Station	20	Sunset Pump Station
6	Hollywood Pump Station	21	West Seattle Pump Station
7	Juanita Bay Pump Station	22	63rd Avenue Pump Station
8	North Beach Pump Station	23	Rainier Pump Station
9	Matthews Park Pump Station	24	Murray Pump Station
10	Belvoir Pump Station	25	South Mercer Pump Station
11	Yarrow Bay Pump Station	26	Barton Pump Station
12	East Pine Pump Station	27	Henderson Pump Station
13	Medina Pump Station	28	Bunker Trail (1-4) Pump Stations
14	Bellevue Pump Station	29	Black Diamond Pump Station
15	Wilburton Pump Station	30	Lakeland Hills Pump Station

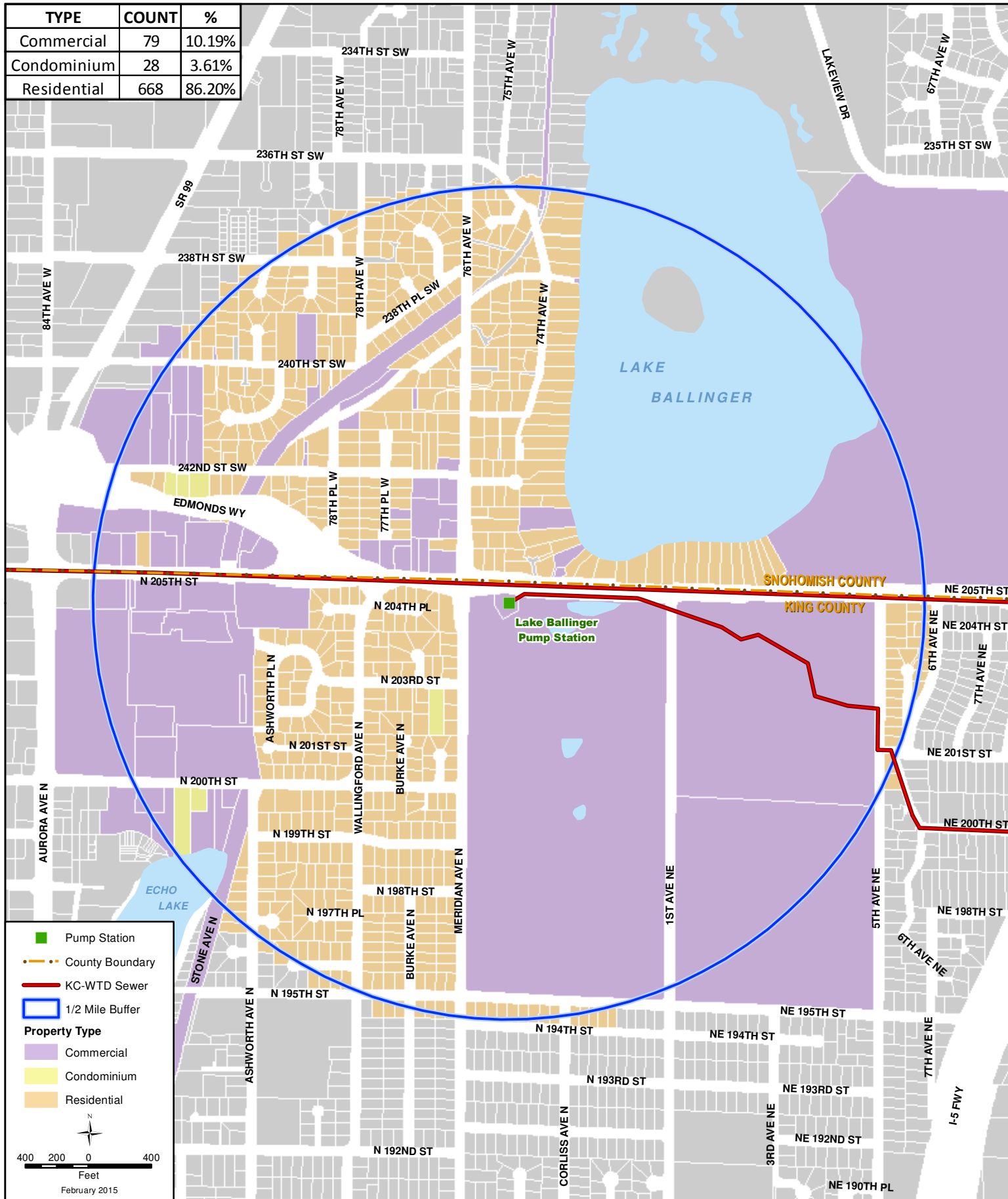
● KC-WTD Pump Station Within Residential Area
- - - County Boundary
— KC-WTD Sewer
 Major Water

KC-WTD Service Area Flow

- Brightwater
- 1/3 to Edmonds/2/3 to KC
- Carnation
- Transfer to Edmonds
- South
- Vashon
- West



 Miles
 December 2014

TYPE	COUNT	%
Commercial	79	10.19%
Condominium	28	3.61%
Residential	668	86.20%



King County
 Department of
 Natural Resources and Parks
**Wastewater Treatment
 Division**

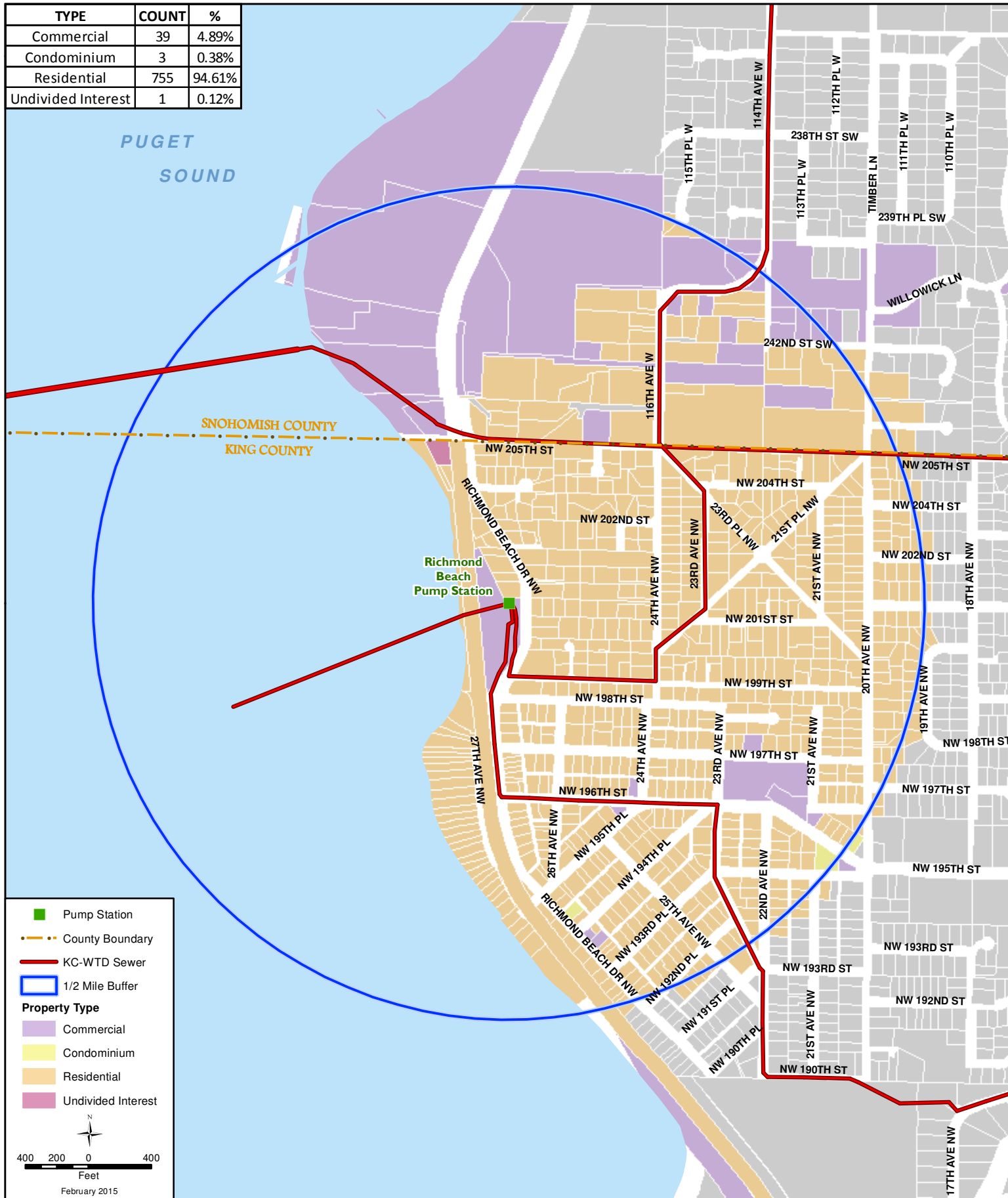
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Facility 1

**Property Types Within 1/2 Mile
 of Lake Ballinger Pump Station**

TYPE	COUNT	%
Commercial	39	4.89%
Condominium	3	0.38%
Residential	755	94.61%
Undivided Interest	1	0.12%



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Department of
Natural Resources and Parks
**Wastewater Treatment
Division**

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Facility 2

**Property Types Within 1/2 Mile
of Richmond Beach Pump Station**

TYPE	COUNT	%
Commercial	3	0.68%
Residential	437	99.32%



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**Wastewater Treatment
 Division**

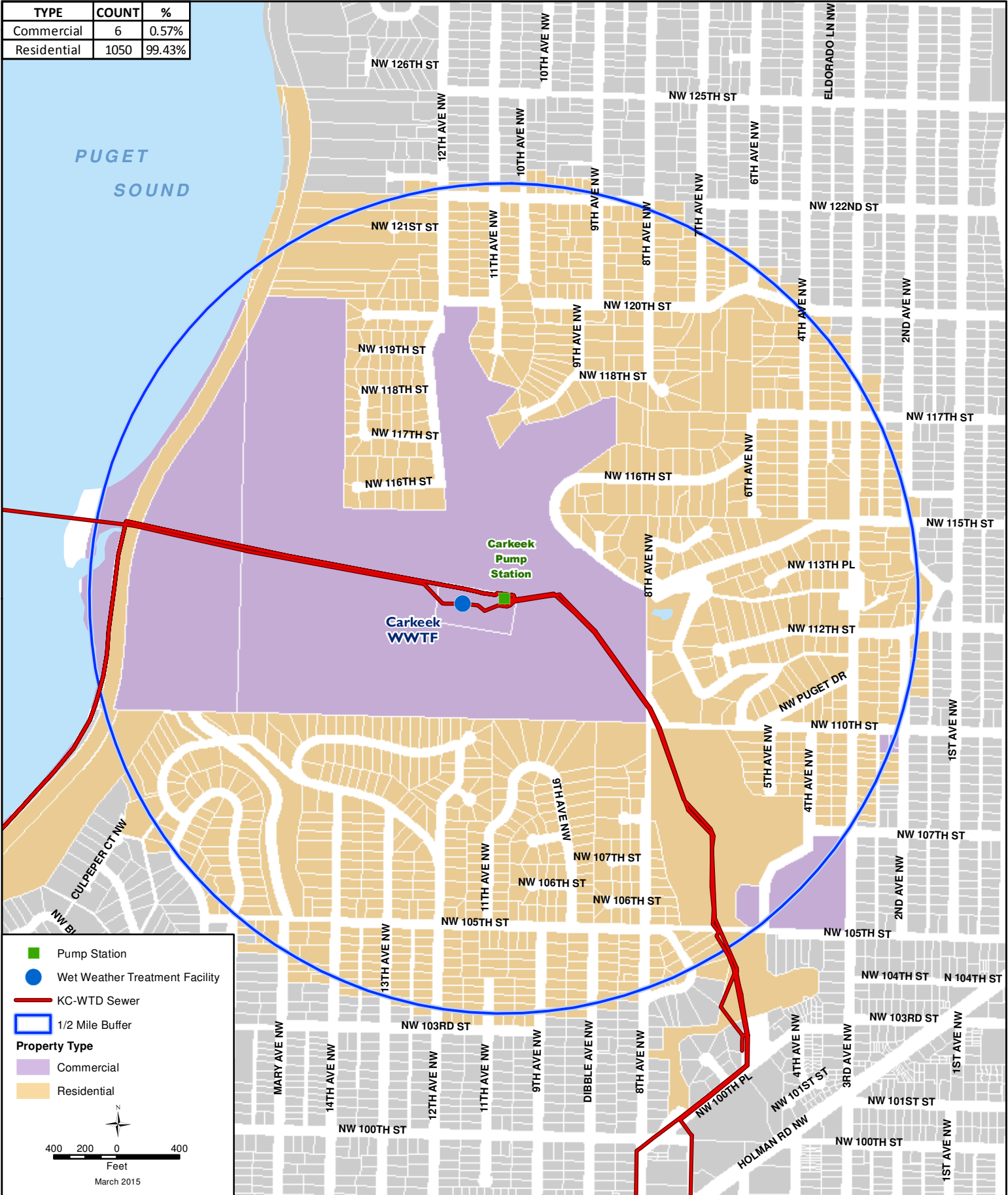
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Facility 3

**Property Types Within 1/2 Mile
 of Hidden Lake Pump Station**

TYPE	COUNT	%
Commercial	6	0.57%
Residential	1050	99.43%



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Department of
Natural Resources and Parks
**Wastewater Treatment
Division**

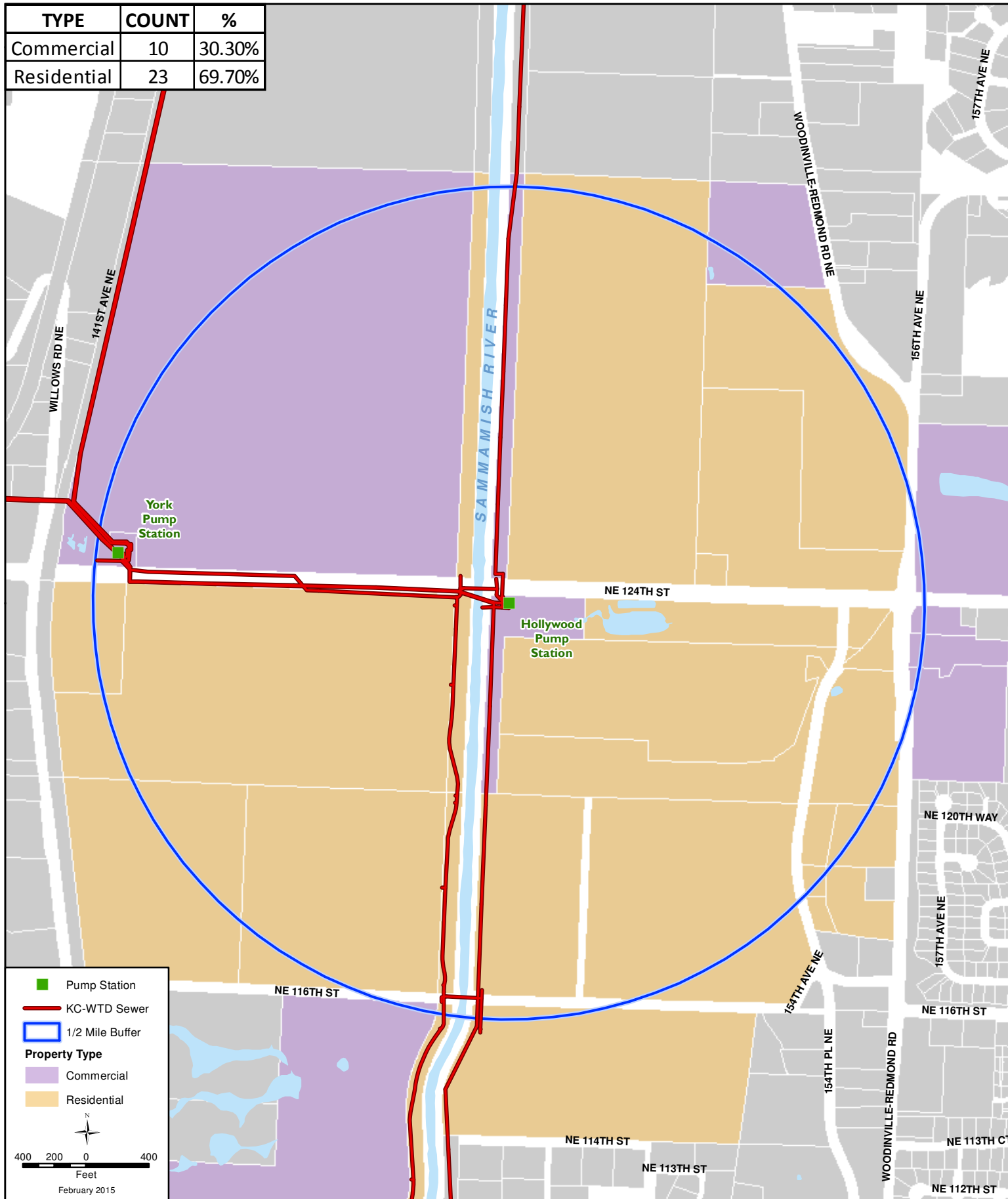
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Facility 4

**Property Types Within 1/2 Mile
of Carkeek Pump Station**

TYPE	COUNT	%
Commercial	10	30.30%
Residential	23	69.70%



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**Wastewater Treatment
 Division**

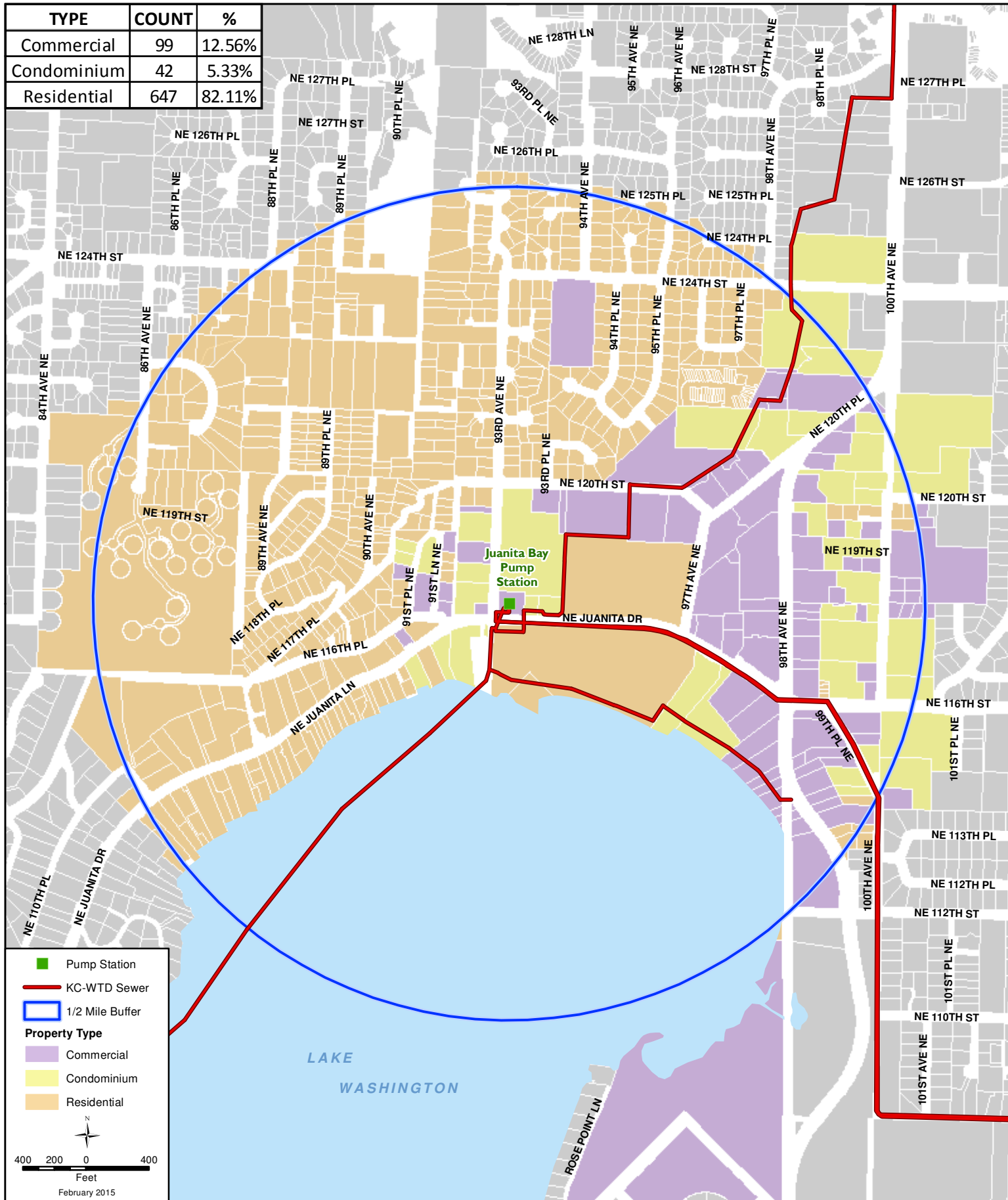
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File Name: Q:\WTD\Projects\Equity\projects\WTDPS.mxd cross

Facility 6

**Property Types Within 1/2 Mile
 of Hollywood Pump Station**

TYPE	COUNT	%
Commercial	99	12.56%
Condominium	42	5.33%
Residential	647	82.11%



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Facility 7

**Property Types Within 1/2 Mile
 of Juanita Bay Pump Station**

TYPE	COUNT	%
Commercial	3	0.27%
Condominium	1	0.09%
Residential	1105	99.64%



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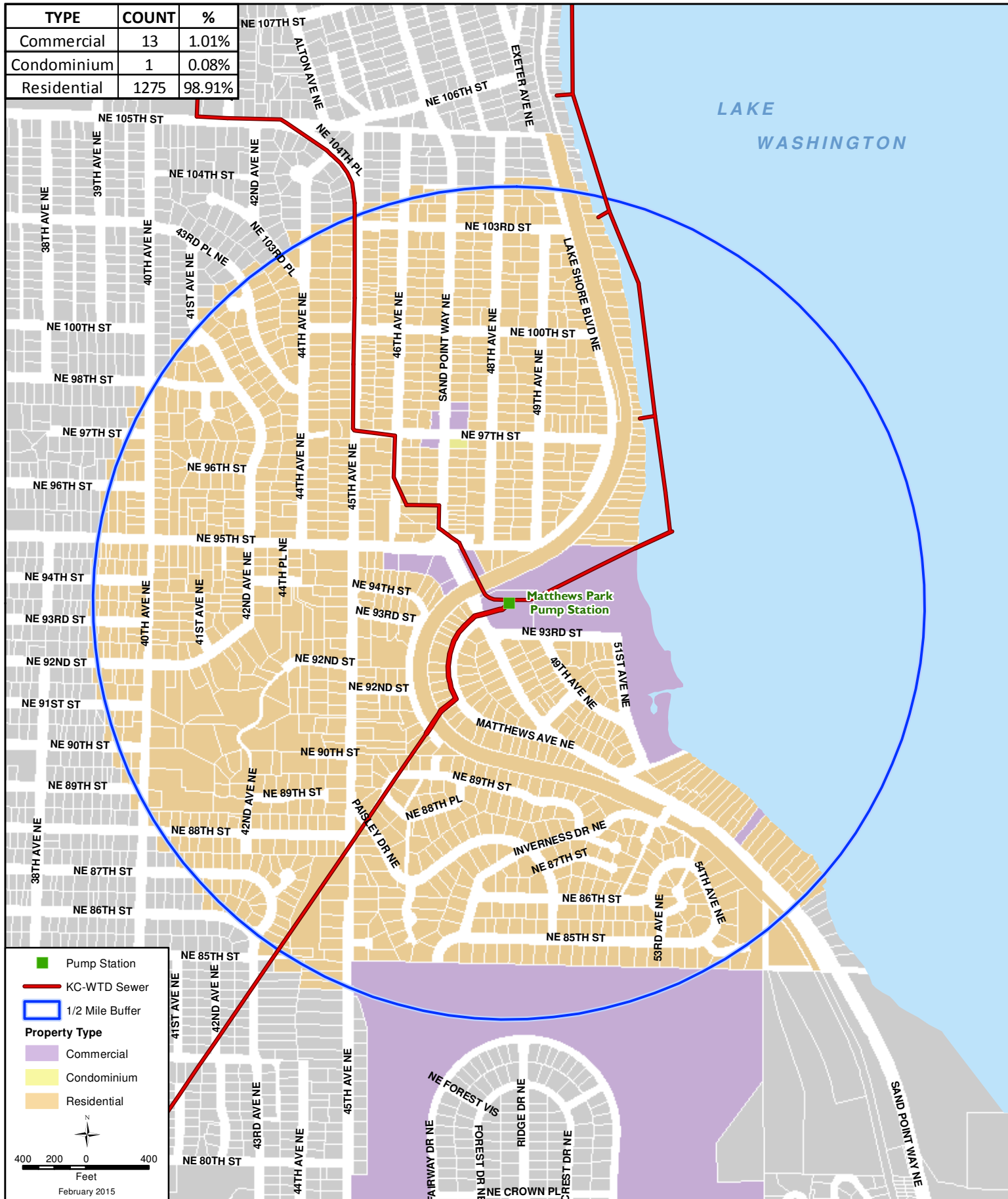
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Facility 8

**Property Types Within 1/2 Mile
 of North Beach Pump Station**

TYPE	COUNT	%
Commercial	13	1.01%
Condominium	1	0.08%
Residential	1275	98.91%



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Facility 9

**Property Types Within 1/2 Mile
of Matthews Park Pump Station**

TYPE	COUNT	%
Commercial	6	2.28%
Residential	257	97.72%



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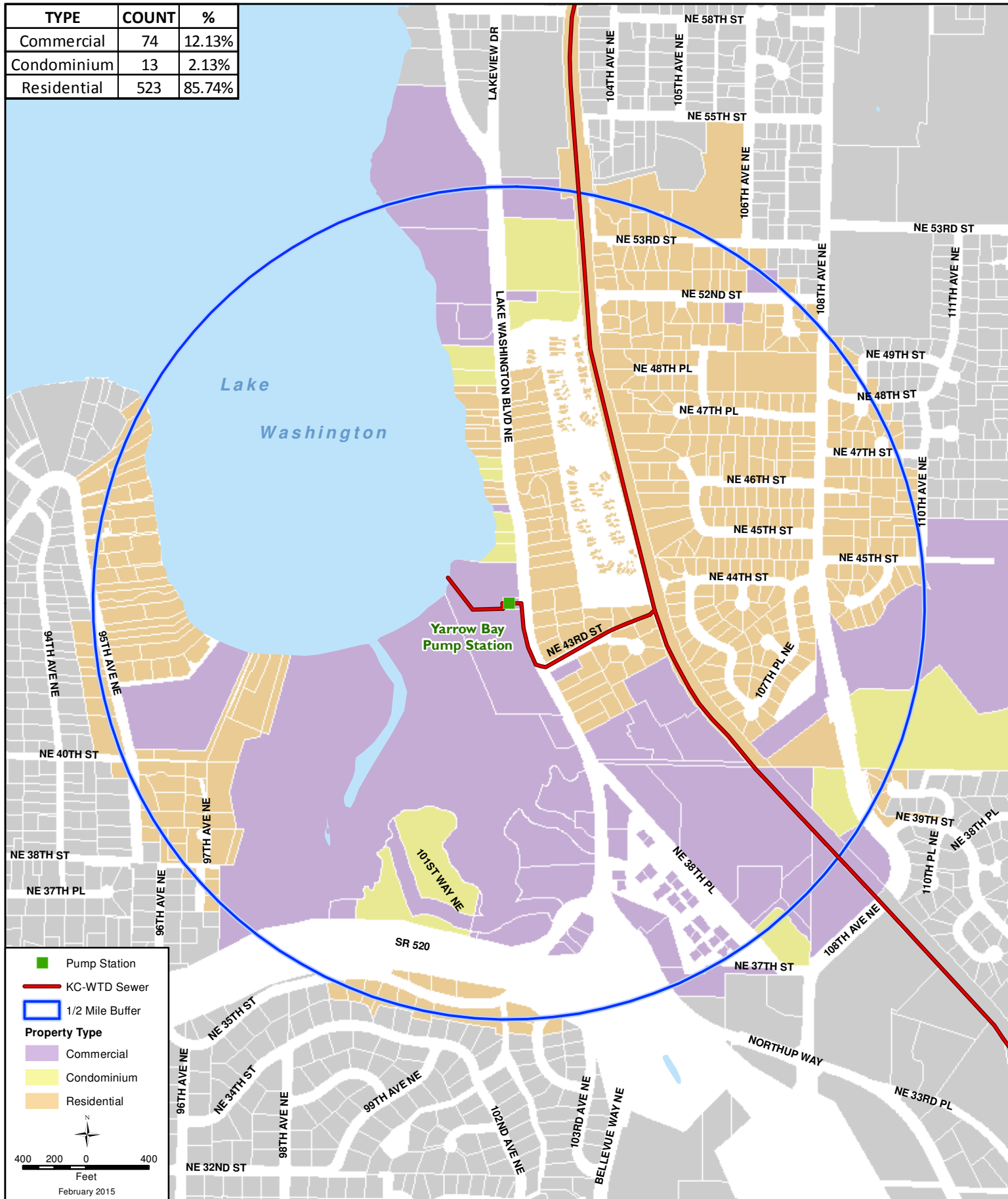
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Facility 10

**Property Types Within 1/2 Mile
of Belvoir Pump Station**

TYPE	COUNT	%
Commercial	74	12.13%
Condominium	13	2.13%
Residential	523	85.74%



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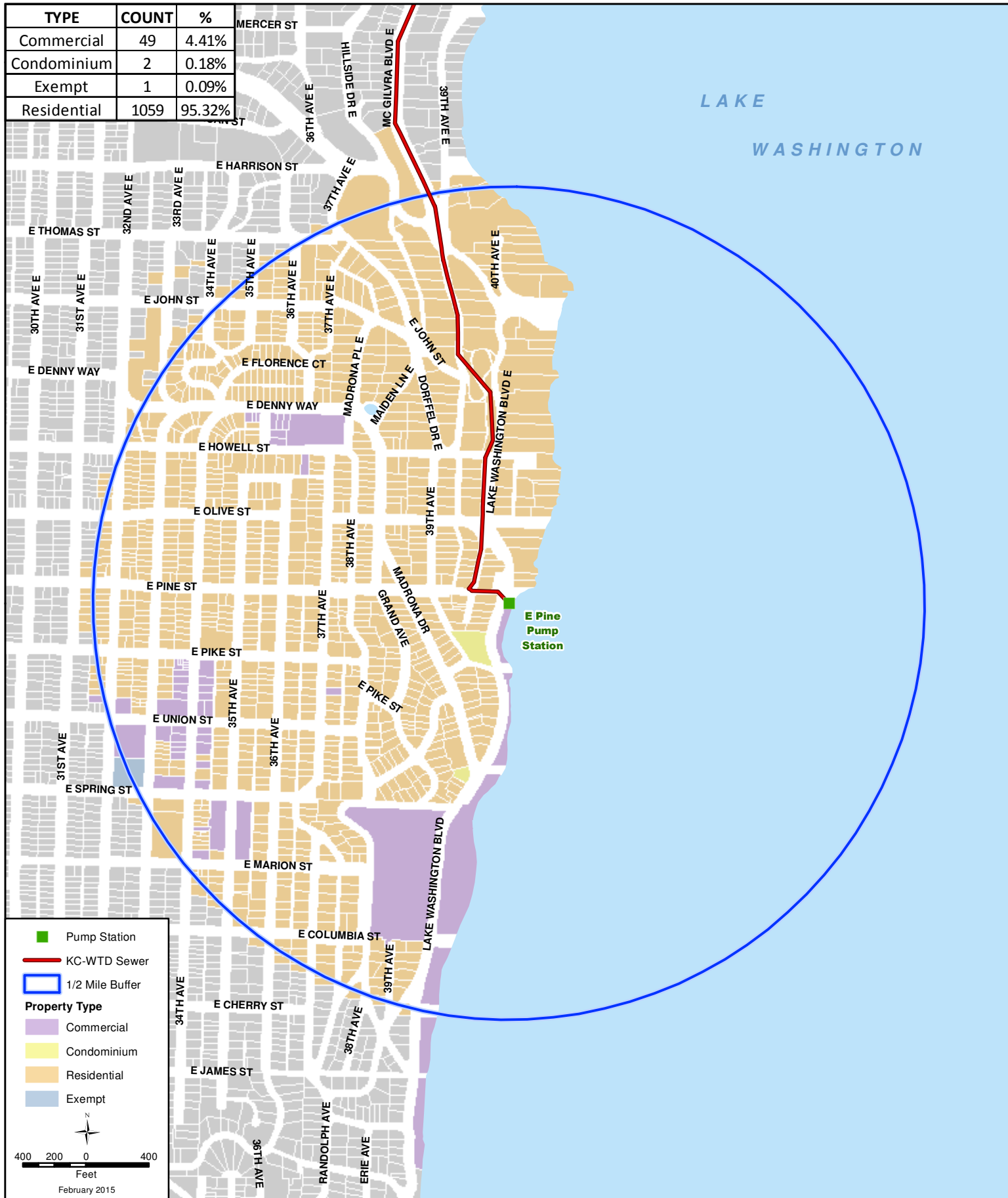
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Facility 11

**Property Types Within 1/2 Mile
of Yarrow Bay Pump Station**

TYPE	COUNT	%
Commercial	49	4.41%
Condominium	2	0.18%
Exempt	1	0.09%
Residential	1059	95.32%



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Facility 12

**Property Types Within 1/2 Mile
 of East Pine Pump Station**

This map illustrates the Medina Pump Station area in Overlake, Washington. The Medina Pump Station is marked with a green square. A red line indicates the KC-WTD Sewer line, and a blue circle represents the 1/2 Mile Buffer. The map shows property types: Commercial (purple) and Residential (orange). The map includes a legend, a scale bar (0 to 400 feet), and a north arrow. The date February 2015 is noted at the bottom.

Legend:

- Pump Station
- KC-WTD Sewer
- 1/2 Mile Buffer
- Property Type**
 - Commercial
 - Residential

Map Labels:

73RD AVE, 18TH ST, RAMBLIN, NE 16TH ST, NE 14TH ST, NE 12TH ST, NE 10TH ST, NE 8TH ST, OVERLAKE DR W, 80TH AVE NE, 81ST AVE NE, 82ND AVE NE, 83RD AVE NE, 84TH AVE NE, 85TH AVE NE, 86TH AVE NE, 87TH AVE NE, 88TH AVE NE, 89TH AVE NE, 90TH AVE NE, 91ST AVE NE, NE 17TH ST, NE 16TH ST, NE 15TH ST, NE 14TH ST, NE 13TH ST, NE 11TH ST, NE 10TH ST, NE 9TH ST, NE 7TH ST, NE 6TH ST, NE 5TH ST, NE 4TH ST, NE 3RD ST, NE 2ND ST, NE 1ST ST, LAKE WASHINGTON BLVD NE, OVERLAKE DR E, OVERLAKE DR W, MIDLAND RD, RIDGE RD, EVERGREEN POINT RD.

Map Features:

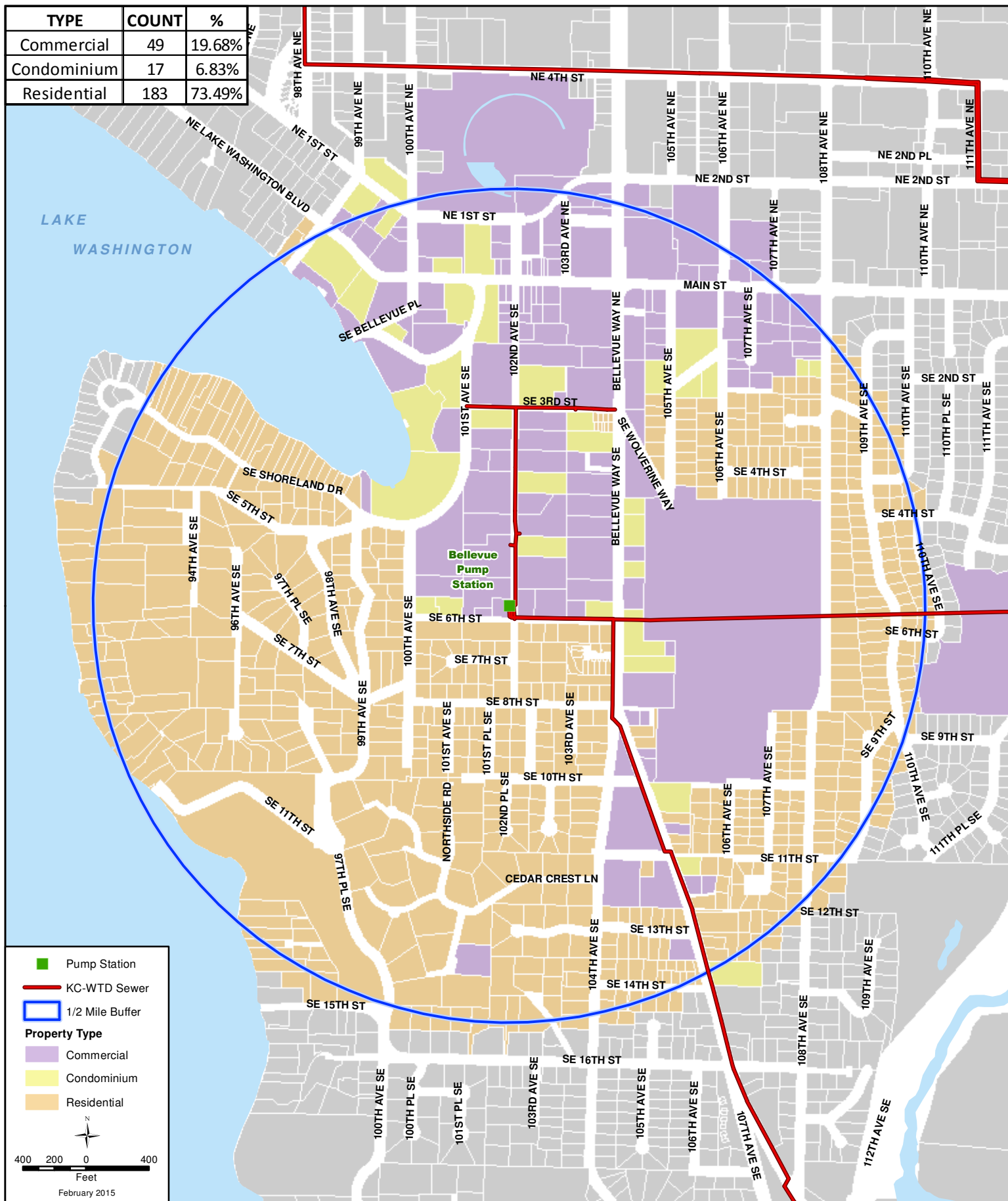
- Medina Pump Station
- KC-WTD Sewer
- 1/2 Mile Buffer
- Commercial Property
- Residential Property
- LAKE WASHINGTON

Scale: 0 to 400 Feet

Date: February 2015



TYPE	COUNT	%
Commercial	49	19.68%
Condominium	17	6.83%
Residential	183	73.49%



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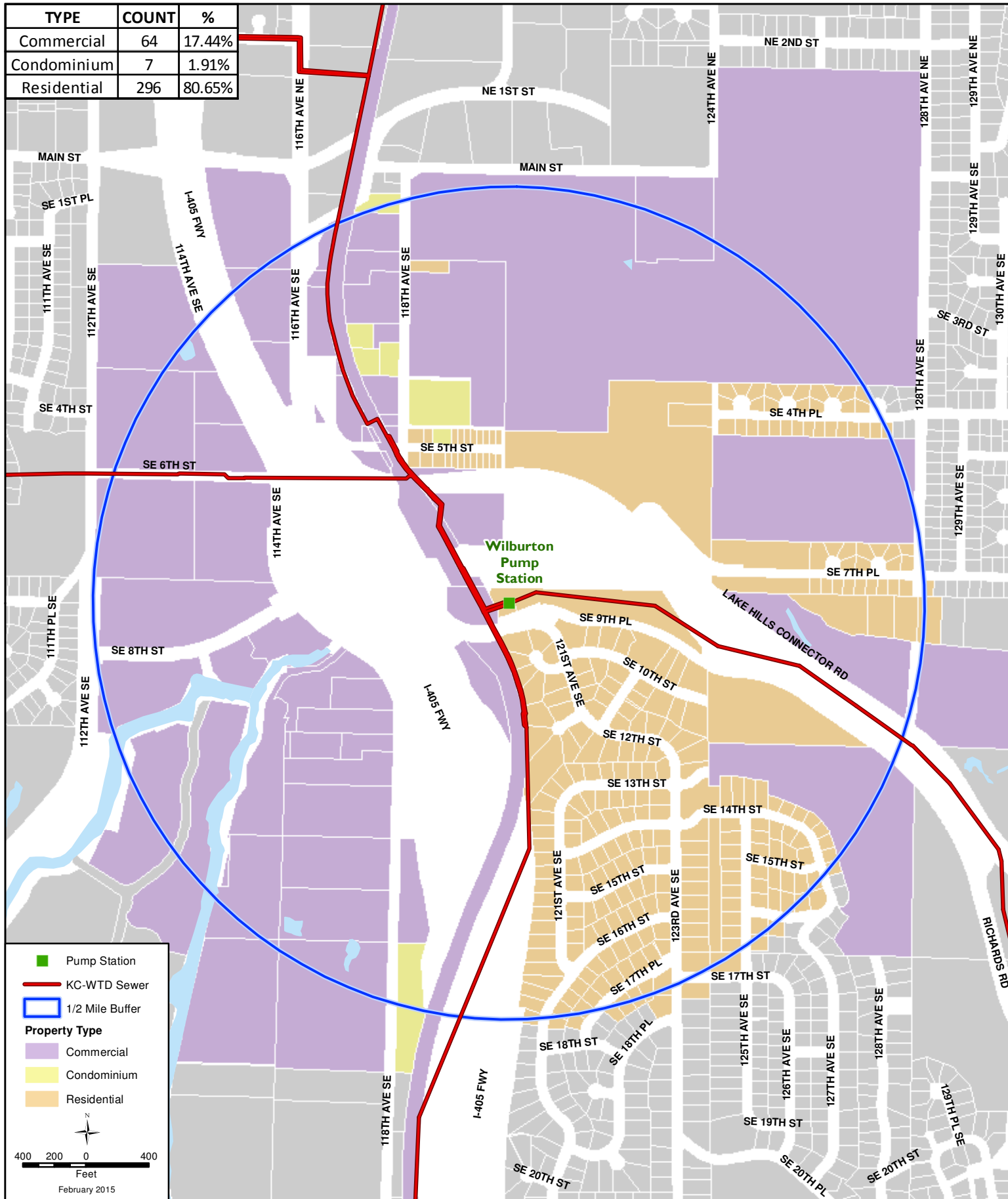
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Facility 14

Property Types Within 1/2 Mile of Bellevue Pump Station

TYPE	COUNT	%
Commercial	64	17.44%
Condominium	7	1.91%
Residential	296	80.65%



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Facility 15

**Property Types Within 1/2 Mile
 of Wilburton Pump Station**

TYPE	COUNT	%
Commercial	78	12.23%
Condominium	11	1.72%
Residential	549	86.05%



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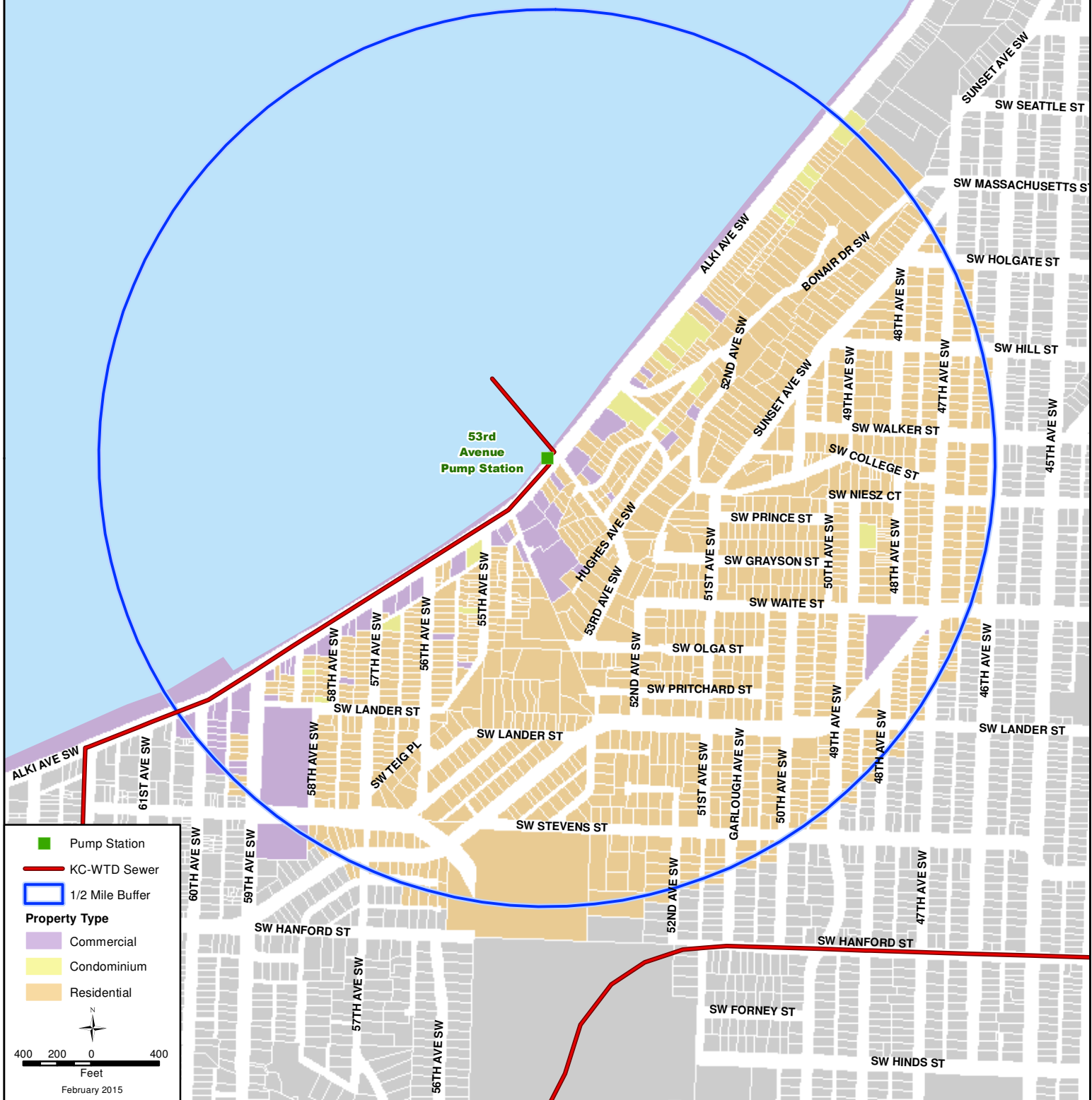
File Name: Q:\WTD\Projects\Equity\projects\WTDPs.mxd cross

Facility 16

**Property Types Within 1/2 Mile
of North Mercer Pump Station**

PUGET
SOUND

TYPE	COUNT	%
Commercial	26	7.74%
Condominium	9	2.68%
Residential	301	89.58%



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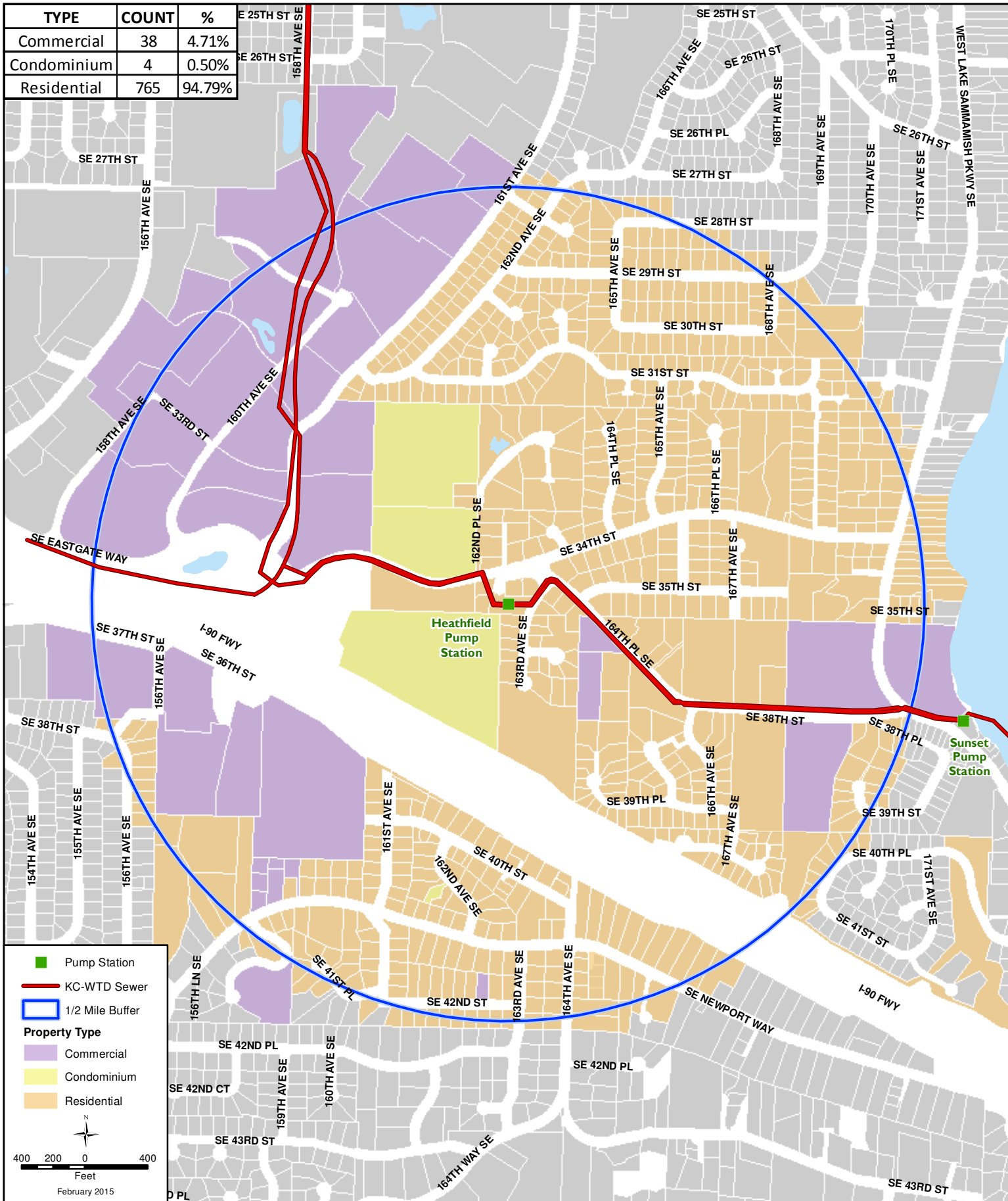
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Facility 17

**Property Types Within 1/2 Mile
of 53rd Avenue Pump Station**

TYPE	COUNT	%
Commercial	38	4.71%
Condominium	4	0.50%
Residential	765	94.79%



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Facility 19

**Property Types Within 1/2 Mile
 of Heathfield Pump Station**



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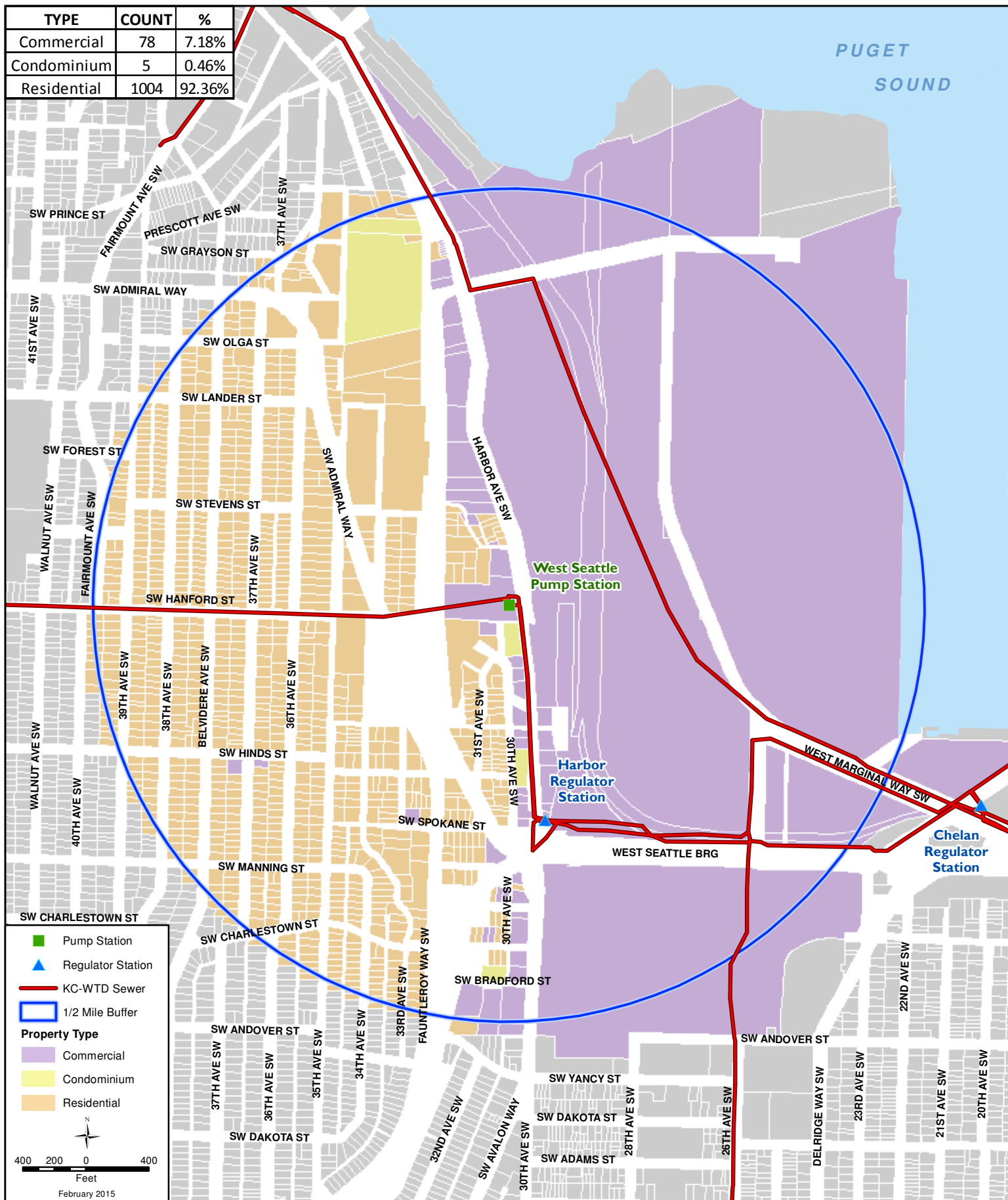
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Facility 20

**Property Types Within 1/2 Mile
 of Sunset Pump Station**

TYPE	COUNT	%
Commercial	78	7.18%
Condominium	5	0.46%
Residential	1004	92.36%



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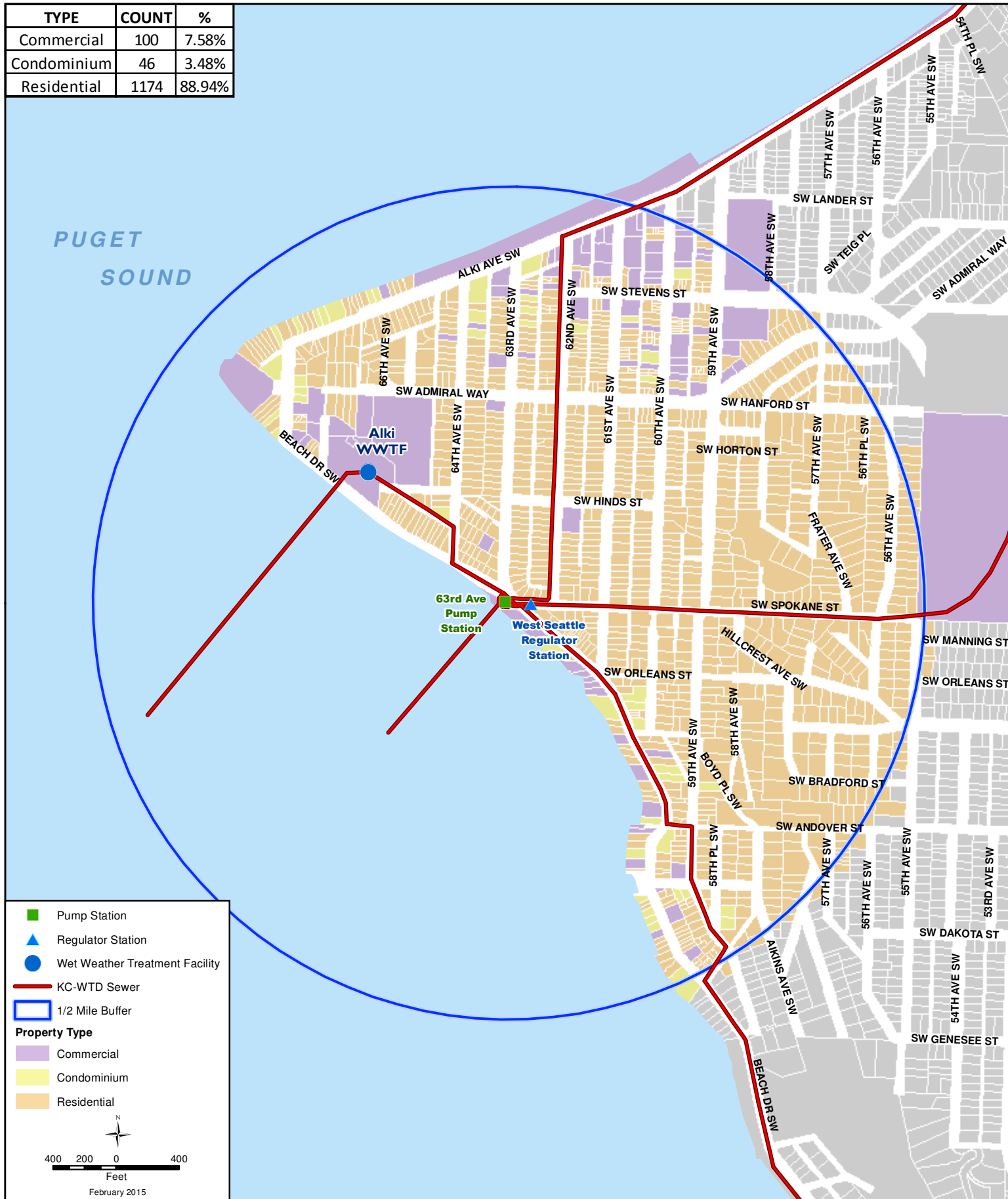
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Facility 21

Property Types Within 1/2 Mile of West Seattle Pump Station

TYPE	COUNT	%
Commercial	100	7.58%
Condominium	46	3.48%
Residential	1174	88.94%



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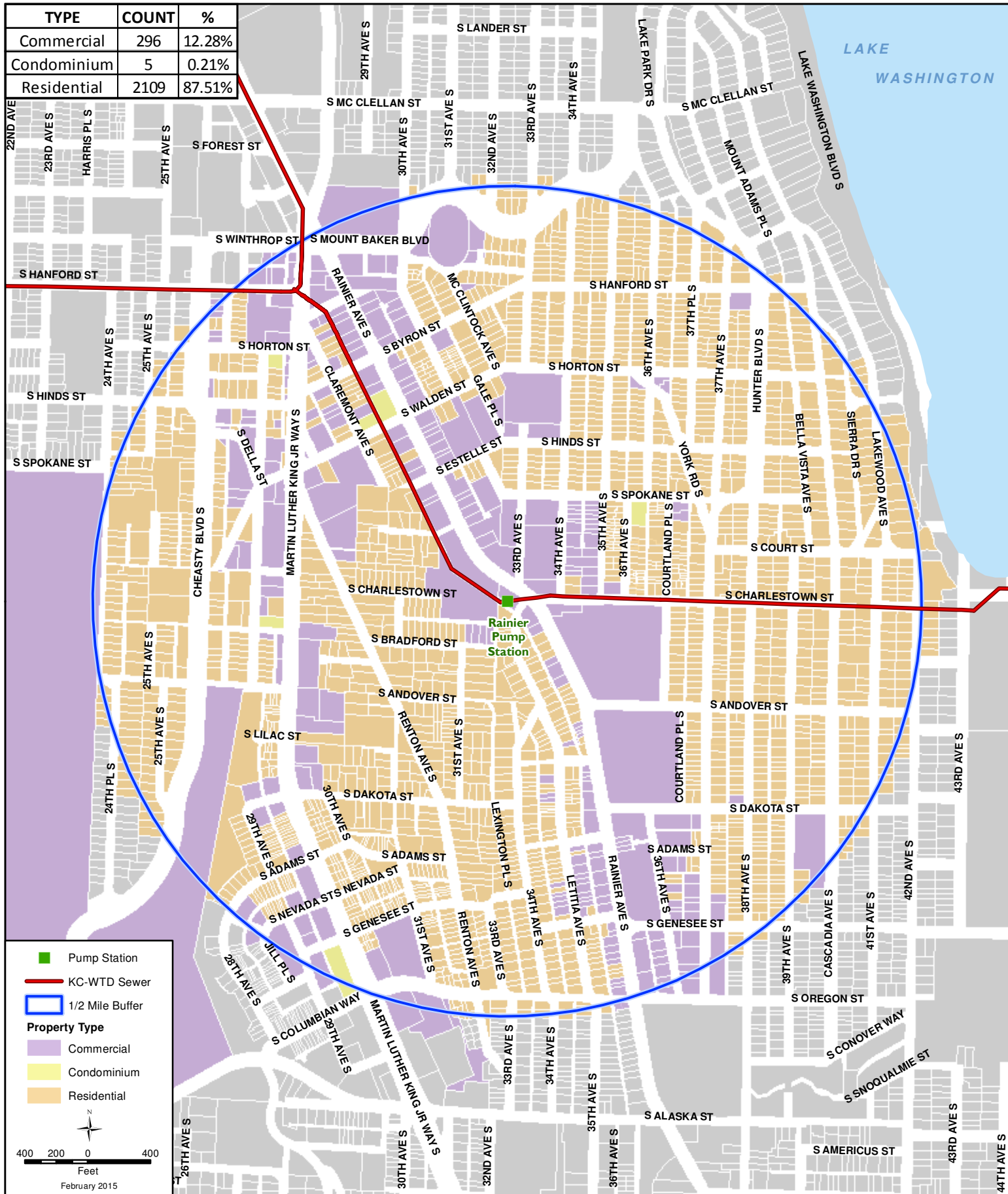
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Facility 22

**Property Types Within 1/2 Mile
of 63rd Avenue Pump Station**

TYPE	COUNT	%
Commercial	296	12.28%
Condominium	5	0.21%
Residential	2109	87.51%



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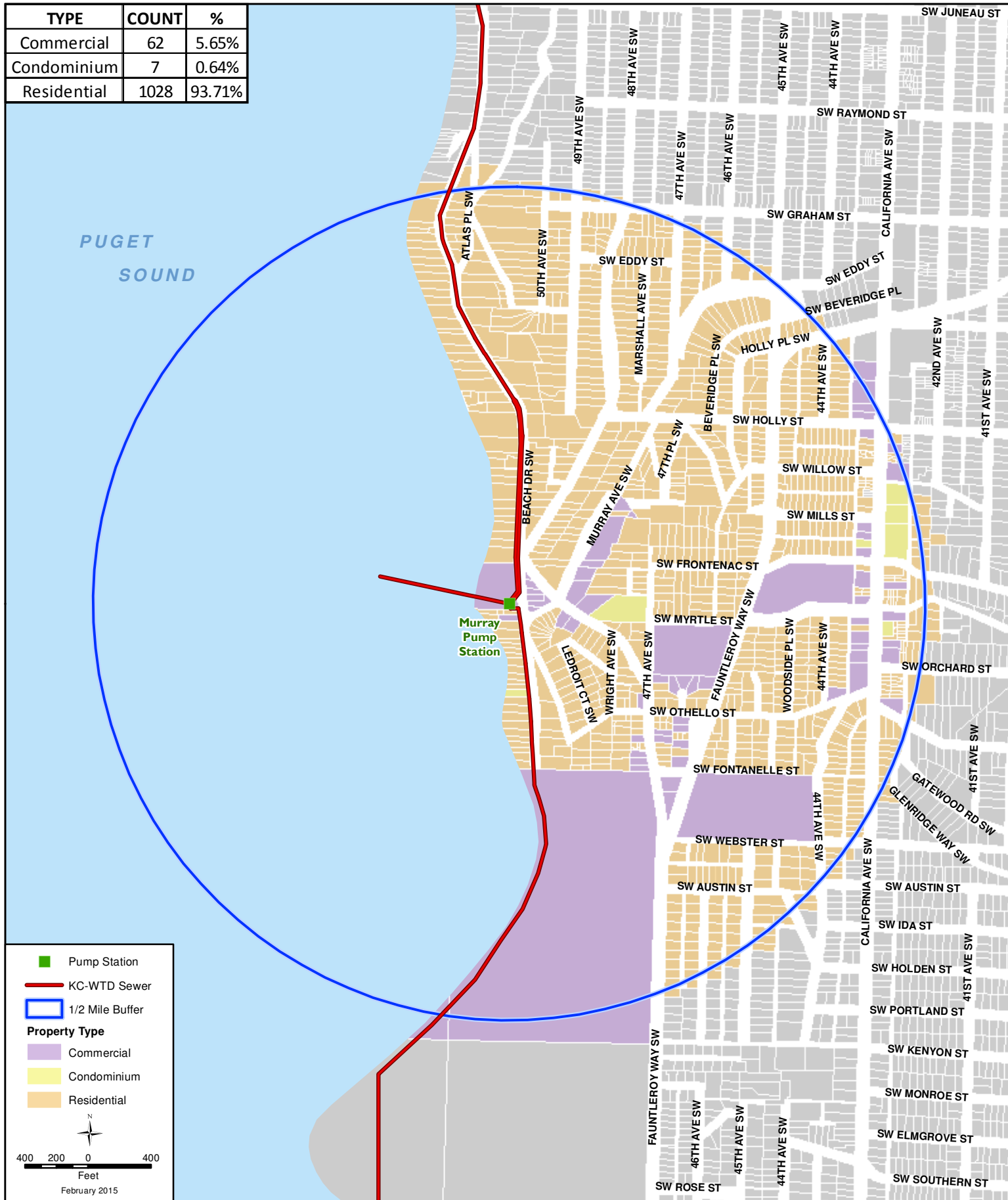
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Facility 23

**Property Types Within 1/2 Mile
 of Rainier Pump Station**

TYPE	COUNT	%
Commercial	62	5.65%
Condominium	7	0.64%
Residential	1028	93.71%



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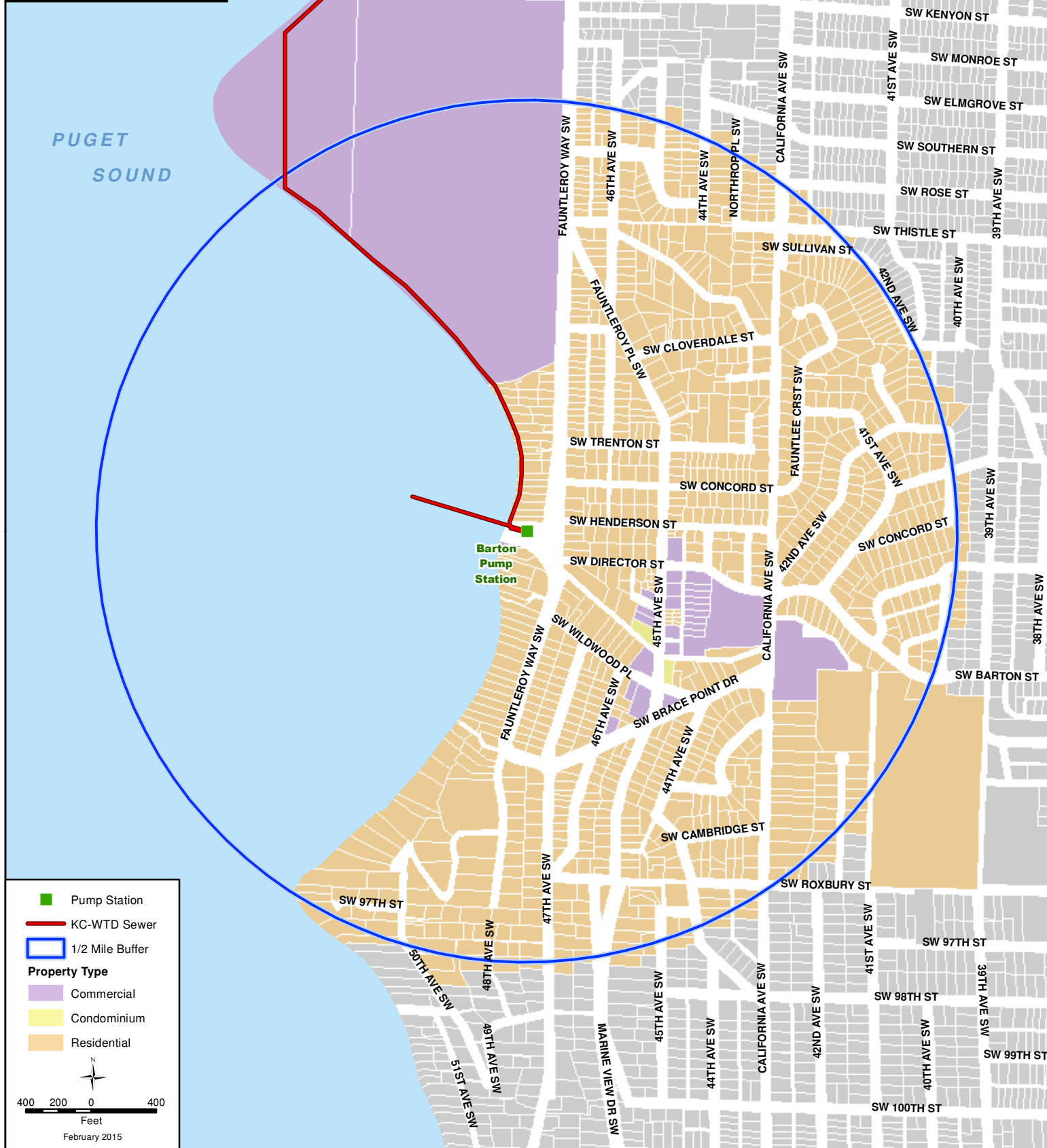
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Facility 24

**Property Types Within 1/2 Mile
 of Murray Pump Station**

TYPE	COUNT	%
Commercial	28	2.49%
Condominium	2	0.18%
Residential	1092	97.33%



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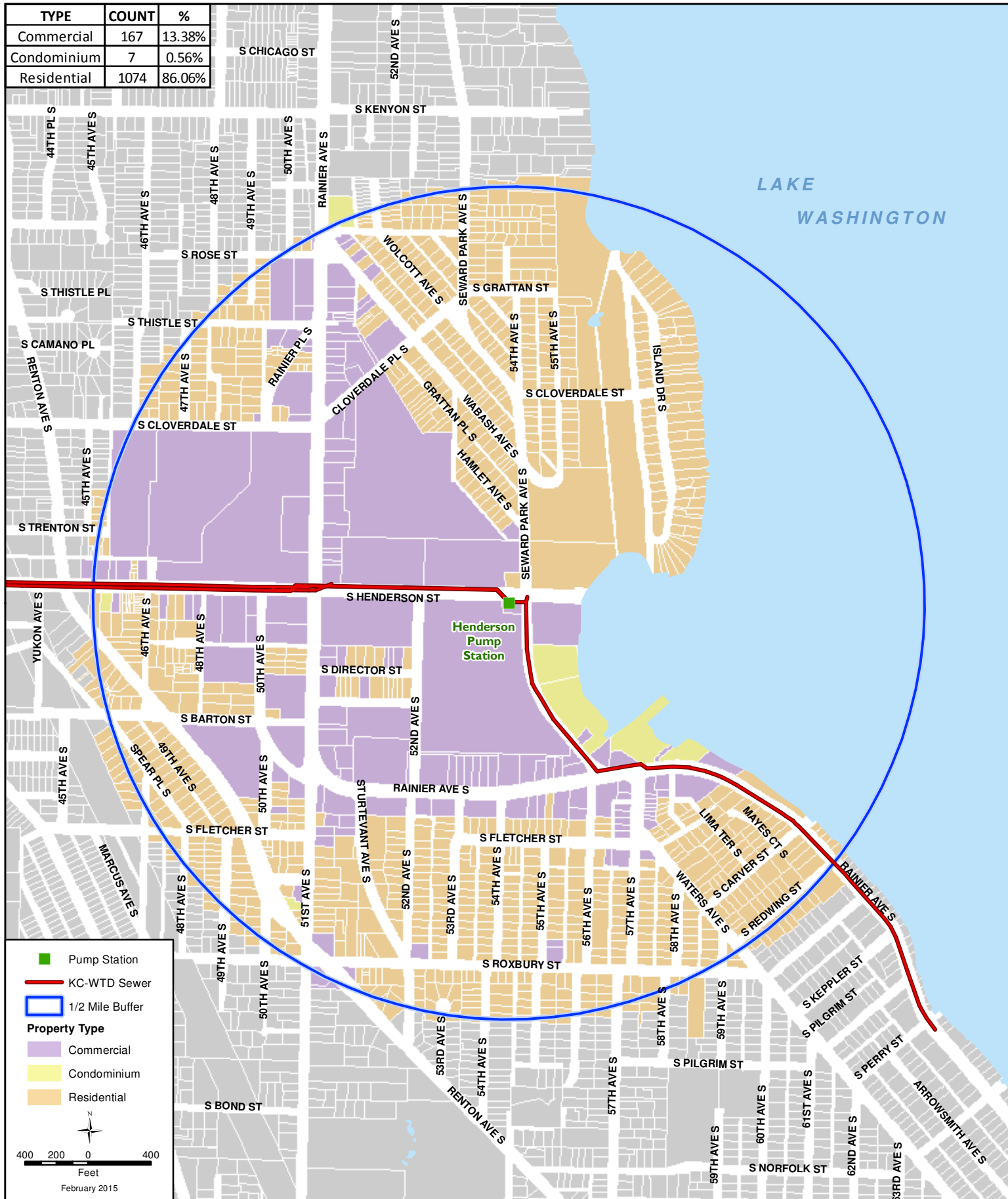
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Facility 26

**Property Types Within 1/2 Mile
of Barton Pump Station**

TYPE	COUNT	%
Commercial	167	13.38%
Condominium	7	0.56%
Residential	1074	86.06%



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Facility 27

**Property Types Within 1/2 Mile
 of Henderson Pump Station**

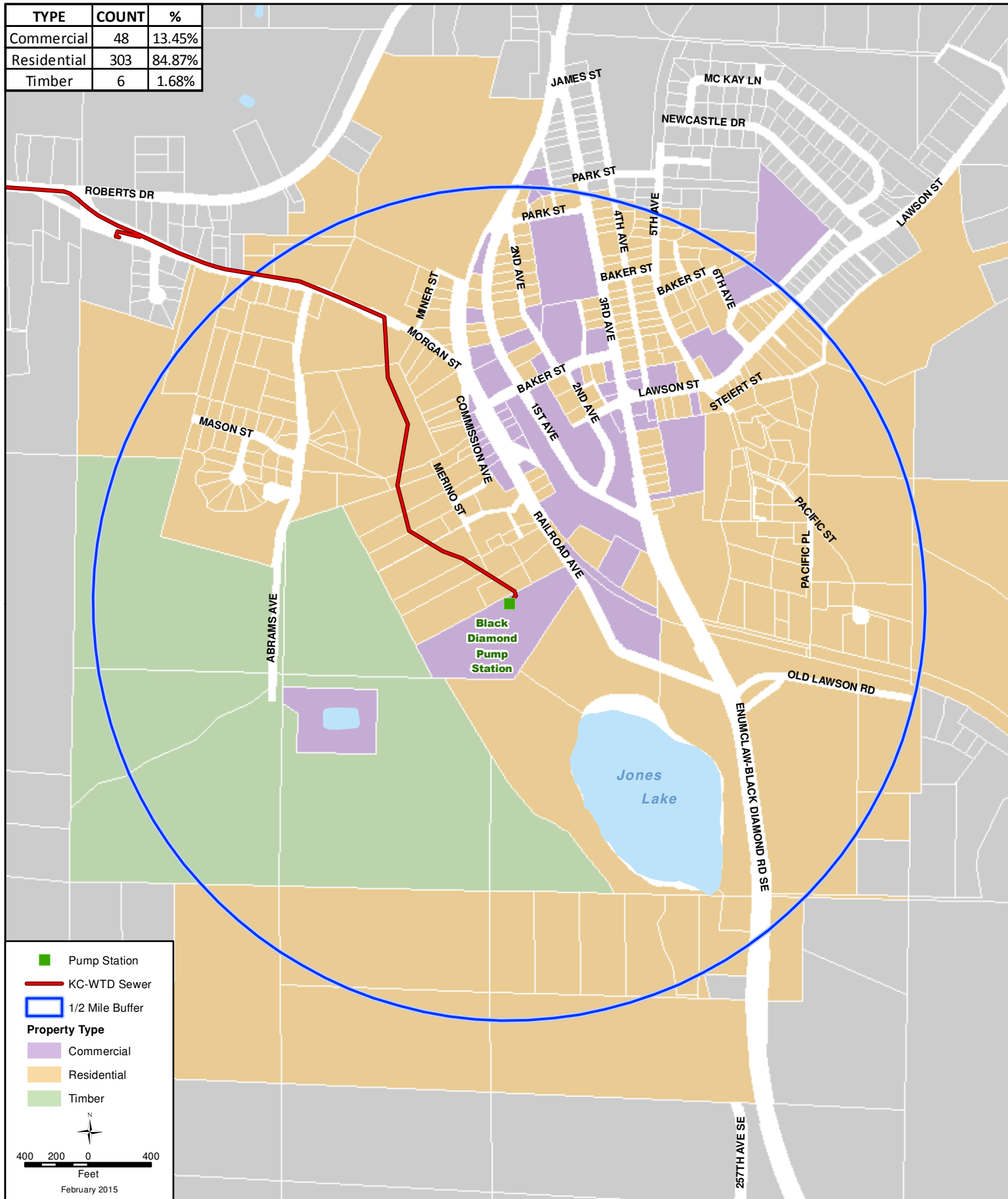
TYPE	COUNT	%
Commercial	7	1.04%
Residential	663	98.51%
Timber	2	0.30%
Undivided Interest	1	0.15%



■ Pump Station
— KC-WTD Sewer
□ 1/2 Mile Buffer
Property Type
■ Commercial
■ Residential
■ Timber
■ Undivided Interest

550 275 0 550
 Feet
 February 2015

TYPE	COUNT	%
Commercial	48	13.45%
Residential	303	84.87%
Timber	6	1.68%



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Facility 29

**Property Types Within 1/2 Mile
of Black Diamond Pump Station**

