APPENDIX A: LAND USE

List of Figures

Figure 1 Critical Areas 5

List of Tables

Table 1 Existing Comp Plan Land Use Designation Inventory 1
Table 2 Zoning District Inventory 2
Table 3 Job Capacity by Zone 3
Table 4 Critical Areas Inventory 3

LAND USE INVENTORY

Low density residential land use and zoning classifications comprise the greatest share of the city's land uses. The City of Fircrest's existing Future Land Use Designations establishes 56% of the city's land as Low Density Residential (Table 1).

Table 1 Existing Comp Plan Land Use Designation Inventory

Land Use Designation	Acres	Percentage of the City
High Density Residential	45	4%
Low Density Residential	567	56%
Low Density Residential Conservation	34	3%
Medium Density Residential	31	3%
Medium Density Residential – Traditional Community Design	41	4%
Commercial Mixed Use	36	4%
Neighborhood Commercial	11	1%
Public and Quasi-Public Facilities	38	4%
Parks, Recreation, and Open Space	202	20%
Total	**1,005**	**-**

Notes: Percentages may not add up to 100% due to rounding.

The next greatest share among the City's Land Use designations was Parks, Recreation, and Open Space, which includes the golf course, at 20% of the City's land area. When considering the golf course alone, it accounts for 17% of the city's land.

Table 2 Zoning District Inventory

Land Use Designation	Acres	Percentage of the City
Golf Course (GC)	169	17%
Mixed-Use Neighborhood (MUN)	25	2%
Mixed-Use Urban (MUU)	11	1%
Neighborhood Commercial (NC)	9	1%
Neighborhood Office (NO)	2	0%
Parks, Recreation, and Open Space (PROS)	33	3%
Residential-10-Traditional Community Design District (R-10-TCD)	41	4%
Residential-20 (R-20)	31	3%
Residential-30 (R-30)	14	1%
Residential-4 (R-4)	338	34%
Residential-4-Conservation District (R-4-C)	34	3%
Residential-6 (R-6)	268	27%
Residential-8 (R-8)	31	3%
Total	**1,005**	**-**

Notes: Percentages may not add up to 100% due to rounding.

LAND CAPACITY ANALYSIS

Pierce County completed a Buildable Lands Report in 2021. The report estimated that the city has a total of 44.3 developable acres. This included deductions for critical areas, infrastructure, and market factors. This report was used to assess housing capacity and demand over the next 20 years. See Housing Element Appendix for the full analysis.

The report also estimated the capacity for additional jobs in the city considering commercial and mixed-use zones, summarized in the following Table 3. The total capacity of 199 additional jobs exceeds the projected employment growth of an additional 113 jobs. Fircrest will then be able to accommodate job growth without any land use changes.

Table 3 Job Capacity by Zone

Zone	Vacant	Underutilized	Total
MUN + MUU*	40	154	194
GC	0	0	0
NC	0	0	0
NO	0	0	0
PROS	0	0	0
R10TCD	0	0	0
R20	0	0	0
R4	0	1	1
R4C	3	0	3
R6	0	1	1
R8	0	0	0
Total	**43**	**156**	**199**

*The study reflected an older zoning designation, CMU, which is now split into the two zones, MUN and MUU.
Source: Pierce County Buildable Lands Report, November 11th, 2022, 4th Edition.

CRITICAL AREAS AND NATURAL RESOURCE LANDS

The GMA includes a requirement to designate, classify, and enact development standards for critical areas. Critical areas are defined as the following areas and ecosystems: wetlands, areas with a critical recharging effect on aquifers used for potable water, fish and wildlife habitat conservation areas, frequently flooded areas, and geologically hazardous areas.

According to Pierce County GIS data, mapped wetlands account for most the city's critical areas, totaling 12% of the city area (see Table 4Table 4). Additionally, the city falls within the Central Pierce County Aquifer.

Table 4 Critical Areas Inventory

Critical Areas	Acres	Percentage of the City
Wetlands	119.8	12%
Regulated Floodplains (100- and 500-Year)	15.1	2%
Total	**134.9**	**1%**

Notes: Percentages may not add up to 100% due to rounding. Figures are estimates based on the best available data. Site critical area studies may result in greater or smaller areas.
Source: Pierce County Data.

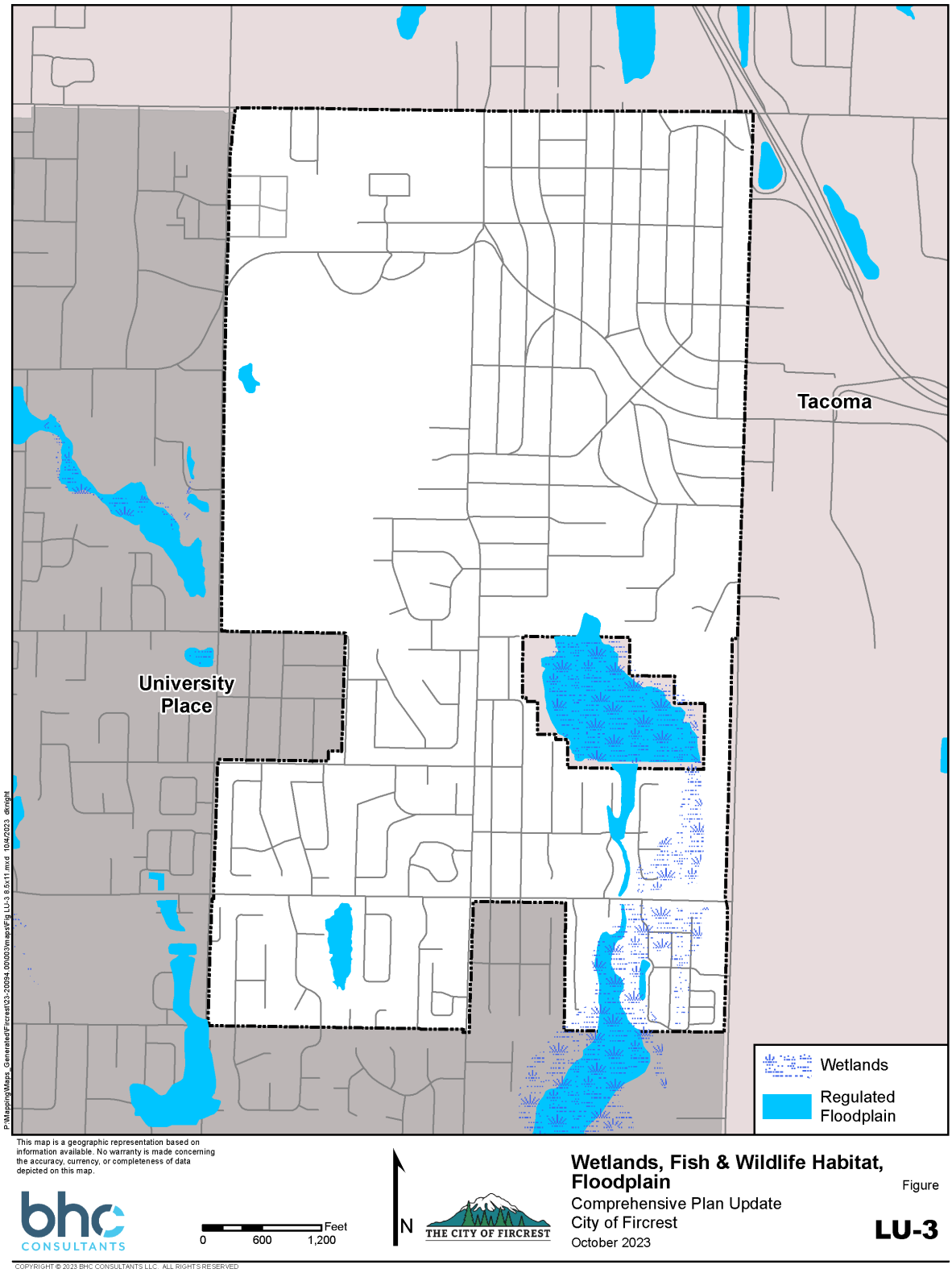
Figure 1, on page 5, identifies lands for which the presence of wetlands, fish and wildlife habitat conservation areas, and frequently flooded areas is indicated. Areas with a critical

recharging effect on aquifers used for potable water are not illustrated because the entire city is within the Clover-Chambers Creek Groundwater Management Area, which has a critical recharging effect on the Tacoma and Clover-Chambers Creek Aquifers. The inclusion of these maps in the Land Use Element does not preclude the designation of additional critical areas that may be identified after the adoption of this plan.

The City of Fircrest adopted interim development regulations for critical areas in February 1993. These regulations were updated in 2005 to incorporate the best available science and special consideration for anadromous fisheries as required by RCW 36.70A.172. The city subsequently updated these regulations in 2015 to ensure consistency with state law as part of the mandatory GMA Update for comprehensive plans and development regulations.

The GMA also requires the designation of natural resource lands of long-term commercial significance, including forest, agriculture, and mineral resource lands. Natural resource lands are not found within the City of Fircrest.

Figure 1 Critical Areas



PLANNED LAND USE IN ADJACENT JURISDICTIONS

Fircrest lies directly adjacent to the City of Tacoma and the City of University place. Fircrest's land uses and designations adjacent to these cities should be compatible. In Tacoma, notable uses adjacent to Fircrest include the Recover and Transfer Center to the east and Tacoma Community College to the north. In University Place, the northwest boundary of Fircrest is adjacent to commercial and retail uses along South Mildred, while the southern boundary is mostly adjacent to residential uses.

Sound Transit plans on opening a light rail station along S. 19th Street by 2041. Light rail has implications for adjacent land uses as transit opportunities increase. The City of Fircrest currently has mapped Mixed Use zones to accommodate a diversity of uses on the northwestern portion of the city, and land uses will likely shift as developer interests increase in anticipation of the light rail station.

Fircrest will coordinate with other jurisdictions as appropriate to address consistency and compatibility issues.

Major Characteristics – Adjacent Land Use Designations

Fircrest lies directly adjacent to the City of Tacoma and the City of University Place. Because of this, Fircrest's land uses and designations should be aware of those cities' land uses adjoined to Fircrest's city boundaries. In Tacoma, notable uses adjacent to Fircrest include the Recover and Transfer Center to the east and Tacoma Community College to the north. In University Place, the northwest boundary of Fircrest adjoins commercial and retail uses along South Mildred. The southern boundary adjoins mostly residential uses in University Place.

Sound Transit plans on opening a light rail station along S. 19th Street by 2041. Light rail has implications for the land uses adjacent to Mildred and S. 19th Street as transit opportunities increase. The City of Fircrest currently has mapped Mixed Use zones to accommodate a diversity of uses on the northwestern portion of the city, and land uses will likely shift as developer interests increase in anticipation of the station.

APPENDIX B: HOUSING

List of Figures

Figure 1 Economic Characteristics – Household Income 7
Figure 2 Economic Characteristics – Income below Poverty Level 7
Figure 3 Housing Characteristics – Units in Structure 9
Figure 4 Housing Characteristics – Year Structure Built 9
Figure 5 Housing Units Permitted in Fircrest 10
Figure 6 Household Distribution by Tenure and Fircrest Median Family Income 11
Figure 7 PSRC Displacement Risk Map for Fircrest 13
Figure 8 Commerce Draft Displacement Risk Map for Fircrest 13

List of Tables

Table 1 Housing Need Allocations by Income Bracket 2
Table 2 Land Capacity Acreage and Assumed Density 3
Table 3 Assumed Affordability Allocation Ratios by Zone 4
Table 4 Projected Housing Unit Scenario Surplus/Deficits 5
Table 5 Population Profile 6
Table 6 Social Characteristics -- Household by Type 8
Table 7 Social Characteristics – Disability Status 8
Table 8 Area Median Income (AMI) Ranges 11
Table 9 Households Paying More Than 30 Percent of Income for Housing 12
Table 10 Affordable Rents and Prices 12

HOUSING INVENTORY AND CAPACITY

The GMA requires the Housing Element to include analysis that: "Identifies sufficient capacity of land for housing including, but not limited to, government-assisted housing, housing for moderate, low-, very low-, and extremely low-income households, manufactured housing, multifamily housing, group homes, foster care facilities, emergency housing, emergency shelters, permanent supportive housing, and within an urban growth area boundary, consideration of duplexes, triplexes, and townhomes" (RCW 36.70A.070(2)(c)). This section addresses this requirement.

Inventory of Projected Housing Needs and Adequate Provisions

By 2044, Fircrest's population is expected to increase by 1,910 community members under Pierce County's population allocation target. PSRC projects that Fircrest's population could reach 9,565 by 2050. With the passing of HB 1220 in 2021, GMA now requires that jurisdictions plan to accommodate housing unit needs for very low-, low-, and moderate-income levels. Using the Department of Commerce's Housing for All Planning Tool (HAPT),

Pierce County adopted housing targets for all jurisdictions, including by income level, under Ordinance No. 2023-46s. The allocations for Fircrest for 2044 are shown below in Exhibit 1.

Table 1 Housing Need Allocations by Income Bracket

(Pierce County Ordinance No. 2023-22s)

Income Level (% of Area Median Income)		2020 Estimated Supply	Units Needed in 2044
0-30%	*Non-PSH**	12	99
	*PSH**	0	134
30 – 50%		140	143
50 – 80%		812	113
80 – 100%		537	49
100 – 120%		322	44
>120%		1,104	188
Total		**2,927**	**769**
Temporary Emergency Housing Needs (beds)		*0*	*47*

*Permanent Supportive Housing (PSH)

Bracket >120% AMI not required to be planned for under HB 1220 but included for informational purposes.

Land Capacity for residential units was determined both through identifying underutilized and vacant lands from the Pierce County Assessor and from the 2021 Pierce County Buildable Lands Analysis. In addition to developable lands, the analysis identified 156 units for the MUN zone and 235 units for the MUU zone as expected as part of the Prose application. These units were also counted as part of the analysis.

This analysis used a series of density assumptions based on zoned and achieved densities in the city, shown in the following exhibit, to convert acreage to units. To establish a baseline scenario for comparison, these initial assumptions did not include density adjustments considering ADUs and duplexes under new state legislation. This analysis then determined the number of units.

The assumed densities and estimated vacant and under-utilized capacities are established on the following page, in Table 2.

Table 2 Land Capacity Acreage and Assumed Density

Zone	Net Developable Land (acres)			Assumed density/pipeline units		Total baseline capacity (dwelling units)
	*Vacant**	*Under-utilized**	***Total***	*Baseline assumed Dwelling units/acre*	*Pipeline and recent units added*	
Residential-4, R-4	1.0	0.0	**1.0**	4	0	4
Residential-4-Conservation, R-4-C	13.0	0.0	**13.0**	4	0	52
Residential-6, R-6	0.4	0.0	**0.4**	5.5	0	2
Residential-8, R-8	0.0	0.0	**0.0**	8	0	0
Residential-10-Traditional Community Design, R-10-TCD	0.0	0.0	**0.0**	10	0	0
Residential-20, R-20	0.0	0.0	**0.0**	20	0	0
Residential-30, R-30	0.0	2.0	**2.0**	30	0	60
Neighborhood Office, NO	0.0	0.0	**0.0**	6	0	0
Neighborhood Commercial, NC	0.0	0.0	**0.0**	6	0	0
Mixed-Use Neighborhood, MUN	0.0	4.1	**4.1**	59	156	395
Mixed-Use Urban, MUU	0.0	2.7	**2.7**	59	235	395
Park, Recreation and Open Space, PROS	0.0	0.0	**0.0**	0	0	0
Golf Course, GC	0.0	0.0	**0.0**	15	0	0

Source: Pierce County 2021 Buildable Lands Report (Fourth Edition).
*15% market/infrastructure deduction for vacant lands, 25% for underutilized.

To compare unit capacity with the adopted housing need by income bracket, the land capacity analysis created assumed income brackets served by each zone. These assumptions were based both on the Washington State Department of Commerce's Guidance and on local conditions in Fircrest. The analysis used allocation ratios to consider the fact that zones serve multiple income brackets. The assumptions are shown in the following, Table 3.

Table 3 Assumed Affordability Allocation Ratios by Zone

Residential Zones	0-30% AMI	30-50% AMI	50-80% AMI	80-100% AMI	100-120% AMI	>120 % AMI
Residential-4, R-4					0.25	0.75
Residential-4-Conservation, R-4-C					0.25	0.75
Residential-6, R-6					0.25	0.75
Residential-8, R-8			0.25	0.25	0.25	0.25
Residential-10-Traditional Community Design, R-10-TCD				0.25	0.25	0.50
Residential-20, R-20		0.25	0.25	0.25	0.25	
Residential-30, R-30	0.25	0.25	0.25	0.25		
Mixed-Use Neighborhood, MUN	0.25	0.25	0.25	0.25		
Mixed-Use Urban, MUU	0.25	0.25	0.25	0.25		
Golf Course, GC						1.00

Row add up to 100 horizontally to ensure no under/over counting.

This analysis compared the following scenarios and trends to better understand Fircrest's expected capacity or deficits by income level.

1. Baseline (No Change). This scenario assumes that despite state legislation, density and housing production will remain consistent with historic levels and will not include additional duplexes or ADUs.
2. Accessory Dwelling Units (ADUs). This scenario includes estimates of ADUs. This analysis assumes an average of two ADUs produced over the next 20 years, consistent with recent permit data trends at the City. ADUs were assumed to be affordable for the 0-80% AMI brackets.
3. Duplexes. Under this scenario, the analysis increases the assumed density for R-4 to 4.5 dwellings per acre (du's/acre) and 4.5 du's/acre fore the R-6 zone. This then adjusts affordability for these zones for 50-120% AMI brackets, rather than the >100% AMI in the baseline.
4. Total (Combined Trends). This adds the ADU and Duplex scenarios to show the overall, expected surplus or deficit expected for housing unit supply compared to need.

The results are shown in the following table. In summary, while the City may expect an overall surplus at the citywide level, there will be a likely deficit of supply affordable to the 0-30% AMI bracket.

Table 4 Projected Housing Unit Scenario Surplus/Deficits

Income Level	Household Income Bracket (Pierce County median income, rounded to nearest 1k)	Surplus/ (Deficit) (Estimated Unit Capacity – Housing Need)			
		1. Baseline (No Change)	2. ADUs	3. Duplexes	Total
Extremely low income (0-30% AMI)	$0 - $25,000	**(20)**	**(10)**	**(20)**	**(10)**
Very Low income (30-50% AMI)	$25,000 - $41,000	70	80	70	80
Low income (50-80% AMI)	$41,000 - $66,000	100	120	100	120
Moderate income (80-120% AMI)	$66,000 – $99,000	134	134	153	153
Total Net Capacity *(includes >120% AMI for overall)*		**139**	**179**	**146**	**186**

Fircrest will need to make adequate provisions to meet these housing targets and the projected deficit for the 0-30% AMI bracket as part of the Comprehensive Plan Update.

HOUSING PROFILE

The GMA requires the Housing Element to provide information pertaining to the adequate provision for existing and projected housing needs for all economic segments of the community. (RCW 36.70A.070(2)(d)). This section presents demographic and housing characteristics for Fircrest that strongly influence the ability of individuals and families to secure housing in the community that meets their needs and is affordable.

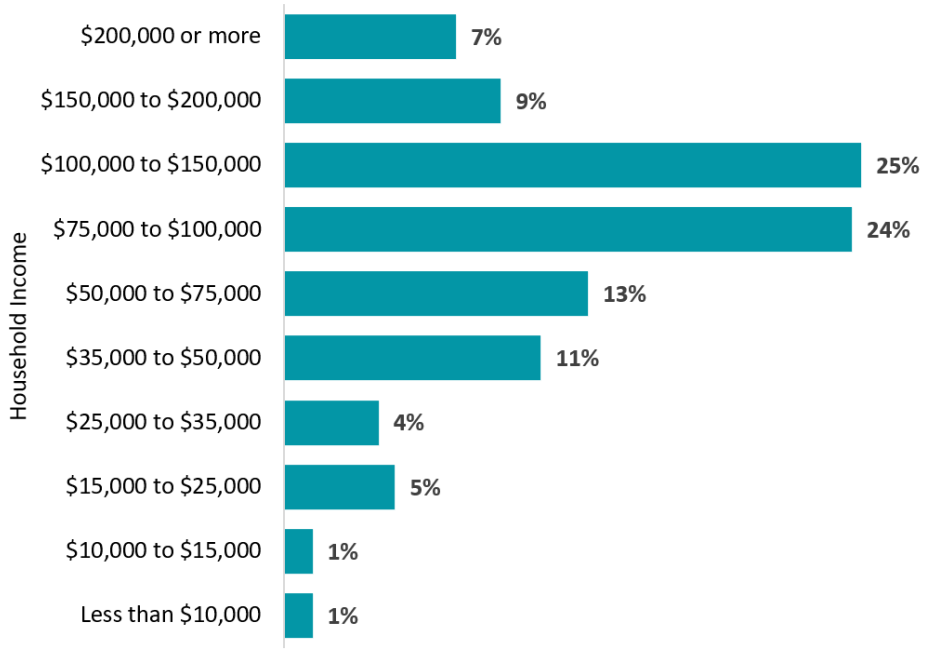
Table 5 Population Profile

Population	
2020 Population Count	7,156
Median Age	42 years
Population Under 20	25.4%
Population 55 and Older	29.6%
Population 65 and Older	17.3%
Race / Ethnicity	
White	74%
Black/African-American	8.0%
American Indian and Alaska Native	1%
Asian	6%
Native Hawaiian and Other Pacific Islander	0%
Other	1%
Other – Two or More	11%
Hispanic or Latino of Any Race	7%
Income	
Median Household Income (2021)	$90,854
Median Family Income (2021)	$98,409
Housing Characteristics	
Number of Dwelling Units	2,926
Single-family Units (attached and detached)	70%
Multi-family Units	29.0%
Mobile Homes	0.4%
Owner Occupied Units	66%
Renter Occupied Units	34%
Average Household Size	2.51 persons
Average Family Size	2.91 persons
Geography	
Land Area in Square Miles	1.58

Source: 2021 ACS, 2020 Decennial Census

The median household income in 2021 was estimated at $90,854. In 2010, the median income was $64,069. Adjusting for inflation, this reflects a 15% increase in median household income.

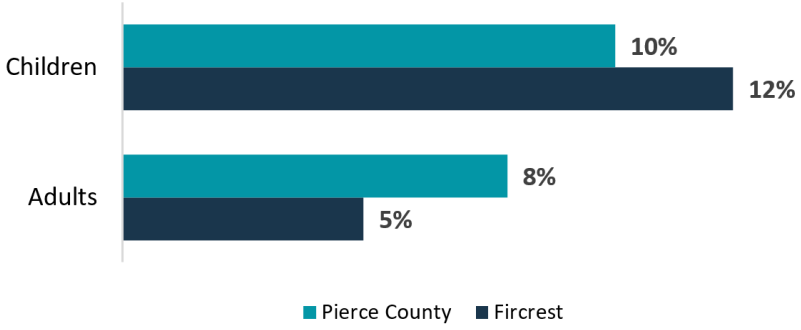
Figure 1 Economic Characteristics – Household Income



Source: 2021 ACS, 5-Year Estimates, Income.

According to the 2021 ACS, 6% of Fircrest's population fell below the poverty level. This is slightly lower than the percentages of households below the poverty line in 2021, which was 8%. 12% of Fircrest's children under 18 were considered in poverty compared to 5% of adults. Fircrest's child poverty rate is higher than the county rate, which was just under 10% in 2021.

Figure 2 Economic Characteristics – Income below Poverty Level



Source: 2021 ACS, Poverty.

Table 6 Social Characteristics – Household by Type

	2010	2020	% Change
Total households	2,667	2,766	+4%
Family households (families)	67%	73%	+9%
With related children under 18 years	34%	35%	+2%
Married-couple family	47%	49%	+3%
Male householder (no spouse present) family	5%	5%	+4%
Female householder (no spouse present) family	14%	19%	+37%
Non-family households	33%	27%	-18%
Householder living alone	29%	21%	-29%
Householder 65 years and over	n/a	52%	
Households with individuals under 18 years	34%	35%	+2%
Households with individuals 60 years and over	40%	40%	0%
Average Household Size	2.40	2.51	+5%
Average Family Size	2.96	2.90	-2%

US Census ACS 5-Year Estimates

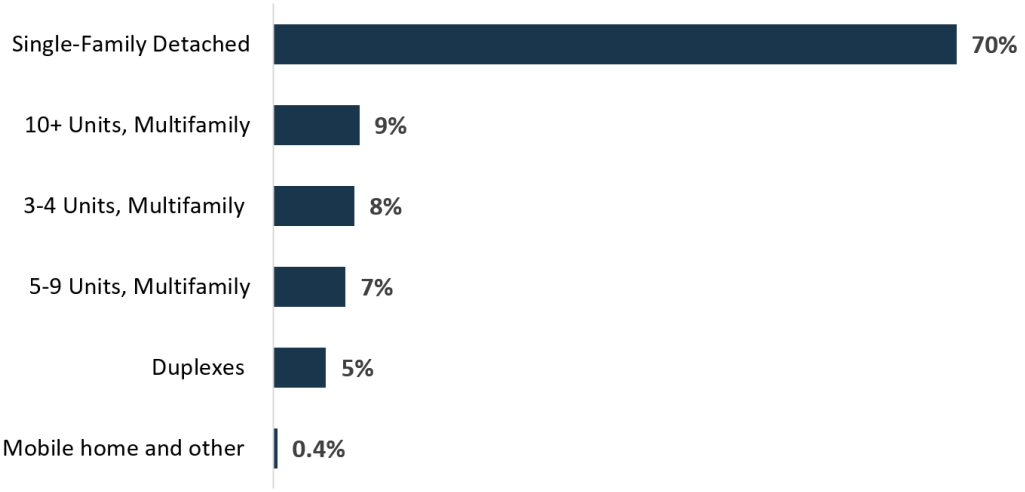
Table 7 Social Characteristics – Disability Status

Age group	Percent of group a disability
Under 18 years old	1%
Ages 18-65	5%
Ages 65+	92%
Perc. of total population with a disability	8%

Source: 2021 ACS, Age by Number of Disabilities.

The occupancy rate for Fircrest was 3% in 2020 according to the 2020 Census. **This is down from 5% occupancy in 2010, indicating an increase in housing demand.** In 2021, owners accounted for most residents according to the ACS, 66%. Renters comprised the remaining 34%. In 2010, owners accounted for 69% of occupied housing units, with renters comprising 31%.

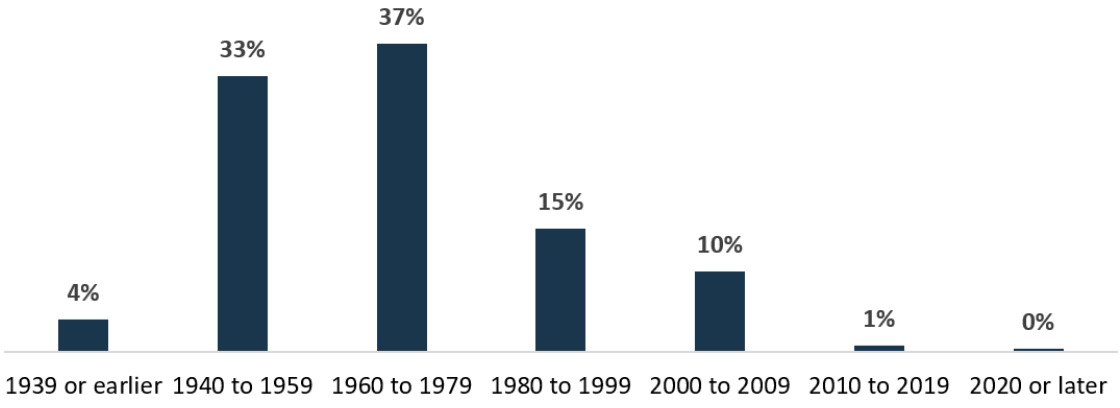
Figure 3 Housing Characteristics – Units in Structure



Source: 2021 ACS 5-Year Estimates, Housing Tenure and Characteristics.

Although the original Regents Park plats were recorded in 1907 and Fircrest incorporated in 1925, the City's housing stock of mostly smaller bungalows and cottages remained limited until the 1940s. Rapid growth occurred during the 1950s through the 1970s, when a relatively large number of modest-size split level and rambler style housing (62 percent of the total housing stock) was built. Apartment construction was especially strong during the 1970s. Construction of larger size detached single-family housing occurred during the 1980s and 1990s but in more limited numbers compared with the housing constructed in prior decades. With the construction of new subdivisions, including The Commons and Fircrest Greens in the 2000s, detached and attached single-family construction increased – until the housing market crash of the late 2000s. Considering Fircrest's aging housing stock, as demonstrated in the following Table 4, Fircrest will need to ensure that housing production and maintenance can continue to provide high-quality living for community members.

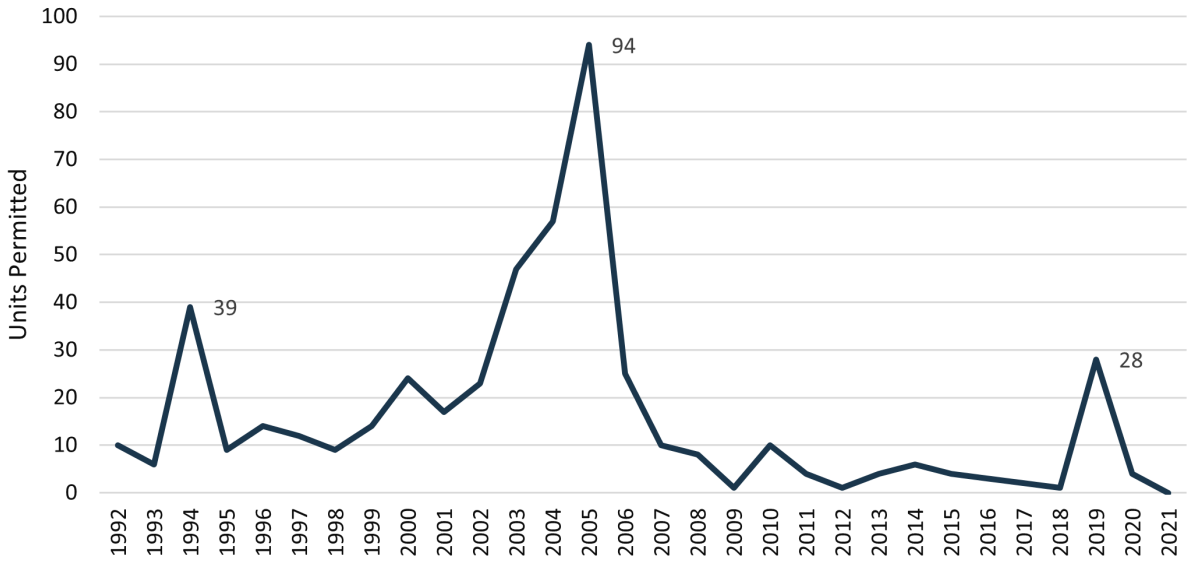
Figure 4 Housing Characteristics – Year Structure Built



Source: 2021 ACS, Housing Tenure and Characteristics.

Fircrest's housing production has varied in the last couple of decades. In the last 10 years, the City permitted, on average, 5 units per year. Considering the city has added an average of 34 people per year in population in the last 10 years, and assuming 2.5 persons per household, Fircrest would have needed to permit nearly 14 units per year for housing to match population growth. **This means that to meet future population growth, Fircrest would need to add an additional 9 units per year compared to the existing average permitting rate.**

Figure 5 Housing Units Permitted in Fircrest



Source: Census Building Permits Survey.

HOUSING AFFORDABILITY

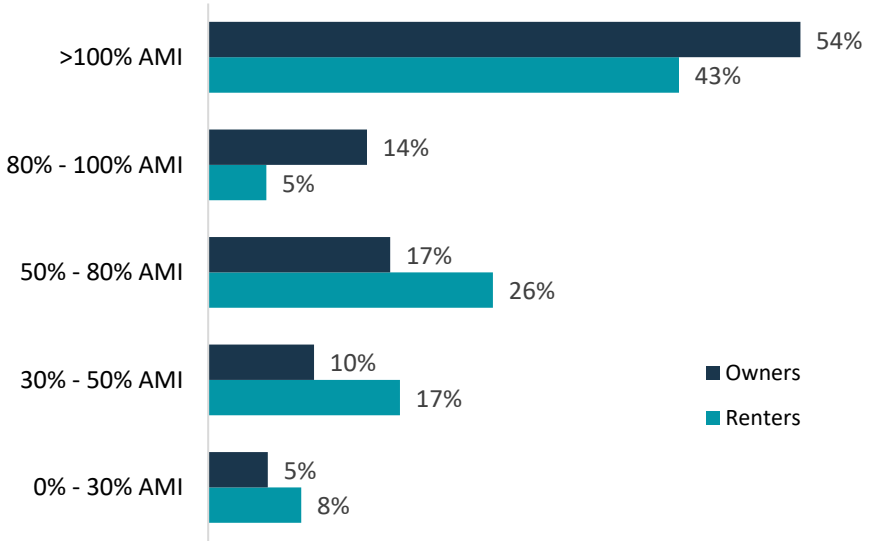
When it comes to economic status of households, the majority of Fircrest homeowners made at least $90,854 in household income, or the Area Median Income (AMI). Only 43% of renters made at least the AMI, as seen in the following Figure 6.

Table 8 Fircrest Percent Median Income (AMI) Ranges

Area Median Income	Income Range
0-30%	$0 – $27,256
30-50%	$27,256 – $45,427
50-80%	$45,427 – $72,683
80-100%	$72,683 – $90,854
100-120%	$90,854 – $109,025

Source: 2021 ACS, 5-Year Estimates, Income; HUD CHAS

Figure 6 Household Distribution by Tenure and Fircrest Median Family Income



Source: HUD CHAS, 2015-2019.

Nearly a third of Fircrest's population is cost burdened. A household is considered housing cost burdened when they spend more than 30% of their household income towards housing. They are considered severely cost burdened when they spend 50% of their income or greater on housing costs. 10% of renter households in Fircrest are considered severely cost burdened.

Table 9 Households Paying More Than 30 Percent of Income for Housing

Tenure	Cost Burdened (>30%)	Severely Cost Burdened (>50%)
Renters	27%	10%
Owners	26%	8%
Total	**27%**	**9%**

Source: HUD CHAS, 2015-2019.

Using the definition of housing affordability together with the 2021 median household income of $90,854, Table 10 represents the amount of money that Fircrest individuals and families earning median income or less can afford to pay for rental and ownership housing. Low- and moderate-income groups are experiencing a gap between what they can afford to spend on housing and how much the market is demanding from them. Prioritizing housing affordability as part of the Comprehensive Plan Goals and Policies is therefore important as part of this Comprehensive Plan.

Table 10 Affordable Rents and Prices

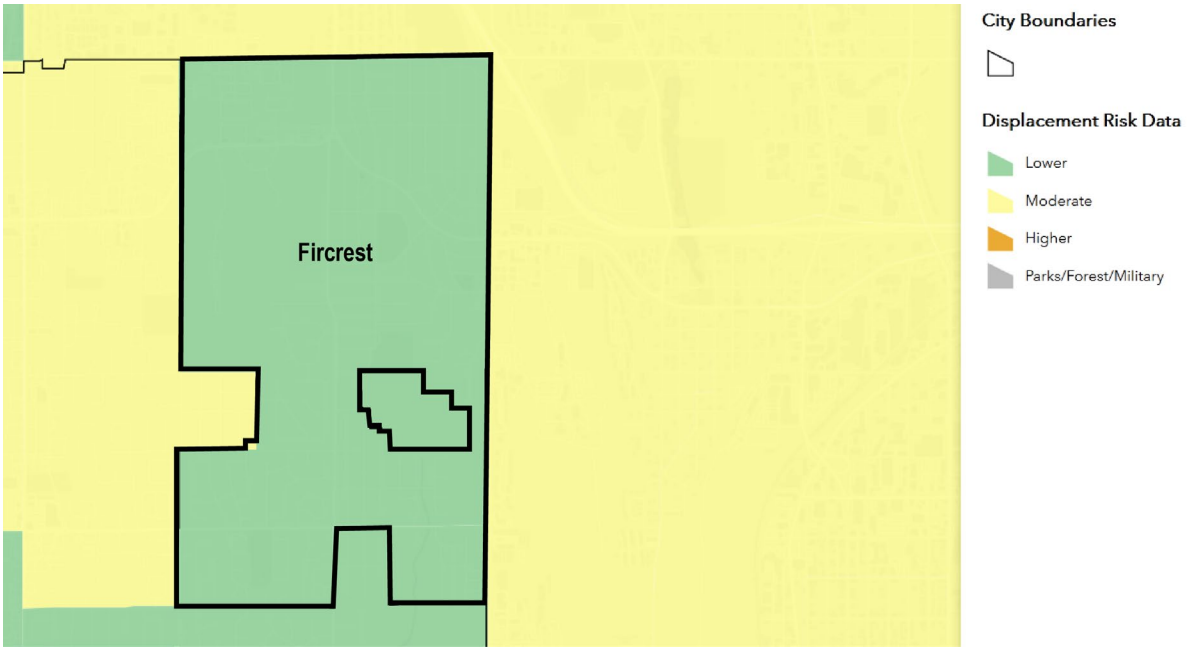
Income Group	Income Brackets*	Maximum Affordable Monthly Rent/Utility (30% of monthly income)	Maximum Affordable House Price**
Extremely Very Low-Income (< 30% AMI*)	$0 - $27,256	$681	$64,672
Very Low Income (30 – 50% AMI)	$27,256 - $45,427	$1,136	$150,364
Low Income (50 – 80% AMI)	$45,427 - $72,683	$1,817	$277,727
Moderate-Income (80 – 120%)	$72,683 - $109,025	$2,726	$448,172

*Using Fircrest's Median Income
**The maximum home price calculation assumes a monthly debt payment of $350 and a 20% downpayment.

DISPLACEMENT RISK

The Puget Sound Regional Council (PSRC) provides a displacement analysis map (Figure 7). PSRC classifies the City of Fircrest's Displacement Risk Level as "lower" due to factors such as income, housing costs, household characteristics, and poverty level.

Figure 7 PSRC Displacement Risk Map for Fircrest



Source: PSRC Displacement Risk Map.

However, this does not mean that displacement is completely unlikely. In the Washington State Department of Commerce's Draft Displacement Index, Figure 8, Fircrest is listed as having "demographic and market changes." As land values appreciate, even without development pressures, costs increase and create pressures for displacement through gentrification and displacement.

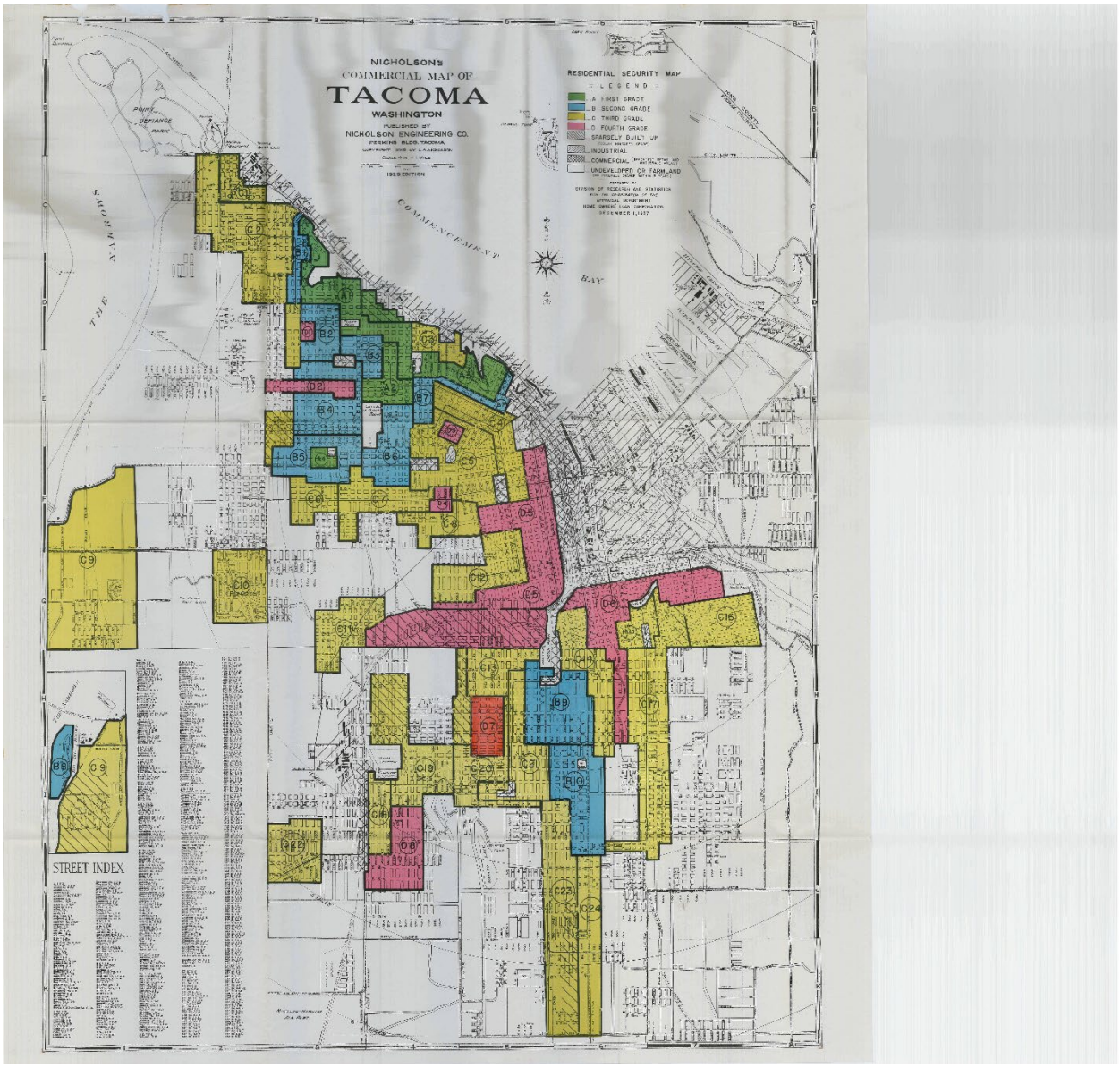
The Comprehensive Plan Policies must account for rising housing and land costs and the demographics of the city to reduce displacement risks. For example, with the statewide housing shortage, land and housing costs can be expected to remain high across the region. Ensuring that there are adequate opportunities for populations to age in place and cost-appropriate housing for young adults will be important to ensure a sustainable amount of age and income diversity in the city and mitigate displacement pressures.

COMMITMENT TO ENDING RACIST ZONING POLICIES

Racism has shaped American history from the beginning, including the form and shape of our communities. European American settlement on Native American land, the Indian Removal Act (1830), slavery, post- Civil War Jim Crow laws, the Chinese Exclusion Act (1882), and Japanese internment during World War II are among the many notable events that have shaped how we live today. These and other events deprived groups of people from access and opportunity, leading to negative outcomes that were later used to justify further discriminatory policies and practices. Zoning and other land use practices that emerged in the 20th century furthered this pattern of discrimination and shape racially disparate impacts that are perpetuated today.

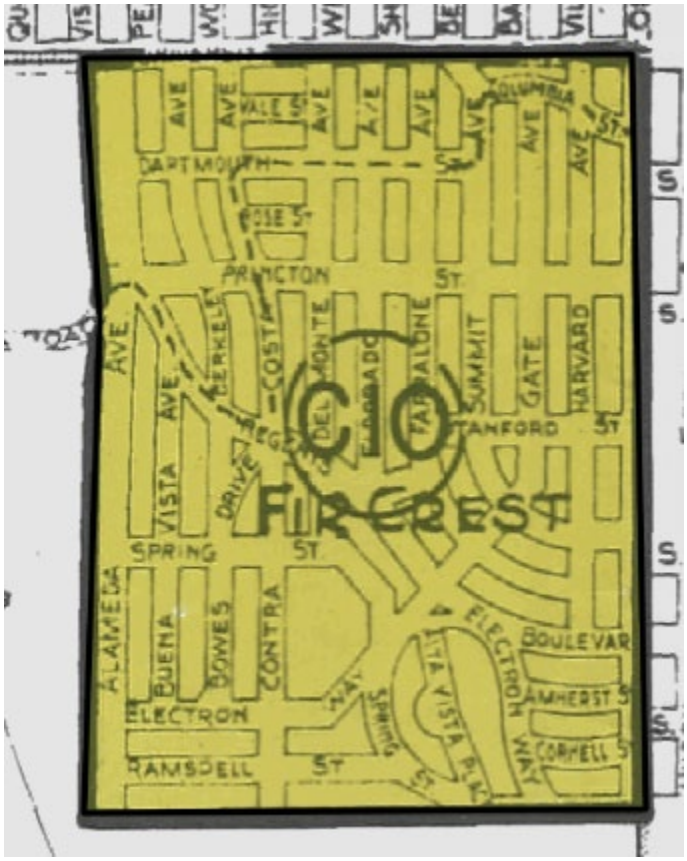
Zoning is not the only governmental program that has led to racially disparate impacts, displacement and exclusion in housing. Public policies forced the displacement of Black, Indigenous and people of color (BIPOC) households through urban renewal and midcentury interstate highway construction. Private practices such as racially restrictive covenants and steering have prevented BIPOC households from accessing housing in certain neighborhoods. Government-sanctioned financial practices such as redlining. Redlining, the home mortgage interest tax deduction, predatory lending and the systemic undervaluing of real estate in BIPOC neighborhoods have contributed to the devaluation of BIPOC household property and wealth.

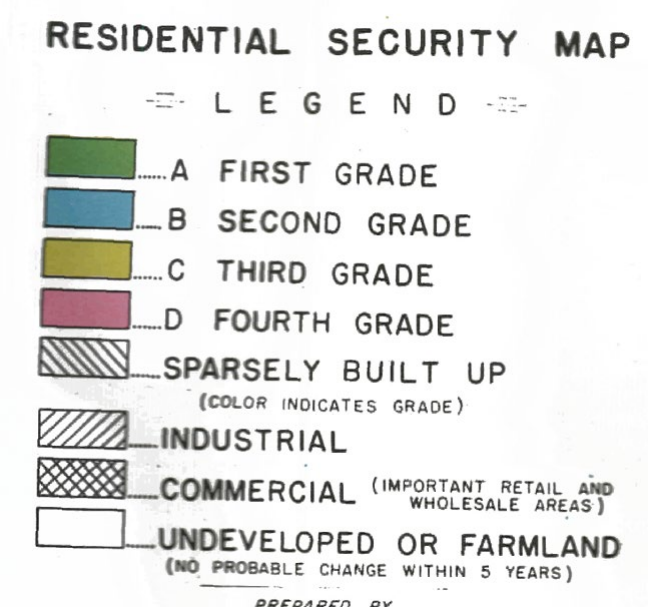
The City of Fircrest commits to acknowledging these past policies and committing to a more inclusive zoning by providing policies for the construction of middle housing and co-living housing and transit-oriented development, promoting programs offered by the County for household repairs, energy retrofits, especially to vulnerable populations at 30% Area Median Income.



1929 Edition of Tacoma Redlining Map – Courtesy of Mapping Inequality

1929 Edition of Tacoma Redlining Map (Fircrest Subset) – Courtesy of Mapping Inequality

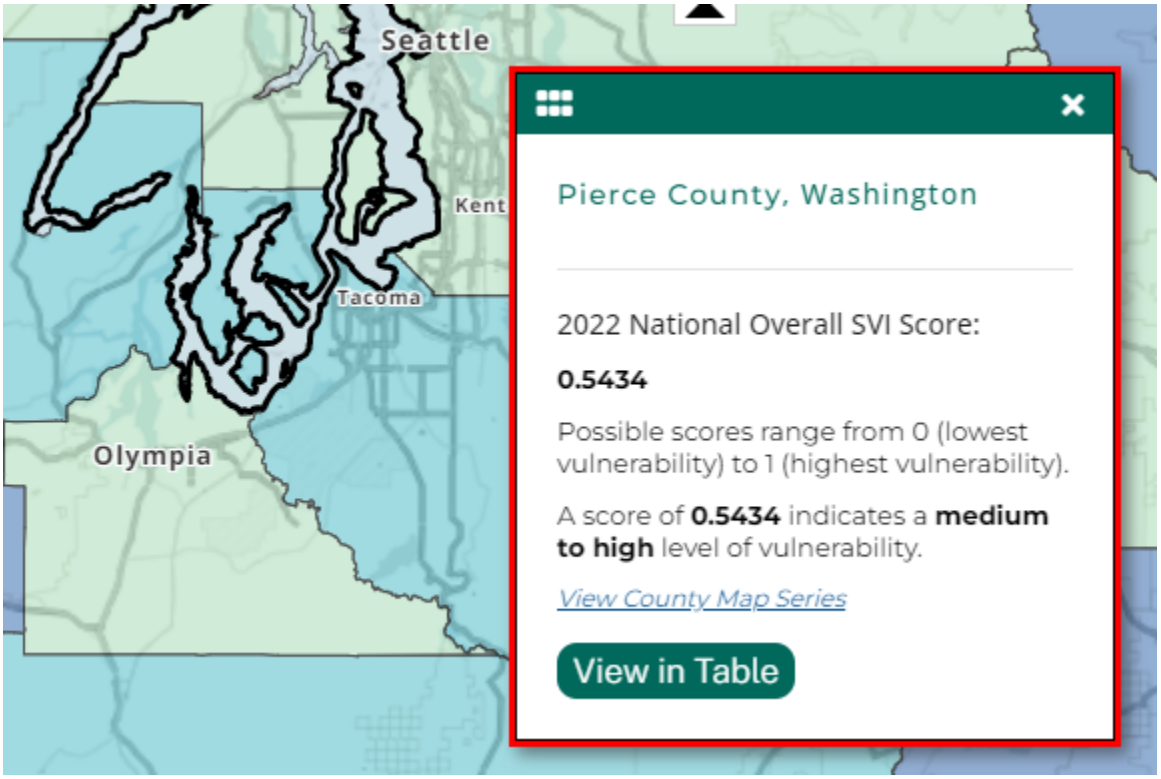




The 1929 Edition of Tacoma Redlining Map, courtesy of Mapping Inequality, has Fircrest listed as a Third Grade Area; however, there is more to this story. The City should be rated as an A grade, but due to financial mismanagement, a heavy debt load, and high water rates, the grade was reduced to a C 10.

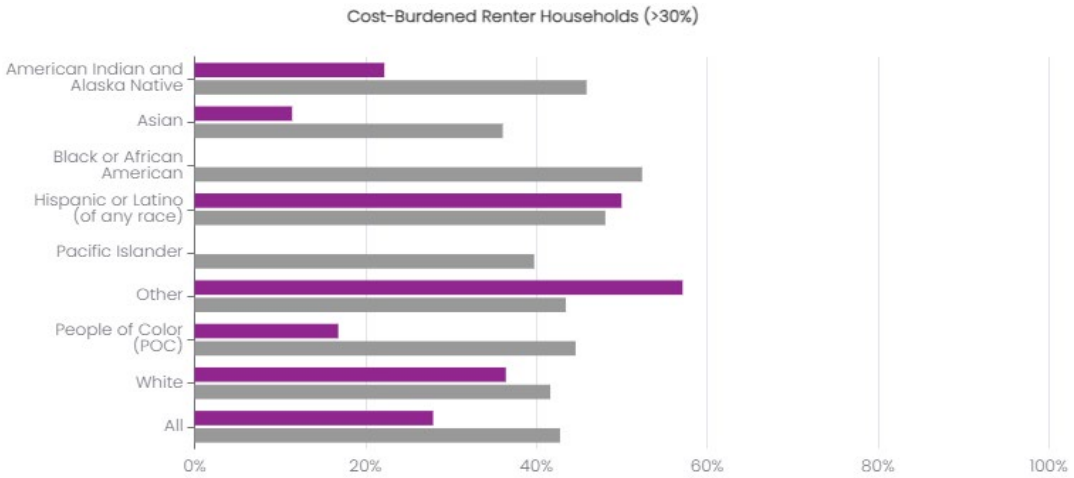
Clarifying Remarks

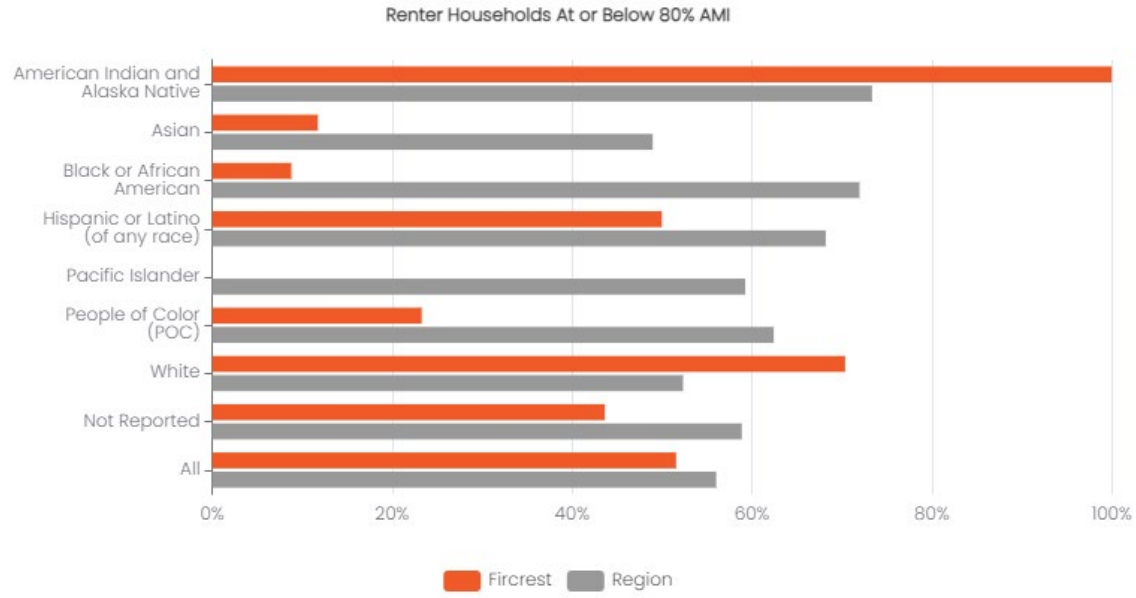
This area covers the town of Fircrest, which is a separate municipality. It was planted in 1907 by Major Bowles of current radio fame, as an exclusive residential community, and at that time the streets were paved and amenities installed. The 1907 panic upset his plans, and the promotion was never consummated. Residences constructed before the collapse of the enterprise would have the claim to an 'A' grade area, but a majority of the original owners were forced to dispose of their properties to sacrifice prices. Under current conditions, the area is difficult to grade, but has been accorded 'Low Yellow' grade on account of its record. the debt of the municipality is said to be heavy owing to the sparse settlement, This probably also accounts for the fact that water rates are higher than in Tacoma. Lot values run from $3.00 to $8.00 per front foot.



Fircrest has a medium to high vulnerability according to the CDC/ATSDR Social Vulnerability Index (SDI).

Puget Sound Regional Council (PSRC)'s Community Profile for Fircrest provides additional data highlighting the need to undo policies to promote equity for low-income people of color, especially the American Indian and Alaska Native population.


Cost-Burdened Renter Households (>30%)
American Indian and Alaska Native
Asian
Black or African American
Hispanic or Latino (of any race)
Pacific Islander
Other
People of Color (POC)
White
All
0%
20%
40%
60%
80%
100%
Fircrest
Region


Renter Households At or Below 80% AMI
American Indian and Alaska Native
Asian
Black or African American
Hispanic or Latino (of any race)
Pacific Islander
People of Color (POC)
White
Not Reported
All
0%
20%
40%
60%
80%
100%
Fircrest
Region

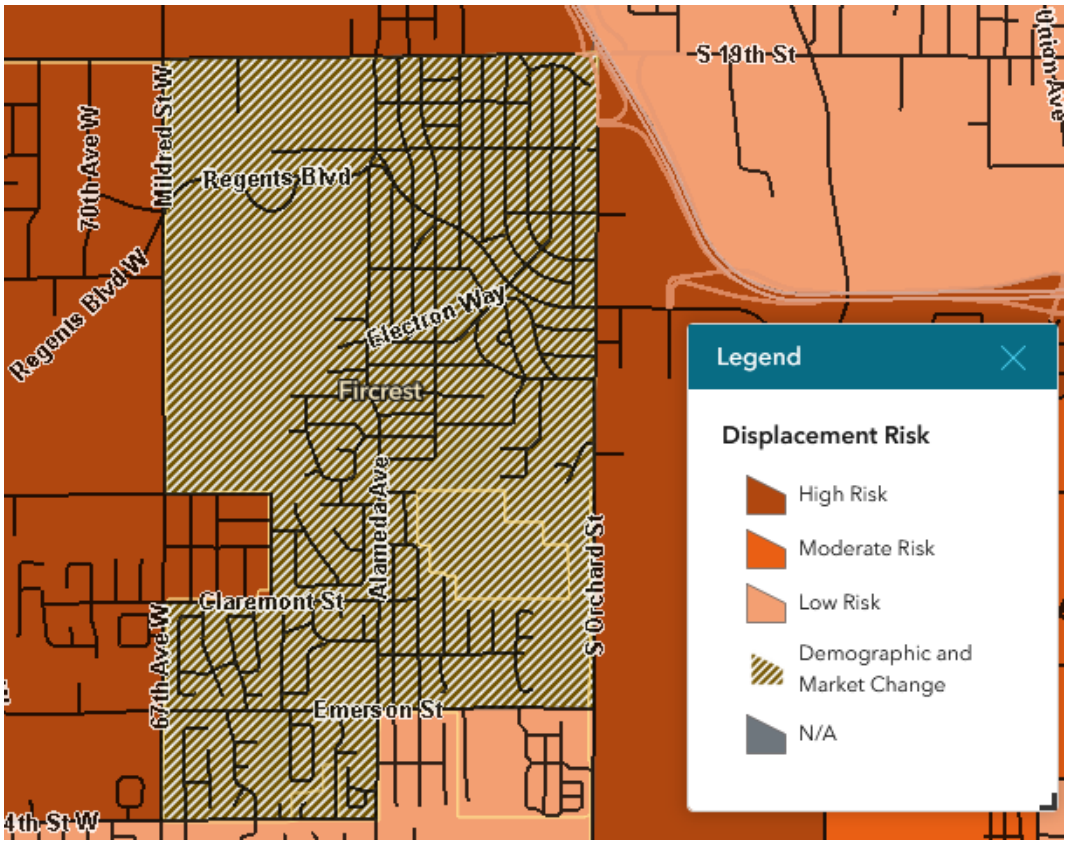
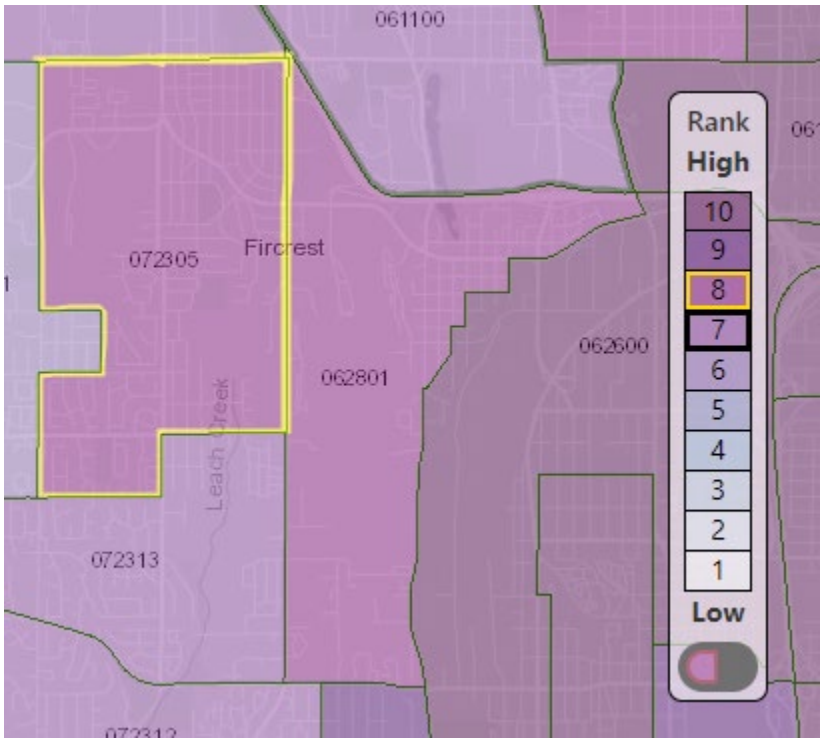


Figure 8 Commerce Draft Displacement Risk Map for Fircrest



Fircrest ranks high when it comes to the category of high exposure to diesel and PM10 emissions. The City has a policy to draft an urban tree canopy report to address disparate environmental health and exposure to these harmful particulates.

Source: Washington State Department of Commerce, Draft Displacement Risk Map.

CITY OF FIRCREST

2025-2030

Transportation Improvement Program

ACKNOWLEDGEMENTS

Fircrest City Council

Shannon Reynolds, Mayor
Nikki Bufford, Mayor Pro Tempore
David M. Viafore
Brett L. Wittner
Hunter T. George
Karen Mauer-Smith
Jim Andrews

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TABLE OF CONTENTS

Preface 1
Non-Discrimination 1
Grant Applications and Leveraging Local Dollars 1
About the City of Fircrest 2
Funding Sources 3
Motor Vehicle Fuel Tax Funds 3
Transportation Improvement Board 3
Additional Funding Sources 4
Real Estate Excise Taxes 4
Washington State Department of Transportation via the Puget Sound Regional Council (PSRC) 4
Safe Routes to School / Pedestrian Bicyclist Program 4
Surface Water Management Program 4
Consistency With Land Use Management Plan 4
Table 1: 2025-2030 Transportation Facility Improvements 5
Figure 1: 2025-2030 Projects Map 6

THE CITY OF FIRCREST

PREFACE

Chapters 35.77.010 and 35.77.015 of the Revised Code of Washington (RCW) provide that each city shall annually update its Six-Year Comprehensive Transportation Program and, after a public hearing thereon, file a copy of the adopted Program with the Secretary of the Washington State Department of Transportation (WSDOT) by July 1 of each year. The Program is necessary to allow cities and counties to obtain State and Federal funding. For a project to obtain funding from the State, it must appear in the agency's current Program. Because the state also disperses federal highway funds, this requirement applies to federally funded projects as well.

RCW 35.77.010 also requires each city to specifically set forth those projects and programs of regional significance for inclusion in the transportation improvement plan for that region. There are no projects included in this Program that are considered regionally significant.

The Program is based upon anticipated revenues versus desirable projects. There are always more projects than available revenues. Therefore, a primary objective of the Program is to integrate the two to produce a comprehensive, realistic program for the orderly development and maintenance of our street system.

Several important points must be considered during the review of the proposed Program. The early years of the Program are fairly definite; that is, it can be assumed that those projects will be constructed as scheduled. Projects in the later years are more flexible and may be accelerated, delayed, or canceled as funding and conditions change.

It is also important to note that the adoption of the Program does not irreversibly commit the City of Fircrest to construct the projects. A project may be canceled at any time during study or design. The usual reasons for canceling a project are that it is environmentally unacceptable or contrary to the best interests of the community. The Program may be revised at any time by a majority vote of the City Council, but only after a public hearing.

NON-DISCRIMINATION

The City of Fircrest assures that no person shall, on the grounds of race, color, national origin, handicap, sex, age, or income status as provided by Title VI of the Civil Rights Act of 1964 and subsequent authorities, be excluded from participation in, be denied the benefits of, or be otherwise subject to discrimination under any program or activity.

GRANT APPLICATIONS AND LEVERAGING LOCAL DOLLARS

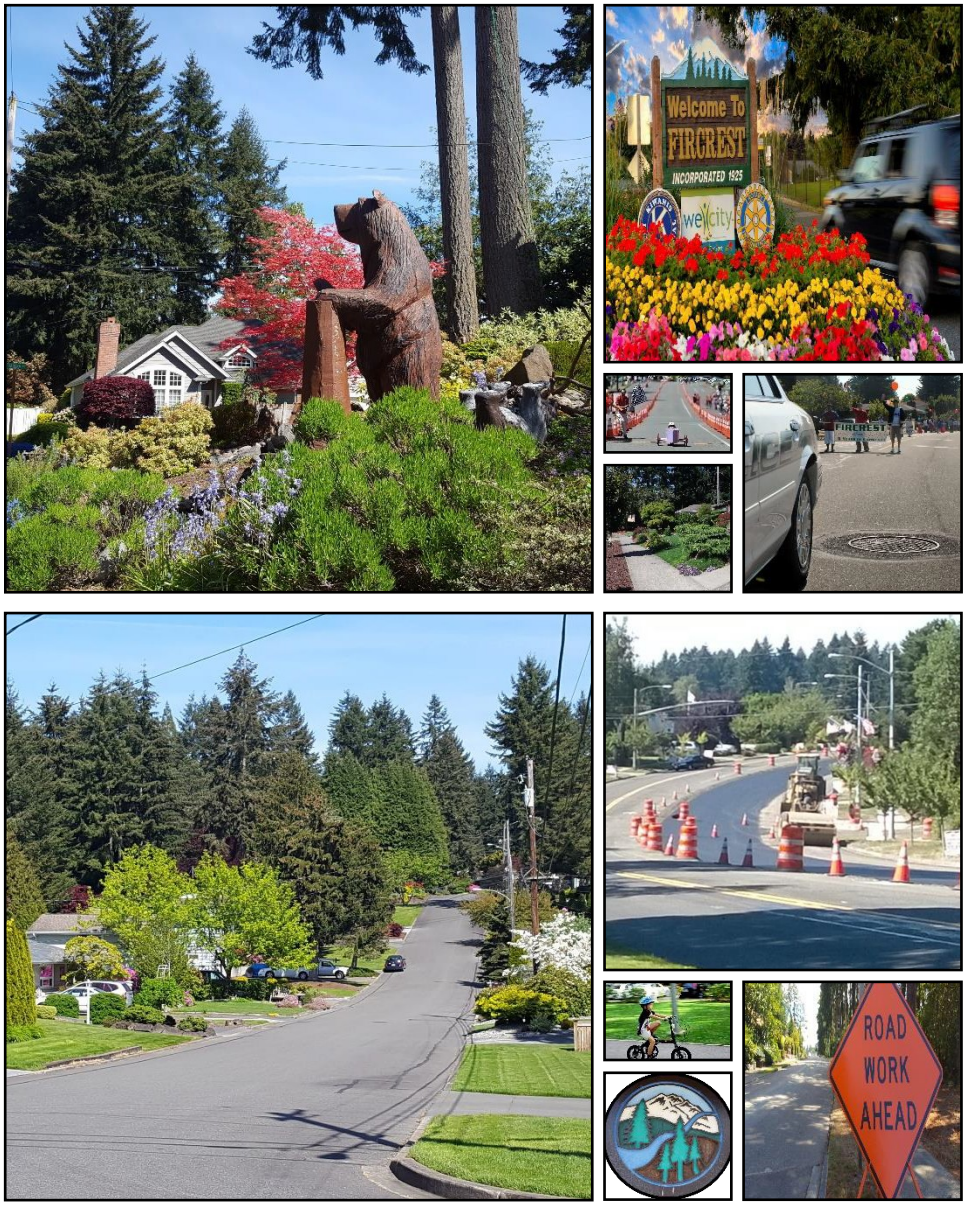
The City recognizes the critical need to maximize the use of local funds through grant applications, particularly given the reduction in available funding for transportation-related capital improvements. This program aims not only to identify and schedule projects for funding but also to secure City Council approval for submitting grant applications for projects included in the program. By doing so, the City ensures a strategic approach to obtaining necessary financial resources for vital transportation infrastructure improvements.

ABOUT THE CITY OF FIRCREST

Fircrest is a non-charter code city which operates under a Council-Manager form of government. The city boasts an annual General Fund budget of $12 million and a total budget exceeding $34 million. As a full-service city, Fircrest offers a wide array of services. These services include police and fire protection, animal control, emergency medical aid, building safety regulation and inspection, comprehensive land use planning, and zoning. The city also provides housing and community development along with recreational and cultural programs. The city also maintains traffic safety and improvements, as well as maintenance and enhancement of streets, water, sewer, and storm systems.

Incorporated initially as a town in 1925 then recognized as a city in 1990. Fircrest covers an area of 1.58 square miles. It is strategically located 32 miles south of Seattle and 31 miles north of the state capital, making it a prime residential area for those working in these major urban centers. Fircrest is celebrated as "The Jewel of Pierce County" and is known for its suburban charm, master-planned community origins, and vibrant local life. The city has six parks, an urban forest of fir trees, and the private Fircrest Golf Club.

Home to 7,235 residents, Fircrest maintains a strong local history and an engaged community. The city manages 27.1 acres of land, providing diverse recreational opportunities and community events. Fircrest also embodies the reputation as a quiet, residential community with livable neighborhoods and high-quality recreational facilities. Fircrest is committed to community-oriented policing and is planning for future growth while preserving its green character, safe and friendly atmosphere, sustainability, and historical elements.



FUNDING SOURCES

MOTOR VEHICLE FUEL TAX FUNDS

By law, each city receives a proportionate share of the total State Motor Vehicle Fuel Tax based on population. The exact amount varies depending on the amount of fuel sold in the State. In the City's 2024 budget, revenue received from the state gas tax for the Street Fund is anticipated to be $132,000. This is the same as expected to be received in 2025 and, therefore, should be relatively accurate.

TRANSPORTATION IMPROVEMENT BOARD

The Washington State Transportation Improvement Board (TIB) funds high-priority transportation projects in communities throughout the state to enhance the movement of people, goods, and services. TIB is an independent state agency created by the Legislature that distributes and manages street construction and maintenance grants to 320 cities and urban counties throughout Washington State. Funding for TIB's grant programs comes from revenue generated by three cents of the statewide gas tax. The TIB has several statewide competitive programs that use criteria developed by the TIB for the prioritization of projects. The TIB programs in which the City of Fircrest can compete are as follows:

Urban Arterial Program (UAP)

The Urban Arterial Program funds projects in one of the following bands: Safety, Commercial Growth and Development, Mobility, and Physical Condition.

Active Transportation Program (ATP)

The Active Transportation Program provides funding to improve pedestrian and cyclist safety, enhance pedestrian and cyclist mobility and connectivity, or improve the condition of existing facilities.

Arterial Preservation Program (APP)

The Arterial Preservation Program (APP) provides funding for the overlay of federally classified arterial streets (principal, minor) in cities with a population greater than 5,000 and an assessed valuation of less than $3 billion. Although the program offers critical preservation assistance, it is not enough to substitute for a city's street maintenance program. Therefore, the program is limited to overlay to defray high-cost preservation projects, allowing cities to concentrate limited resources on lower-cost preventative maintenance.

Complete Streets Program (CSP)

Complete Streets is an approach to planning, designing, building, operating, and maintaining the transportation system that enables safe and convenient access to destinations for all people, including pedestrians, bicyclists, motorists, and transit riders. It uses a set of tools or treatments that create a more balanced and resilient transportation system.

ADDITIONAL FUNDING SOURCES

Funds from the sale of the City's power utility have been used to fund capital projects in the City's Street Fund. However, there are not sufficient funds from this source to fully fund the projects included in the Six-Year Program. The City will continue to consistently apply for grant funding to use as little of this fund as possible to maintain a healthy reserve to get through tough economic times.

Real Estate Excise Taxes

Real Estate Excise Tax is levied on all real estate sales, measured by the full selling price. The City has authorized a locally imposed tax of 0.5% in two 0.25% increments. These revenues are restricted to financing capital projects, in whole or in part, as specified in this plan.

Washington State Department of Transportation (WSDOT)

Safe Routes to School / Pedestrian Bicyclist Program

The Purpose of the SRTS Program is to improve safety and mobility for children by enabling and encouraging them to walk and bicycle to school. Funding for this program is for projects within two miles of primary, middle and high schools (K-12).

Surface Transportation Block Grant (STBG)
WSDOT via Puget Sound Regional Council (PSRC) Regional Planning Agency

WSDOT allocates STBG funds to Metropolitan Planning Organizations (MPOs) and County Lead Agencies to prioritize and select projects that align with their regional priorities, involving all entities eligible to participate in a public process. In addition, WSDOT sets annual delivery targets for each MPO and county lead agency. Eligible projects include highway/bridge construction/repair, transit capital projects, bicycle, pedestrian, and recreational trails, and construction of ferry boats and terminals. The City's MPO is Puget Sound Regional Council (PSRC).

Surface Water Management Program

The City's Stormwater Management Program (SWMP) pays for all drainage facilities constructed in conjunction with street improvements. The revenue from SWM is directly related to the number of capital improvement projects constructed. Because there will be little impact on storm drainage facilities resulting from the projects proposed in the Six-Year Transportation Improvement Program, only a minor amount of funding is expected from this source.

CONSISTENCY WITH LAND USE MANAGEMENT PLAN

The State's Growth Management Act (GMA) requires local governments to develop and adopt comprehensive plans covering land use, housing, capital facilities, utilities, and transportation. These comprehensive plans must balance the demands of growth with the provision of public facilities and services and transportation facilities and services. The City of Fircrest was required to develop and adopt a comprehensive plan that is in conformance with the requirements of the GMA.

The City of Fircrest has, as part of its Comprehensive Plan, Transportation Goals and Policies. The projects in the Six-Year Comprehensive Transportation Improvement Program are intended to conform to the goals and policies within the City's Comprehensive Plan.

TABLE 1: 2025-2030 TRANSPORTATION FACILITY IMPROVEMENTS

City of Fircrest Six-Year Comprehensive Transportation Improvement Program (2025 to 2030)

	Transportation Facility Improvements	2025	2026	2027	2028	2029	2030	TOTAL
Capital Appropriations								
1	Major Pavement Patching: Citywide	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	**$ 600,000.00**
Grind and Overlays								
2	Regents Blvd: Alameda Ave to 67th Ave W (Funded for design only)		$ 760,000					**$ 760,000.00**
3	South Orchard St from Regents Blvd to Holly Dr (Funded in 2024)	$ 760,000						**$ 760,000.00**
4	Claremont St from 67th Ave W to Alameda Ave (Funded in 2024)	$ 800,000						**$ 800,000.00**
5	South Orchard St from Columbia Ave to Regents Blvd				$ 2,000,000			**$ 2,000,000.00**
Pedestrian, Non-Motorized / Active Transportation Program								
6	Alameda Ave: 44th St W to Emerson St (curb/gutter, bike lane, sidewalk - east and west side of ROW)	$ 1,200,000						**$ 1,200,000.00**
7	44th St W: 67th Ave W to Alameda Ave (curb/gutter, bike lane, sidewalk - north side)			$ 1,750,000				**$ 1,750,000.00**
8	Emerson St: Woodside Dr to 67th Ave W (Funded in 2024)(sidewalks, bike lane, retaining walls)	$ 400,000						**$ 400,000.00**
9	Alameda Ave: Emerson St to Rosewood Ln (curb/gutter, bike lane, sidewalk - east side)					$ 2,000,000		**$ 2,000,000.00**
10	Electron Way and Contra Costa Ave Pedestrian Safety Project (Funded in 2023 and 2024)	$ 200,000						**$ 200,000.00**
	Total Capital Appropriations	**$ 3,460,000**	**$ 860,000**	**$ 1,850,000**	**$ 2,100,000**	**$ 2,100,000**	**$ 100,000**	**$ 10,470,000.00**

FIGURE 1: 2025-2030 PROJECTS MAP

As listed in Table 1, Map 1 illustrates the transportation facility improvements for the 2025-2030 Six-Year Transportation Improvement Program planned for the City of Fircrest. Below is a brief description of the work for these projects.

Grind and Overlay

Grind and overlay is a process used in road construction and maintenance to rehabilitate an existing asphalt pavement surface by removing the top layer of asphalt (known as the "grind") and then replacing it with a new layer of asphalt (known as the "overlay"). The milling process involves the use of a large machine that grinds off the existing surface layer of the pavement to a specified depth, typically between 1 and 4 inches. The grinding machine removes the old asphalt and any damaged or deteriorated sections of the underlying pavement.

After the grinding is completed, the surface is cleaned and inspected for any additional repairs that may be necessary. Once the surface is deemed ready, a new layer of asphalt is applied, which typically ranges in thickness from 1.5 to 2 inches. The new layer of asphalt is then compacted using heavy equipment to create a smooth, even surface.

Grind and overlay is a cost-effective method for extending the life of an existing asphalt pavement surface, particularly when the underlying pavement is still in good condition but the surface layer has become worn, cracked, or damaged. It can also be used to correct surface irregularities or improve the skid resistance of the pavement.

Pedestrian, Non-Motorized

This improvement typically involves the construction of new curbs, gutters, and sidewalk enhancements. It aims to add new sidewalks where none currently exist and to complete gaps in existing sidewalks. Additionally, this improvement can potentially provide bike lanes along designated routes, enhancing safety and accessibility for pedestrians and cyclists.

APPENDIX D: TRANSPORTATION

List of Figures

Figure 1 Functional Classification 4
Figure 2 Nonmotorized Facilities 6
Figure 3 Annual Collisions in Fircrest (2018-2022) 7
Figure 4 Collision Map (2018-2022) 8
Figure 5 Existing Bus Routes 10
Figure 6 Existing (2023) PM Peak Hour Intersection Level of Service 15
Figure 7 Forecast 2044 PM Peak Hour Intersection Level of Service 18
Figure 8 Pedestrian System Plan 20
Figure 9 Bicycle System Network 21
Figure 10 Long Term Transportation Improvement Projects 23

List of Tables

Table 1 Land Use Assumptions 1
Table 2 Citywide Land Use Assumptions 16
Table 3 Transportation Improvement Projects 22

This Appendix provides additional information and context to the goals and policies of the Transportation Element. The Transportation Improvement Plan referenced in the element can be found in Appendix C.

LAND USE ASSUMPTIONS

The land use assumptions used while developing this Transportation Element are summarized in Table 1 and described in detail in the documents listed.

Table 1 Land Use Assumptions

Area	Document
Within Fircrest	Future land use in low to moderate density residential neighborhoods will remain essentially unchanged except for the conversion of some undeveloped land in the southeast corner of the City to residential uses. Properties located within the Form-Based Code area will redevelop to include a more intensive mix of uses including retail, office, service, multi-family, and other residential components. The Fircrest Golf Club property will remain largely devoted to the golf course and supportive uses. The Land Use Element provides details.

North and east of Fircrest	Future land use in areas adjacent to Fircrest is specified in the City of Tacoma Land Use Management Plan. Future land uses specified are essentially the same as those existing at the time this plan was updated.
South and west of Fircrest	The City of University Place Comprehensive Plan specifies that most land uses in developed areas adjacent to Fircrest will remain generally unchanged. Several tracts of vacant land west and south of Fircrest will be developed for low to moderate density residential use. A portion of the University Place Regional Growth Center (RGC), certified by the PSRC Executive Board in August 2018, is located adjacent to the western border of Fircrest west of Mildred Street and south of 19th Street West. The RGC will accommodate mixed-use development that is comparable in intensity and allowed uses to the Fircrest Mixed-Use designation on the east side of Mildred and south side of 19th Street.

EXISTING TRANSPORTATION SYSTEM INVENTORY

Fircrest is a geographically small, land-locked city with limited internal commercial activity, therefore it does not contain many of the typical components of a multi-modal transportation network. The City has neither water, air, nor rail facilities and its transportation facilities are limited to streets and the transportation modes and services that use streets.

Streets

Improved streets and their classifications are illustrated in Figure 1. Fircrest has two distinctly different street networks, one in the northern area of the city and one in the central and southern area of the city. The two networks are linked by Alameda Ave., which runs north-south through the approximate center of the city. The differences between these street networks can be traced to their surroundings when they were developed and the development standards that were used.

The most common paved width of local streets is 28 to 30 feet. A few streets in the older part of the city are 24 to 26 feet wide. Paved width is usually between 40 and 80 feet in streets that have been recognized in the past as collectors and arterials. Most streets provide automobile parking parallel to the curb.

A primary determinant of the functional classification is the present and anticipated traffic volumes to be carried by a street. Within a given classification the number of lanes can be varied to accommodate the anticipated volume. Roadway functional classifications are summarized below.

Local Streets

Local streets are typically low volume roadways that provide access to individual lots adjacent to them. A number of factors including multiple driveways accessing the roadway, on-street parking, and the potential presence of children playing and riding bicycles suggest that the design and width of local streets should encourage slower traffic speeds (i.e., 25 mph or less).

An interconnected network of local streets disperses traffic and allows multiple access routes for emergency service vehicles.

Collector Streets

Collector streets gather traffic from local streets and direct it to arterial routes. Collectors provide both land access and traffic circulation within residential neighborhoods and commercial and industrial areas. Roadways should be of sufficient width to allow for on-street parking and yet facilitate efficient traffic flow at moderate speeds (i.e., 25 to 30 mph). It is desirable to have collector streets spaced at ¼- to ½-mile intervals. With this frequency, access from neighborhoods can be achieved without circuitous, time-consuming travel and without overburdening residential streets with through traffic.

Minor Arterial Streets

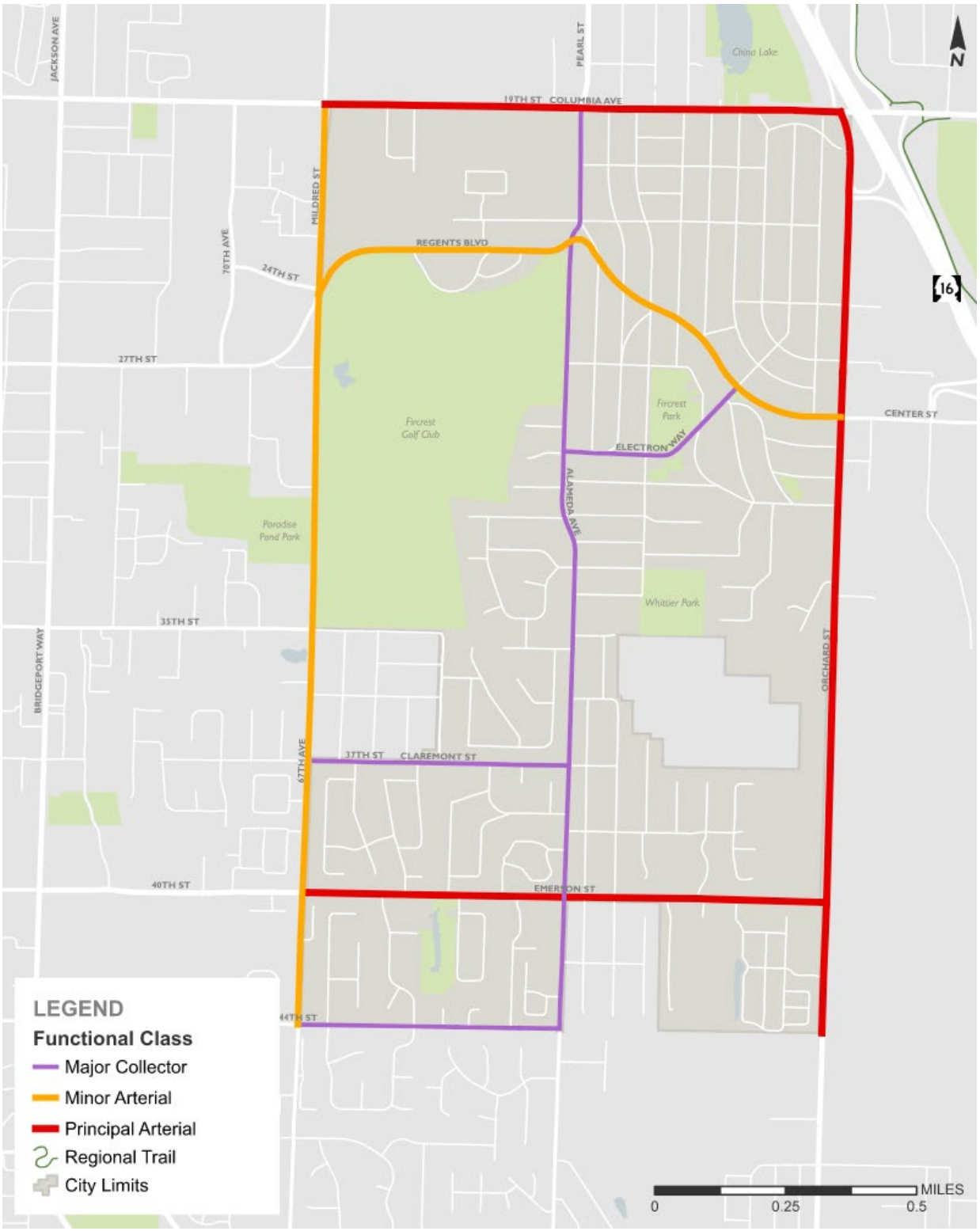
Minor arterial streets interconnect with and augment arterial streets as the principal circulation routes within the community. Ease of traffic mobility and the length of trips may be somewhat less along minor arterials than principal arterials. Intercommunity travel is typically facilitated by minor arterials. In fully developed areas minor arterials are normally not more than one mile apart.

Principal Arterial Streets

Principal Arterial Streets serve as the primary routes within and through the community. They may serve as the principal routes to and from freeway access points and other intercommunity connections. Frequently, intercity bus routes are located along principal arterials. Efficient traffic movement is of prime concern.

Roadway width and intersection design should accommodate concentrated traffic volumes at moderate speeds (30 to 35 mph). Urban principal arterials may be as closely spaced as one mile apart in highly developed central business districts.

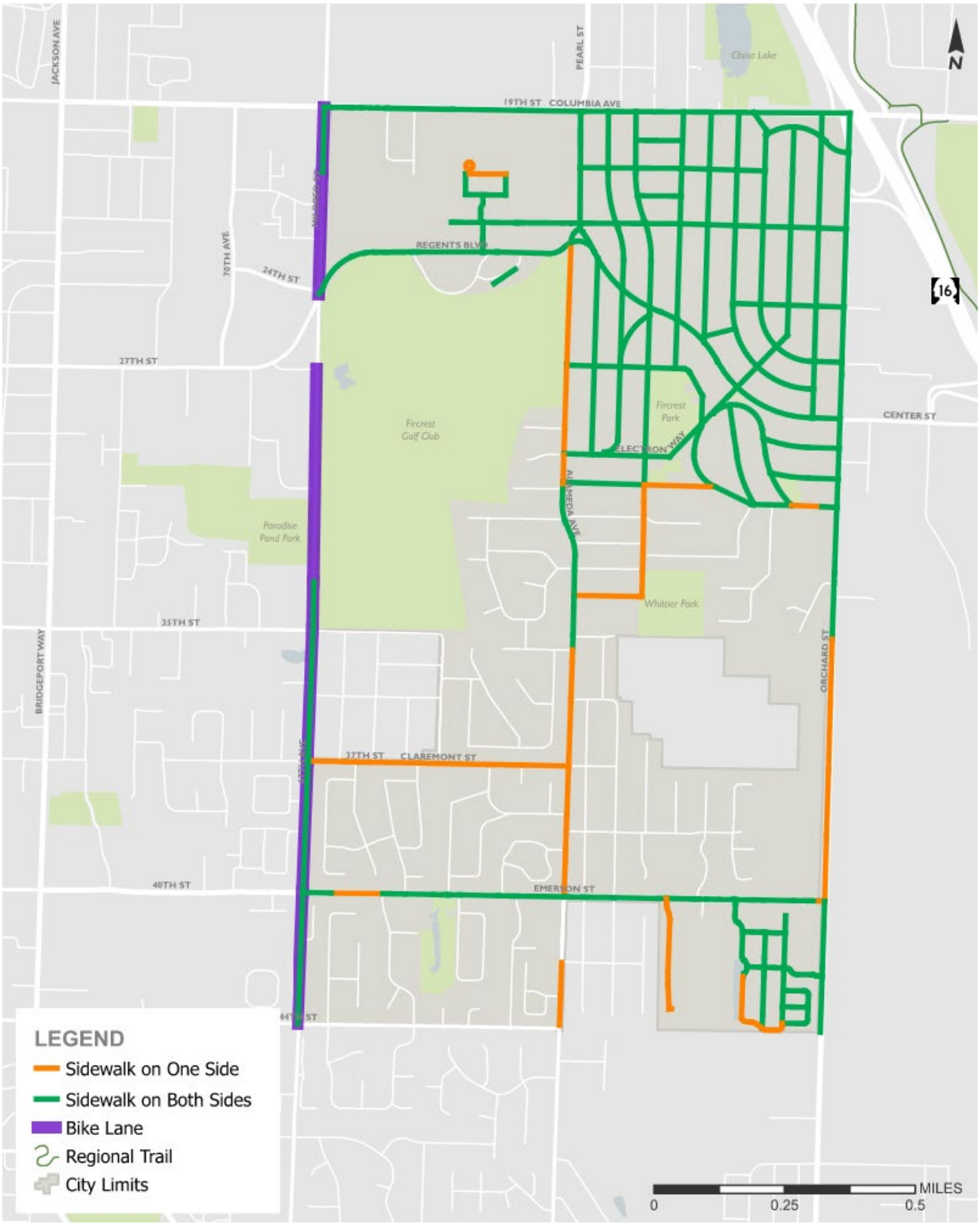
Figure 1 Functional Classification



Nonmotorized Facilities

The figure on the following page, Figure 2, illustrates the distribution and type of nonmotorized facilities in Fircrest. Sidewalks are almost always present along streets originally developed prior to 1940 in the northern part of the City. These sidewalks are generally separated from automobile travel lanes by curb and gutter and often include a narrow planting strip between the sidewalk and the curb. Sidewalks are present along most of Alameda Avenue. Fircrest has a limited number of off-street pedestrian facilities, including paved pathways in newer planned developments and a few short, unmaintained footpaths through vacant properties, school grounds, and open space.

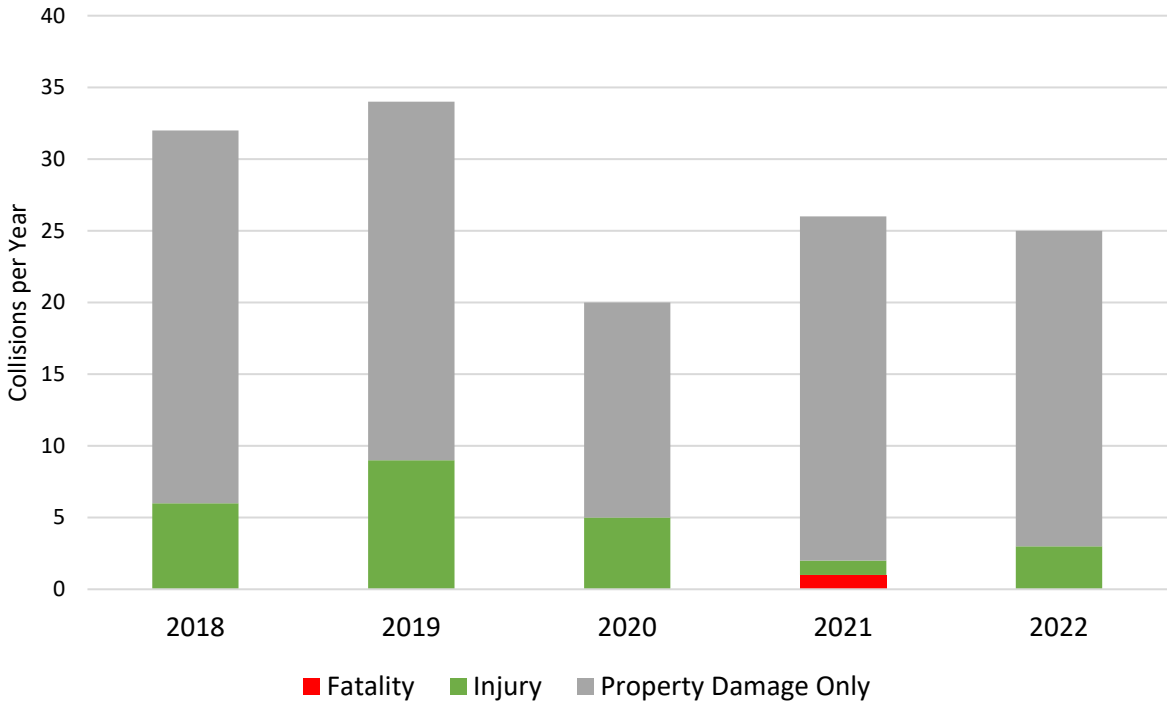
Figure 2 Nonmotorized Facilities



Traffic Safety

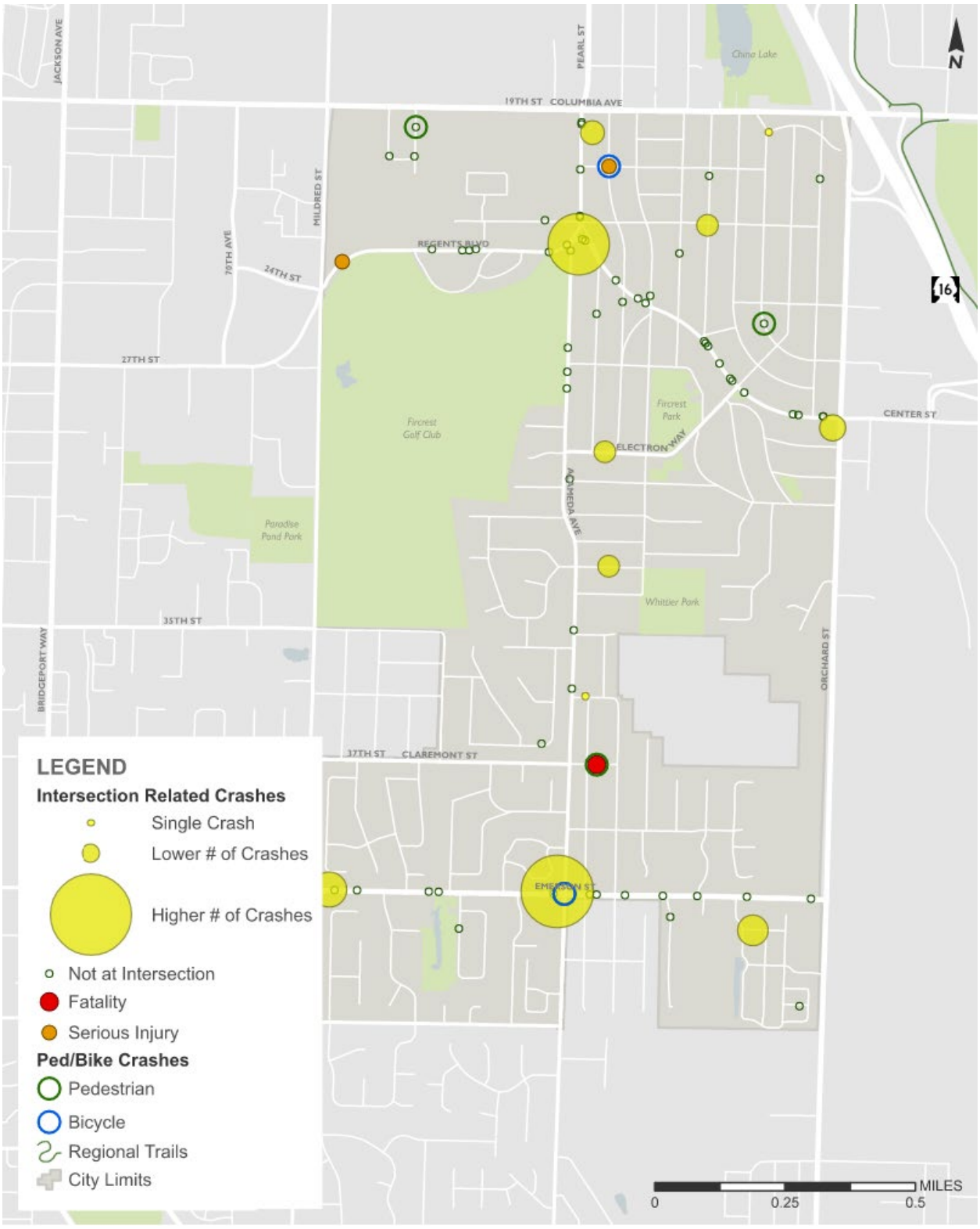
Collision data was gathered from the Washington State Department of Transportation (WSDOT) for the last five years (January 1, 2018 to December 31, 2022) in order to review the safety of Fircrest's roadway network. Within the City of Fircrest, there were 137 crashes in the last five years. Collisions are generally categorized by level of severity, ranging from property damage only (the least severe) to injury and fatality. The number and type of collision within the City of Fircrest are shown in Figure 3.

Figure 3 Annual Collisions in Fircrest (2018-2022)



Within the City of Fircrest, the total number of collisions per year decreased from 2019 to 2020, likely due to COVID-related travel reductions. The number of collisions in 2021 and 2022 increased from 2020 levels but have not yet reached back to 2019 levels. Over the last five years there was one fatal collision occurring in 2021. This collision occurred on Buena Vista Avenue, when a driver under the influence of alcohol was speeding and hit and killed a pedestrian. A map showing the geographic spread of collisions within the City of Fircrest is shown below in Figure 4.

Figure 4 Collision Map (2018-2022)



Public Transit

Pierce Transit

Public transportation service in the area is provided by the Pierce County Transportation Benefit Authority (or PTBA, commonly known as Pierce Transit). Pierce Transit is a municipal corporation formed under the authority of RCW Chapter 36.57 and is governed by a ten-member Board of Commissioners comprised of elected officials representing thirteen jurisdictions, unincorporated Pierce County, and one non-voting union representative within the benefit area.

Pierce Transit covers 292 square miles of Pierce County containing roughly 70% of the county population. It provides three types of service: fixed-route, SHUTTLE (paratransit), and vanpools that help get passengers to jobs, schools, and personal appointments.

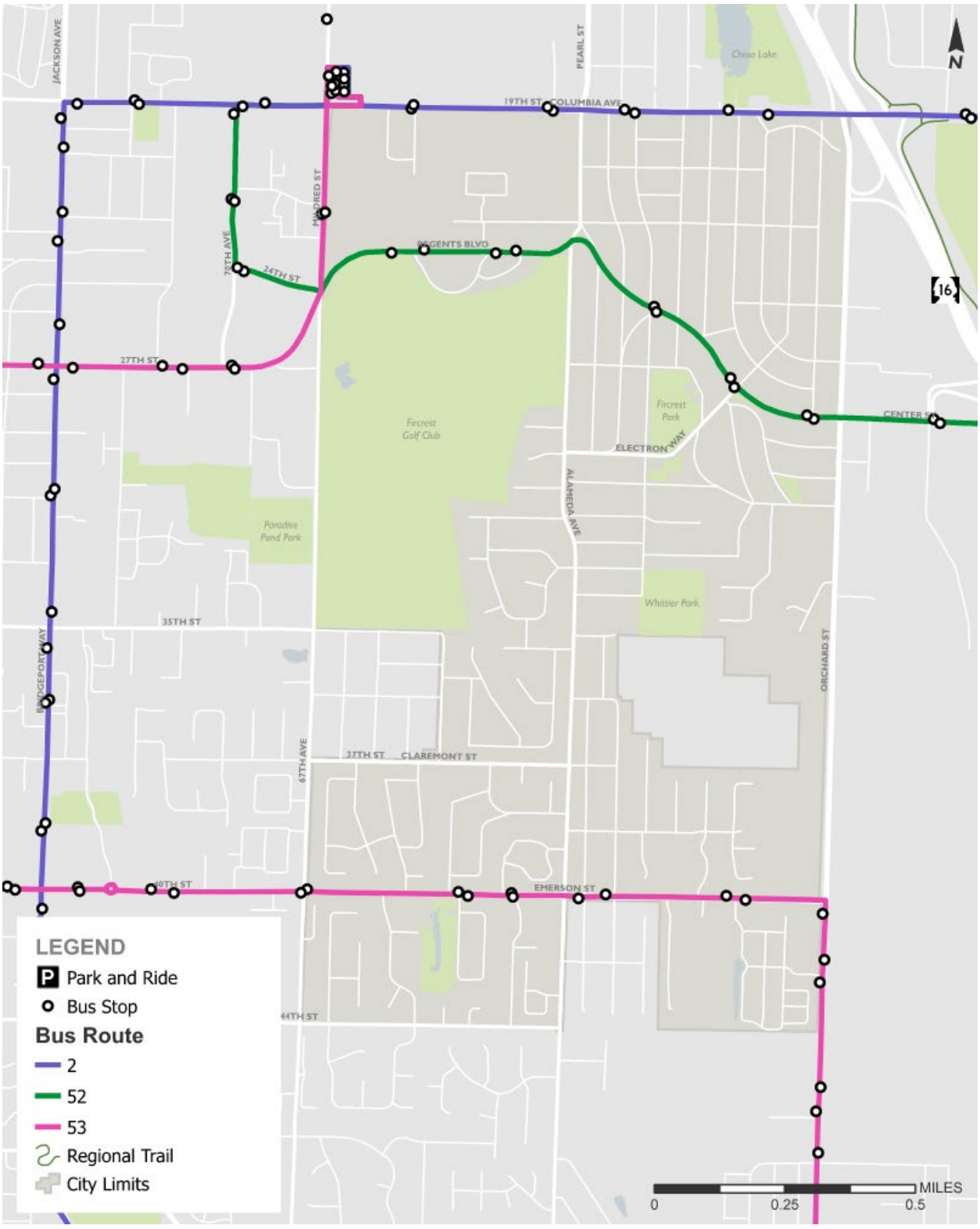
Pierce Transit operates four fixed bus routes (2, 51, 52, and 53) that serve or stop in the City of Fircrest. These routes are shown in Figure 5.

- Route 2 connects the community with the Tacoma Community College (TCC) Transit Center and the Lakewood Transit Center via South 19th Street and Bridgeport Way West.
- Route 51 connects Fircrest to Tacoma's Proctor District and the Lakewood Sounder commuter rail station via South Orchard Street.
- Route 52 links the community with the TCC Transit Center via Regents Boulevard and the Narrows Plaza neighborhood. Route 52 also links the Tacoma Mall Transit Center via Regents Boulevard and various arterials in Tacoma.
- Route 53 provides access for the southern part of Fircrest to the TCC Transit Center via Emerson Street and various arterials in University Place. Route 53 also provides access to the vicinity of the South Tacoma Sounder commuter rail station via South Orchard Street and South 66th Street, although the bus route alignment is three blocks south of the station. Route 53 continues to the Tacoma Mall Transit Center, eventually terminating in downtown Tacoma. The buses serving these routes accommodate both riders with bicycles and wheelchairs.

SHUTTLE

SHUTTLE (paratransit) service is provided by Pierce Transit for persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA). Pierce Transit's SHUTTLE provides transportation for individuals who are unable to access or use fixed-route bus services due to a disability. SHUTTLE eligibility standards and service characteristics are designed to meet the complementary paratransit requirements of the ADA. Using lift-equipped vans, SHUTTLE provides door-to-door service, or in some cases access to fixed-route service. SHUTTLE provides service that is comparable to fixed-route service in a geographic area and hours of service within each area. SHUTTLE is provided directly by Pierce Transit and through contracted services with First Transit. The area served by SHUTTLE is generally defined by the area that is within three-quarters of a mile of a fixed-route.

Figure 5 Existing Bus Routes



Pierce Transit also offers vanpool, special use van, and rideshare programs. Pierce Transit vanpools typically serve a group of 5 to 15 people sharing the ride in a 12 or 15- passenger van. These vanpools commonly serve groups traveling to and from work, whose trip origin or destination is within Pierce Transit's service area. This highly successful program complements Pierce Transit's network of local and express services, providing commute alternatives to many destinations that cannot be effectively served by local fixed-route services.

SOUND TRANSIT

Regional transit service is provided by the Central Puget Sound Regional Transit Authority, commonly known as Sound Transit. Sound Transit plans, builds, and operates express buses, light rail, and commuter train services in the urban areas of King, Pierce, and Snohomish counties. These services are intended to complement other transit services including those operated by Pierce Transit.

Sound Transit's Regional Transit Long-Range Plan establishes goals, policies, and strategies to guide the long-term development of the region's high-capacity transportation (HCT) system. It is based on years of intensive planning, environmental analysis, and public outreach. It is intended to guide how the Sound Transit system can best address the region's mobility needs and support growth management objectives. The long-range plan will be implemented in a series of phases and will be updated over time.

This long-range plan updates and modifies earlier adopted plans. In 1996, Sound Transit adopted *The Regional Transit Long-Range Vision* and Sound Move, -- Sound Transit's initial phase of regional HCT investments. In 2005 the Long-Range Plan was updated, and Sound Transit 2 (ST2) was the second phase of regional HCT investments. Where the long-range plan represents a broad regional framework for long-term investments, Sound Move and ST2 represent more detailed sets of projects for which voters approved funding.

Sound Transit 3 (ST3) was a ballot measure proposed by Sound Transit and approved by voters in November 2016 to expand the regional public transit system. The $53.8 billion ST3 plan will expand the existing Link light rail system to Fircrest, University Place, Federal Way, Everett, and Issaquah, as well as the Seattle neighborhoods of Ballard and West Seattle. The resulting transit network after the completion of ST3 will include 62 miles (100 km) of additional light rail serving 37 new stations; the entire 116-mile light rail system will carry an estimated 600,000 daily passengers. The package's projects are set to open in stages from 2024 to 2041, with light rail construction beginning in the late 2020s for most extensions.

Sound Transit in Pierce County consists of three distinct lines of business:

1. Regional Express (bus).
2. Sounder (commuter rail).
3. Link (light rail).

Sound Transit improvements in the general area include express bus service from the TCC Transit Center, the Lakewood Towne Center Transit Center, and the Tacoma Dome Station. Sounder operates commuter rail service from the Lakewood, South Tacoma, and Tacoma Dome Stations north to Seattle via Puyallup, Sumner, Auburn, Kent, and Tukwila. Sounder service is available to Everett on the Seattle-Everett segment. In Pierce County, Sound Transit operates a light rail segment between downtown Tacoma and the Tacoma Dome station.

Additional light rail lines are under construction in Tacoma's Stadium District and Hilltop neighborhood. Under ST3, Link light rail will be extended along 19th Street to a new terminus near the TCC Transit Center.

Air, Water, and Rail Transportation

Fircrest does not have an airport within its planning area. Sea-Tac International Airport, located approximately 28 miles north of the City, is the largest airport in Washington State. Regional, national, and international connections can be made through this airport. Shuttle services such as Shuttle Express provide door-to-door service between Sea-Tac and Fircrest residences and businesses. Sound Transit express buses provide service between the airport and the Tacoma Dome Station and other Tacoma-area locations.

Tacoma Narrows Airport is located on the west side of the Tacoma Narrows, south of the Tacoma Narrows Bridge. This general aviation airport provides a limited number of regional commuter flights but does not offer national or international service. The Washington State Ferry System operates the Point Defiance-Tahlequah route connecting the south end of Vashon Island with the Tacoma area. The Point Defiance dock is located approximately five miles north of the City.

An Amtrak station is located in the City of Tacoma at 1101 Puyallup Avenue. Service is provided from Tacoma to the north to Tukwila, Seattle, Edmonds, Everett, Mount Vernon, Bellingham, and Vancouver, British Columbia, and to the south to Olympia-Lacey, Centralia, Kelso-Longview, Vancouver, Portland, Oregon, and destinations further south. Amtrak service from Tacoma is also provided on the east-west corridor to Seattle, Wenatchee, Moses Lake, Ritzville, and Spokane. There are no passenger rail stops within City limits.

LEVELS OF SERVICE

Level of service (LOS) standards are measures describing both the operational conditions within a traffic stream and the perception of these conditions by motorists and/or passengers. Each LOS describes traffic conditions in objective terms such as speed, travel time, or vehicle density (i.e., number of vehicles per mile). The conditions are also qualitatively described in terms of a driver's ability to change lanes, to safely make turns at intersections, and to choose their own travel speed.

The LOS grading ranges are from A to F. LOS A describes conditions when no delays are present and low volumes are experienced. LOS E, on the other hand, represents an "at capacity" condition under which no more vehicles could be added to the intersection or road segment without a breakdown in traffic flow. LOS F indicates long delays and/or forced traffic flow. In most jurisdictions in the Puget Sound region, LOS D or better is defined as acceptable, LOS E as tolerable in certain areas, and LOS F as unacceptable.

The following summarizes level of service (LOS) characteristics for signalized intersections and unsignalized intersections.

Signalized Intersection LOS Characteristics

LOS A Traffic is light. Most vehicles arrive when the light is green and do not stop at all. Vehicle Delay Range is 0.0 to 10 seconds.

LOS B Conditions are similar to LOS A, but more vehicles are forced to slow or stop at the light. Vehicle Delay Range is >10 to 20 seconds.

LOS C The number of vehicles stopping is significant and individual cycle failures may begin to appear. Vehicle Delay Range is >20 to 35 seconds

LOS D Longer delay may result from longer cycle lengths, poor progression, and/or more traffic. Many vehicles stop and cycle failures become noticeable. Vehicle Delay Range is >35 to 55 seconds.

LOS E This is the limit of acceptable delay. Cycle failures become a frequent occurrence. Vehicle Delay Range is > 55 to 80 seconds.

LOS F Delays are considered unacceptable to most drivers. This often occurs when arrival rates exceed the capacity of the intersection. Vehicle Delay Range is more than 80 seconds.

Unsignalized Intersection LOS Characteristics

LOS A Average total delay is less than or equal to 10 seconds per vehicle.

LOS B Average total delay is between 10 and 15 seconds per vehicle.

LOS C Average total delay is between 15 and 25 seconds per vehicle.

LOS D Average total delay is between 25 and 35 seconds per vehicle.

LOS E Average total delay is between 35 and 50 seconds per vehicle.

LOS F Average total delay is greater than 50 seconds per vehicle.

Adopted Arterial Level of Service Standard

The GMA requires the City of Fircrest to adopt a LOS standard for arterial streets. A LOS standard is a determination of the maximum level of congestion allowed on a roadway before improvements should be made. For example, if the established level of service for a specific roadway is LOS D, improvements should be made to that roadway if its level of service falls below LOS D (more congestion) or if projected growth would cause the road to exceed the LOS D standard.

LOS standards help ensure that the transportation system can adequately serve expected growth and development consistent with local standards. In addition, the service level policy can become the basis for establishing a traffic impact mitigation fee system to provide "fair

share" funding of needed transportation improvements. The City of Fircrest has adopted LOS D for its arterial streets.

Concurrency

Concurrency describes a situation in which adequate facilities are available when the impacts of the development occur, or within a specified time thereafter. Based on the City's adoption of LOS D for its arterial streets, new development will not be permitted if it causes a particular transportation facility to decline below LOS D unless improvements or strategies to accommodate the development's impacts are made "concurrent with" the development. For transportation, "concurrent with" means that the improvement must be in place at the time of development or within six years of completion and occupancy of the development that impacts the facility. The City has adopted concurrency management regulations in FMC Chapter 22.12 to implement its concurrency management program.

Public Transit Level of Service Standard

Pierce Transit adopted in 2016 (and updated in 2020) a Long Range Plan (LRP) called Destination 2040, which includes performance measures prescribed under MAP-21. In addition, the LRP includes revised and updated service guidelines. The agency does not have Level of Service standards for fixed-route services that are designed to align with the roadway network of the municipalities Pierce Transit serves – including Fircrest.

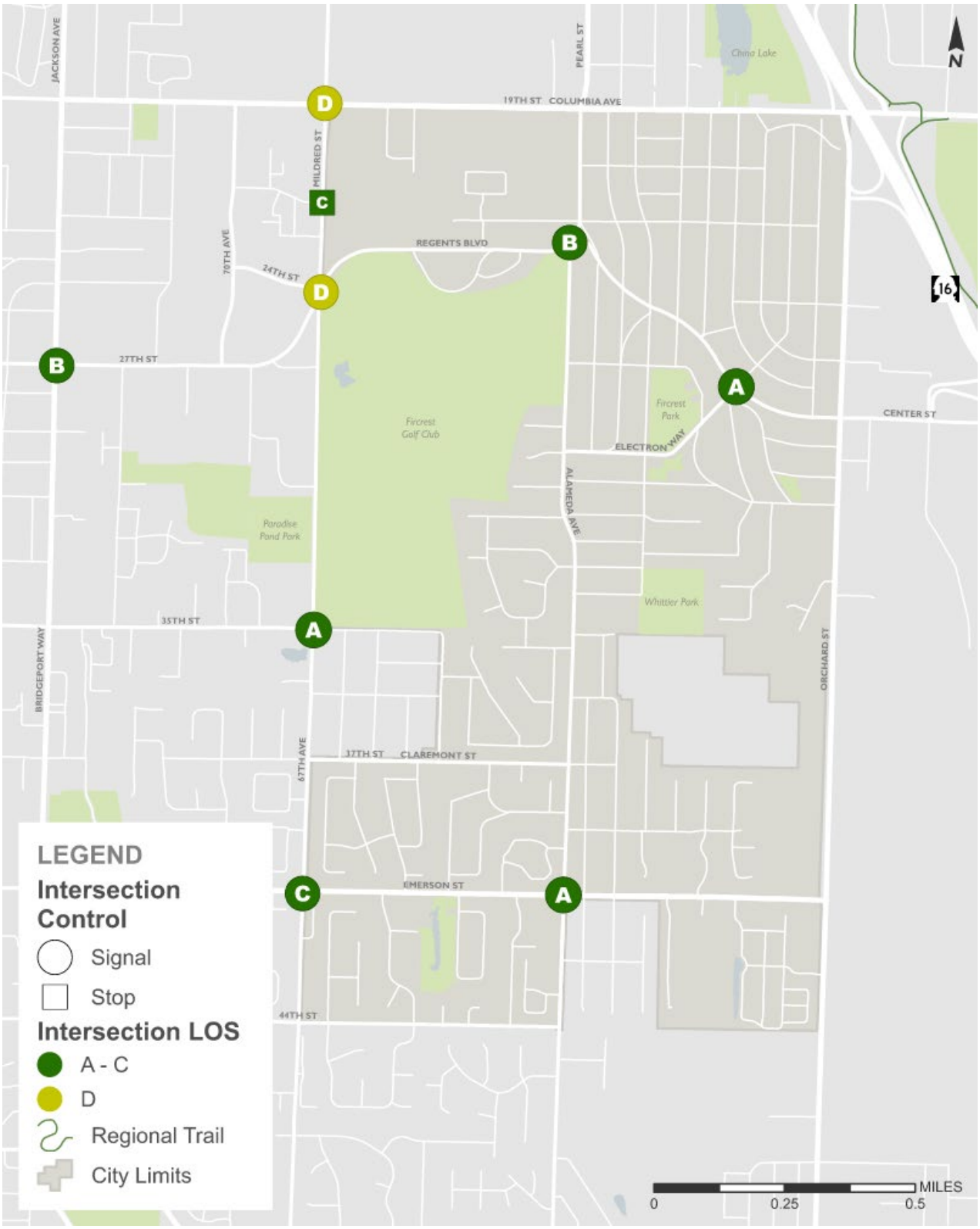
PSRC is working with WSDOT to begin designing multi-modal concurrency guidelines "to ensure that transportation infrastructure supports development as it occurs according to local standards." As such, Pierce Transit will await PSRC's and WSDOT's specific guidelines for transit agencies once they are formally adopted. In the interim, more information is available at: http://www.psrc.org/assets/11737/Multimodal Concurrency Presentation.pdf .

Existing Intersection LOS

The City performed LOS analyses for existing arterial intersections in 2023. The results of the intersection PM peak hour LOS analysis for Fircrest are shown in Figure 6. The intersections shown are under control operation of the City of Fircrest. A number of arterial-arterial intersections surrounding the City such as Center Street/ Regents Boulevard and Orchard Street, and Regents Boulevard and Mildred Street West, are under the control and operation of Tacoma or University Place.

In 2023, the intersection operation of the key intersections operated at LOS D or better during the PM peak hour. Fircrest's LOS standard is set at LOS D, indicating that no study intersections are operating below standard.

Figure 6 Existing (2023) PM Peak Hour Intersection Level of Service



TRAVEL FORECASTING

To provide a framework for future transportation system needs, the plan must also consider the transportation needs of future growth. The Growth Management Act (GMA) requires that the transportation planning horizon be at least ten years in the future. The City of Fircrest selected a 2044 horizon year for the plan. Year 2044 provides a long-range look at the transportation system needed to support anticipated growth in the city. Travel forecasts have been developed and analysis has been conducted for average weekday conditions during the PM peak hour. The weekday PM peak hour generally has the highest overall traffic volumes in the community and thus provides the basis for identifying capacity related improvement needs.

Travel forecasts were developed using land use data assumptions provided by PSRC. Industry trip generation rates from the Institute of Transportation Engineer's (ITE) *Trip Generation Handbook* (11th Edition) were applied to the land use assumptions to evaluate the level of traffic growth expected. Any deficient roadway operations were then identified. The travel forecasts provide a technical basis for identifying the transportation improvement projects in the transportation systems plan.

Land Use Assumptions

A strong relationship exists between land uses and the transportation facilities necessary to provide mobility within the community. Land use and transportation influence one another. Future transportation improvements recommended in the Transportation Systems Plan have been defined to support the Land Use Element.

The base year (2020) and forecast year (2044) land use totals were compiled or estimated from a variety of sources, including data from PSRC and the Pierce County Assessor. These data sets were supplemented with local agency information and GIS datasets from Pierce County. While the forecast land use data is for year 2044, it is based upon and consistent with the existing Land Use Element and countywide allocated growth targets. Table 2 summarizes the citywide land use assumptions used in the traffic forecast development.

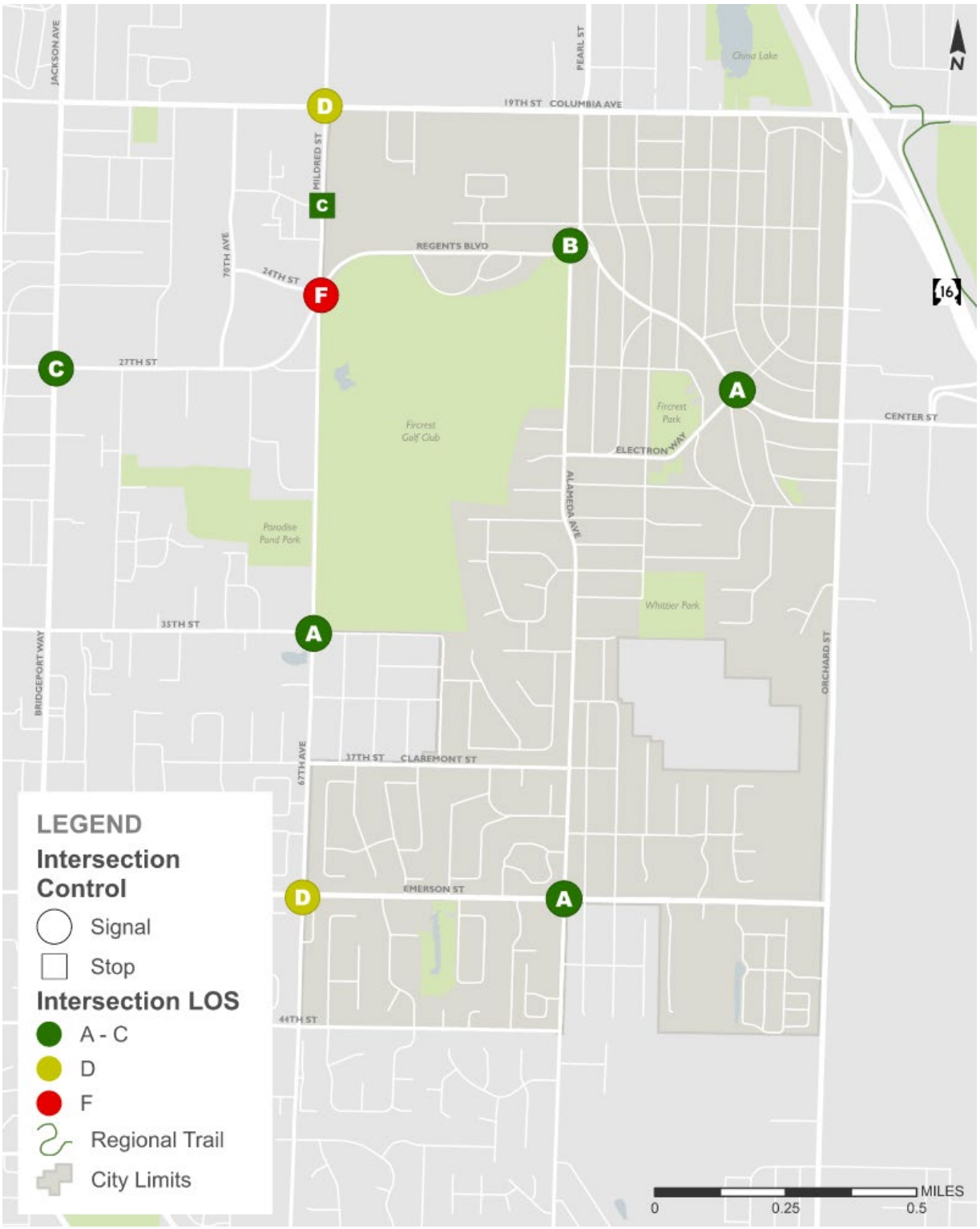
Table 2 Citywide Land Use Assumptions

	# of Housing Units	# of Employees
	Housing Units	Employment Targets
2020	2,926	1,568
2044	3,714	1,681

Forecast Intersection LOS

Based on the land use assumptions, an annual growth rate in traffic volumes was calculated at 1.3 percent. Given that the analysis in the 2016 comprehensive plan update used a 0.5 percent annual growth rate, the calculation used within this analysis is likely conservative. Forecast 2044 PM peak hour LOS for signalized intersections were calculated and are shown in Figure 7. All signalized intersection PM peak hour LOS are expected to decrease moderately between 2023 and 2044. In 2023, there were no signalized intersections operating at either LOS E or F, with the maximum overall LOS expected to be LOS B. By 2044, only one intersection is expected to degrade below the City's LOS D standard. The intersection of Alameda Avenue and Regents Boulevard is expected to reach LOS F (assuming no improvements).

Figure 7 Forecast 2044 PM Peak Hour Intersection Level of Service



Active Transportation Network Plan

Bicycle and pedestrian facilities play an important part in the City's transportation network. The City's active transportation system is comprised of facilities that promote mobility without the aid of motorized vehicles. A well-established system encourages healthy recreational activities, reduces vehicle demand on City roadways, and enhances safety within the community. The pedestrian system is shown in Figure 8, while the bicycle system plan is shown in Figure 9.

The active transportation networks contain a series of Primary or Secondary Routes. Corridors identified as Primary or Secondary Routes are not indicative of a hierarchy for future active transportation facility development, rather they are used to make a distinction between routes that are more regional or that extend completely through the community (primary), and those that serve to make the second leg of the journey to connect to destinations, extend into neighborhoods, or complete a loop (secondary). The future primary and secondary corridors were used to identify and develop the long-term multimodal project list.

Figure 8 Pedestrian System Plan

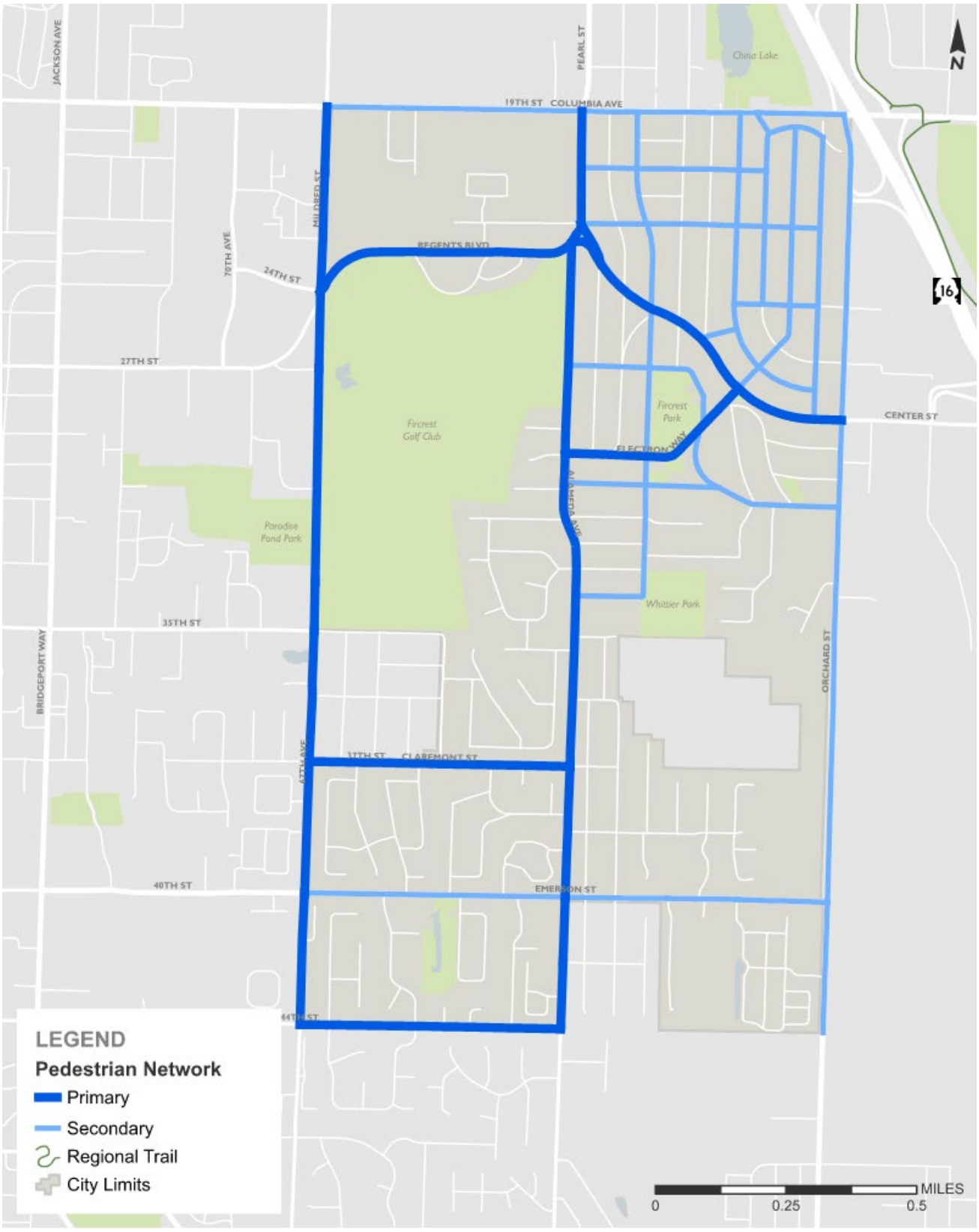
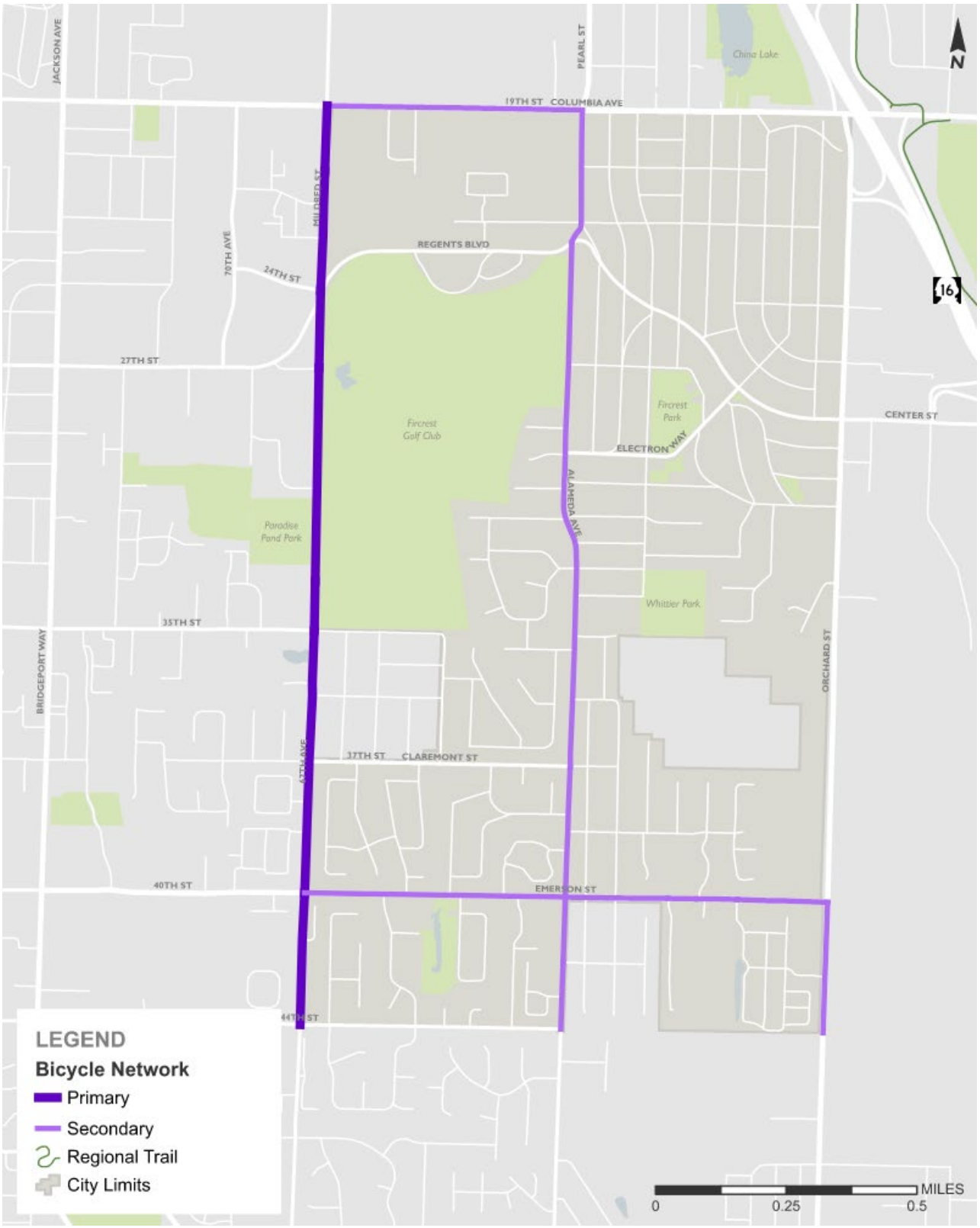


Figure 9 Bicycle System Network



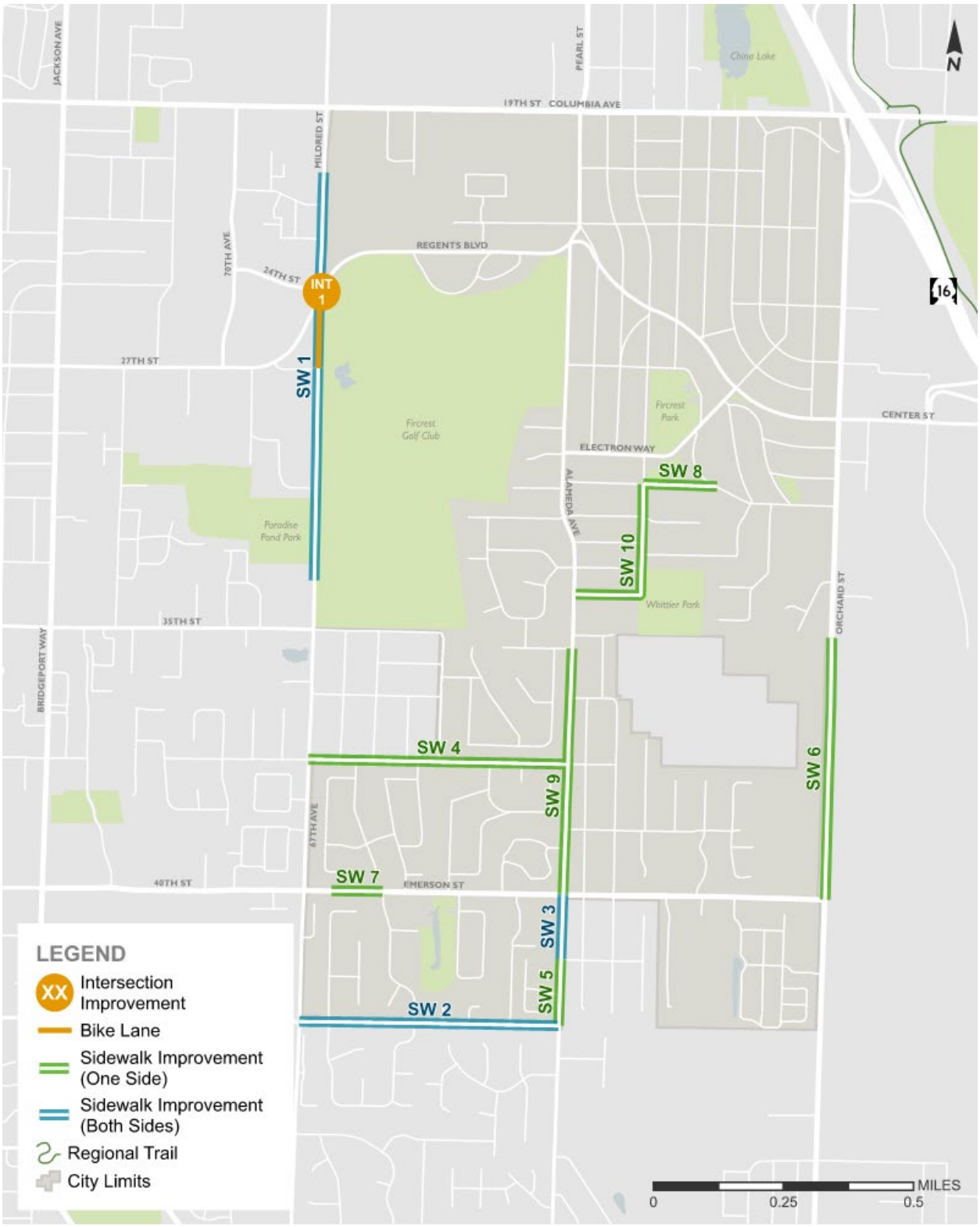
Over the next twenty years, increases in population and employment within Fircrest and surrounding communities will increase demand on the transportation system. Based on the evaluation of forecast traffic volumes, traffic operations, safety, and gaps within the active transportation network, a recommended list of transportation improvement projects were identified. The location, extent, and type of projects are shown in Figure 10. Additional information, including planning level cost estimates, are shown in the following table.

Table 3 Transportation Improvement Projects

Map ID	Title and Location	Description	Project Cost
INT-1	Alameda Avenue and Regents Boulevard Intersection Improvements	Install roundabout to provide for improved operations, safety, and access management. This includes installation of a bike lane on 67th Avenue W to connect the existing bike lanes through the Alameda/Regents Blvd intersection to the bike lanes on Mildred St W.	$7,000,000
SW-1	67th Ave / Mildred St Sidewalks	Add curb, gutter and sidewalk to both sides of Mildred St / 67th Ave	$1,680,000
SW-2[a]	Fordham Street Sidewalks	Add curb, gutter and sidewalk to both sides of Fordham Street between 67th Ave and Alameda Ave	$1,129,000
SW-3[b]	Alameda Ave Sidewalks	Add curb, gutter and sidewalk to both sides of Alameda Ave between Emerson St and Cypress Point Ave	$255,000
SW-4	Claremont St Sidewalks	Add curb, gutter, and sidewalk to north side of Claremont St between 67th Ave and Alameda Ave	$535,000
SW-5	Alameda Ave Sidewalks	Add curb, gutter, and sidewalk to east side of Alameda Ave between Cypress Point and Fordham St	$137,000
SW-6	Orchard St Sidewalks	Add curb, gutter, and sidewalk to west side of Orchard Street between Emerson St and existing sidewalks south of S 34th St	$539,000
SW-7[c]	Emerson St Sidewalks	Add curb, gutter, and sidewalk to south side of Emerson St between existing sidewalk east of 67th Ave and Woodside Drive	$453,000
SW-8	Ramsdell St Sidewalks	Add curb, gutter, and sidewalk to north side of Ramsdell street between Conta Cost Ave and Pasadena Ave	$150,000
SW-9[d]	Alameda Ave Sidewalks	Add curb, gutter, and sidewalk to east side of Alameda Ave between Emerson St and Rosewood Ln	$500,000
SW-10	Elm Tree Ln / Consta Costa Ave Sidewalks	Add curb, gutter, and sidewalk to north side of Elm Tree Lane and east side of Conta Costa Ave	$367,000

a. Included as project 8 on Fircrest's 2023-2028 TIP
b. Included as project 7 on Fircrest's 2023-2028 TIP
c. Included as project 10 on Fircrest's 2023-2028 TIP
d. Included as project 9 on Fircrest's 2023-2028 TIP

Figure 10 Long Term Transportation Improvement Projects



These strategies will require close coordination with surrounding jurisdictions (Tacoma and University Place), Pierce Transit, and other agencies. Arterials located on the perimeter of Fircrest – 19th Street West, South Orchard Street, and 67th Avenue West (Mildred Street) -- are partly or entirely under the jurisdiction of either Tacoma or University Place. Arterial intersections may have shared jurisdiction with two or even three cities (e.g., 19th and Mildred Streets) as do numerous arterial/local street intersections.

Transit Improvements

Proposed business strategies, capital projects, service changes, and capital facility improvements or investments over the next six years are documented in Pierce Transit's Transit Development Plan, which is updated and submitted to WSODT annually. The agency's current TDP does not include any proposals for specific service modifications or facility improvements in Fircrest. However, future capital improvements and route expansion within or adjacent to Fircrest may occur in high need areas and in conjunction with new mixed-use and residential development activity. Development proposals that will generate significant new demand for transit services may be required by Pierce Transit to mitigate impacts from increased demand by funding transit shelters and supportive facilities near the development.

Air, Waterborne, Rail Improvements

None of the regional air, marine, or rail facilities has a significant impact on the Fircrest transportation system.

TRANSPORTATION DEMAND MANAGEMENT

Transportation demand management (TDM) strategies can help create or preserve existing capacity of roadways by reducing demand, thereby deferring, or negating the need for capacity improvements. Examples of TDM strategies include:

- Developing a comprehensive transit information program with Pierce Transit,
- Working with Pierce Transit to develop vanpool and ride match services and increase the availability of transit, including the frequency of service and number of routes serving the city.
- Providing a continuous system of walkways and bikeways servicing the community and connecting it with nearby activity centers.
- Providing facilities and services that make multi-modal travel more convenient, e.g., covered transit stops, provisions for bicycles on transit vehicles, and shuttle services to transit centers.
- Actively promoting commute trip reduction practices, including complying with the requirements of the State Commute Trip Reduction (CTR) Act for larger employers and encouraging smaller employers to promote commuter trip reduction practices in the workplace through employee incentives for using high occupancy vehicles, preferential parking for high occupancy vehicles, improved access for transit vehicles, compressed work weeks, flexible work hours, and telecommuting.
- Using traffic calming strategies to reduce vehicular speeds and enhance the safety of pedestrians and bicyclists, thereby maximizing pedestrian and bicycle mobility. Examples of traffic calming strategies include the use of raised crosswalks, roundabouts, traffic circles, medians (especially near intersections), narrow driving lanes, interrupted sight lines, narrow distance between curbing to create "neck-downs" or "chokers/bulb-outs" (curb extensions), textured pavement, and neighborhood speed watch programs.

TRANSPORTATION SYSTEMS MANAGEMENT

Transportation Systems Management (TSM) strategies focus on improving the operations of the existing roadway system. Maximizing the efficiency of the existing system can reduce or delay the need for system improvements. TSM strategies include:

- Coordination of traffic signal timing.
- Traffic control devices at highly congested intersections.
- Implementing intersection improvements to facilitate turning movements.
- Access restriction along principal roadways.

- Implementing a signal retiming and coordination project to reduce delay and congestion at the City's signalized intersections as major improvements are implemented.

FUNDING CAPABILITY AND RESOURCES

The Growth Management Act (RCW 36.70A.070(6)) requires local comprehensive plans to include a multi-year transportation financing plan for how the jurisdiction will meet the mobility needs identified for the planning period. This financing plan serves in part as the basis for the City's Six-Year Transportation Improvement Program.

GMA requirements regarding the financing and funding of transportation-related improvements are addressed in the Capital Facilities Element and goals and policies of this Comprehensive Plan. The Six-Year Transportation Facilities Improvements schedule contained in the Capital Facilities Element extends through 2035, Fircrest's 20-year planning horizon, to provide information for the City's multi-year transportation financing plan. This information includes a list of investments to meet transportation needs over the planning period, estimated costs for those investments, and estimated probable revenues available to Fircrest. Potential funding sources are summarized below and in the Capital Facilities Element.

Funding Sources

Transportation funding comes from a variety of local, regional, state, and federal sources. Funding sources can be divided into four primary categories: developer, local, state, and federal. Some state and federal funds are allocated to PSRC, the region's Metropolitan Planning Organization, which then disperses the funds through grants and other programs.

Developer Funding

While Fircrest does not currently collect impact fees, it should consider transportation impact fees. As new development occurs, transportation impacts associated with the development shall be mitigated by the developer. Transportation mitigation typically includes intersection improvements, road widening, new or extended turn lanes, sidewalks, bike lanes and other improvements. These mitigation measures must be in place or provided concurrent with development to maintain adopted LOS.

Local Funding Sources

Arterial Street Fund

The City receives a proportionate share of the State Motor Vehicle Fuel Tax, based on the population. The exact amount varies depending on the amount of fuel sold in the State.

General Fund

The General Fund is supported primarily from local taxes to provide governmental services such as police protection, jail services, court services, parks maintenance, recreation programs, building inspections, planning and zoning, construction and maintenance of streets, and general government administration.

Surface Water Management Funds

The City collects a surface water management fee on each City parcel to finance surface water and storm drainage elements of various road improvement projects. In addition, the City uses revenues from the Surface Water Management Fund to finance capital improvement surface water and storm drainage projects.

Real Estate Excise Tax

The Real Estate Excise Tax is levied on all sales of real estate, measured by the full selling price. The City has authorized a locally imposed tax of 0.5%, in two 0.25% increments. These revenues are restricted to financing capital projects as specified in the City's Capital Improvements Program.

STATE FUNDING SOURCES

State funding programs are administered to counties and cities through a variety of state programs summarized below.

Transportation Improvement Board (TIB)

The Washington State Transportation Improvement Board (TIB) funds high-priority transportation projects in communities throughout the state to enhance the movement of people, goods, and services. TIB is an independent state agency, created by the Legislature, which distributes and manages street construction and maintenance grants to 320 cities and urban counties throughout Washington State. Funding for TIB's grant programs comes from revenue generated by three cents of the statewide gas tax.

The TIB has several statewide competitive programs which use criteria developed by the TIB for the prioritization of projects. The three TIB programs in which the City of Fircrest can compete are as follows:

Urban Corridor Program (UCP)

This program is for transportation projects with a primary emphasis on public/private cooperation and economic development.

Urban Arterial Program (UAP)

This program is for arterial street construction with a primary emphasis on safety and mobility. This program is being utilized to apply for funding to Grind and Overlay southbound So Orchard St from Regents to the City line.

Active Transportation Program (ATP)

This program is for the improvement of pedestrian safety, and to address pedestrian system continuity and connectivity. The City has applied for grant from both the SRTS Program and PBP for funding of sidewalk installations on westbound 44th St W from Rainier Dr to 67th Ave W and southbound Alameda Ave from Emerson to Fircrest Greens across from Cypress Point Ave.

Safe Routes to School

The purpose of the Safe Routes to School Program is to improve safety and mobility for children by enabling and encouraging them to walk and bicycle to school. Funding from this program is for projects within two-miles of primary, middle and high schools (K-12). Funded by both federal and state funds.

Pedestrian and Bicycle Safety

The purpose of the Pedestrian and Bicycle Program is to improve the transportation system to enhance safety and mobility for people who choose to walk or bike.

Federal Funding Sources

Federal programs are currently funded under the Infrastructure Investment and Jobs Act (IIJA), commonly known as the Bipartisan Infrastructure Law, and are administered by the Highways and Local Programs Division of the Washington State Department of Transportation (WSDOT), in conjunction with PSRC and the Regional Federal Highway Engineer.

CMAQ

The Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds transportation programs and projects that will, or are likely to, contribute to attainment of a National Air Quality Standard. WSDOT is required to consult with the Environmental Protection Agency to determine whether a transportation project or program will contribute to attainment of standards unless such project or program is included in an approved State implementation plan. CMAQ funds cannot be used on projects resulting in the construction of new capacity available to single-occupant vehicles unless they are available to single-occupant vehicles at other than peak travel times. Allocation for CMAQ funds will follow the same criteria as Surface Transportation Program (STP) funds. To be eligible for funding under this program, a project must be on the Regional Transportation Improvement Program (TIP) list and rank high enough on the region's priority array. Funding is based on a Federal share of 86.5 percent, with a 13.5 percent local match.

Surface Transportation Block Grant

The objective of the Surface Transportation Block Grant (STBG) is to fund construction, reconstruction, resurfacing, restoration, and rehabilitation of roads that are not functionally classified as local or rural minor collectors. STBG also supports funding for transportation enhancements, operational improvements, highway and transit safety improvements, surface transportation planning, capital and operating cost for traffic management and control, carpool and vanpool projects, development and establishment of management systems, participation in wetland mitigation and wetland banking, bicycle facilities and pedestrian walkways.

STP funds have regional allocation through PSRC. The PSRC sub-allocates funds by County region, based on the percentage of the population. Pierce County, as a region, will receive an allocation of 21 percent from STP funds allocated to the PSRC. The Puget Sound Region is formed by the counties of King, Kitsap, Pierce, and Snohomish. To be eligible for funding under this program, a project must be on the Regional TIP list and rate high enough within the region's priority array. Funding is based on a federal share of 86.5 percent, with a 13.5 percent local match.

Safe Streets Four All (SS4A)

The Bipartisan Infrastructure Law (BIL) established the Safe Streets and Roads for All (SS4A) discretionary program with $5 billion in appropriated funds over 5 years, 2022-2026. The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries.

The SS4A program supports the U.S. Department of Transportation's National Roadway Safety Strategy and our goal of zero roadway deaths using a Safe System Approach.

The program supports the development of a comprehensive safety action plan (Action Plan) that identifies the most significant roadway safety concerns in a community and the implementation of projects and strategies to address roadway safety issues. Action Plans are the foundation of the SS4A grant program. SS4A requires an eligible Action Plan be in place before applying to implement projects and strategies. The SS4A program provides funding for two types of grants:

Planning and Demonstration Grants provide Federal funds to develop, complete, or supplement a comprehensive safety action plan. The goal of an Action Plan is to develop a holistic, well-defined strategy to prevent roadway fatalities and serious injuries in a locality, Tribe, or region. Planning and Demonstration Grants also fund supplemental planning and/or demonstration activities that inform the development of a new or existing Action Plan. The Department encourages including demonstration activities in an application.

Implementation Grants provide Federal funds to implement projects and strategies identified in an Action Plan to address a roadway safety problem. Projects and strategies can be infrastructure, behavioral, and/or operational activities. Implementation Grants may also include demonstration activities, supplemental planning, and project-level planning, design, and development. Applicants must have an eligible Action Plan to apply for Implementation Grants. The Department encourages including demonstration activities in an application.

Reassessment

The GMA requires that Fircrest reassess its plans to align them with available revenue if the City's financial analysis shows that revenue is inadequate to support transportation needs. Reassessment should occur as part of the eight-year periodic review process and should include:

- Comparison of actual levels of service to adopted levels of service.
- Updated revenue forecasts.
- Evaluation of progress in implementing the Transportation Element to show that the community is making progress toward construction of projects and implementation of policies identified in the Transportation Element.

APPENDIX E: CAPITAL FACILITIES

List of Figures

Figure 1 2025-2030 Transportation Projects Map 232

List of Tables

Table 1 Tacoma School District Projected Capacity Needs 2
Table 2 Capacity and Level of Service 3
Table 3 Park, Recreation and Open Space Facilities 4
Table 4 Summary of LOS Standards 6
Table 5 Six-Year Transportation Improvement Plan 225
Table 6 Sanitary Sewer Project List 12
Table 7 Water Capital Project List 13

This Appendix provides additional information and context to the goals and policies of the Capital Facilities Element.

CAPITAL FACILITIES INVENTORY

Public Schools, Land, and Buildings

Capital facilities in Fircrest that are not associated with utilities, transportation, or parks, recreation, and open space consist of public schools and Fircrest-owned land and buildings. This section provides basic information about those facilities. All the facilities discussed in this Element are owned and operated by Fircrest except school facilities. Information about school facilities is included to ensure that all capital facilities owned by public entities are addressed. Information about school facilities is based on school district capital facilities plans and other documentation.

PUBLIC SCHOOLS

Tacoma Schools

The Tacoma School District serves a large portion of the City of Fircrest. Whittier Elementary, located at 777 Elm Tree Lane, provides classrooms and other facilities for grades preschool through 3. A second school, Wainwright Intermediate School (the first of its kind), opened in 2016 and houses grades 4-8.

The Tacoma School District serves a large portion of the City of Fircrest. Whittier Elementary, located at 777 Elm Tree Lane, provides classrooms and other facilities for grades preschool through 3. A second school, Wainwright Intermediate School (the first of its kind), opened in 2016 and houses grades 4-8.

The Tacoma School District determines level of service (LOS) standards for the three school types in the district: 1) elementary schools; 2) middle schools; and 3) high schools. The Tacoma School District's 2014-2019 Capital Facilities Plan (CFP), dated June 10, 2014, identifies for each type of school, student capacity (with and without portables), existing LOS standards (with and without portables), as well as a recommended LOS for each school type. Six-Year needs, Six-Year funding and projects, a rolling capacity balance sheet, and operating and maintenance costs for both the current inventory and proposed projects are all included.

Existing Inventory

An inventory of Tacoma schools is contained within the Tacoma School District 2014- 2019 CFP. The CFP indicates that the District operates 35 elementary schools, nine middle schools and eight high schools. For detailed information about these schools, refer to the Tacoma School District CFP.

Future Needs

The Tacoma School District CFP has calculated Six-Year capacity needs for each school type based on recommended LOS. These are summarized in Table 1.

Table 1 Tacoma School District Projected Capacity Needs

School Type	Year 2019 (Demand)	Square Feet Required
Elementary School (1)	15,834	1,425,060
Middle School (2)	6,375	658,570
High School (3)	7,589	936,970

(1) Recommended LOS of 90 sq. ft. per student (K-5)
(2) Recommended LOS of 90 sq. ft. per student (grade 6), 110 sq. ft. (grades 7-8)
(3) Recommended LOS of 110 sq. ft. per student (grade 9), 130 sq. ft. (grades 10-12)

Proposed Location and Capacities

The Tacoma School District's 2014-2019 CFP identifies proposed projects over a Six-Year period for each school type. Nine elementary school (ES) replacement projects are planned as well as the replacement of Fircrest's Wainwright Elementary School with an elementary/middle school (4-8 grades), historic modernization of McCarver ES, historic modernization and additions to Stewart Middle School (MS), and replacement of Hunt MS, modernization and additions to Wilson High School (HS), and modernizations and additions to SAMI HS. Completion of these projects should leave a net reserve of 766,648 square feet.

The District proposes the development of no new middle schools. However, as noted above, a new elementary/middle school would be established on the site of Wainwright ES, and two existing middle schools, Stewart and Hunt, would be replaced. Completion of these projects would result in a year 2019 net reserve of 427,903 square feet.

The Tacoma School District's capacity balance sheet for high schools indicates that with Wilson and SAMI High School modernizations, a net reserve of 492,924 square feet is projected for the year 2019.

Six-Year Funding Plan

Six-Year funding plans are included in the Tacoma School District's CFP for each school type. Six-Year operation and maintenance cost schedules by school type have also been prepared. The District will rely upon State matching funds, remaining levy funds, 2013 Capital bond funds, impact fees through voluntary agreements, and impact fees by ordinance, to fund school improvements. For elementary schools, the District anticipates an approximate total of $307,800,000 from funding sources, $118,500,000 for middle schools, and $81,500,000 for high schools.

University Place Schools

University Place School District has no facilities within Fircrest. The district has completed a series of capital improvements district-wide that were designed to meet projected build- out demand as well as current demand at the district's recommended levels of service.

Fircrest students who attend University Place schools typically attend the neighborhood schools listed in the following table. Each school's capacity and the district's levels of service are provided in Table 2.

Table 2 Capacity and Level of Service

Facility	Capacity and Recommended Level of Service
Evergreen Primary Grades kindergarten through 4	Evergreen School capacity is 572 students. The district's recommended level of service is 20-24 students per classroom in Kindergarten to 4th grade.
Narrows View Intermediate Grades 5 through 7	Narrows View School capacity is 702 students. The district's recommended level of service is 24-26 students per classroom.
Curtis Junior High Grades 8 through 9	Curtis Junior High School capacity is 1,000 students. The district's recommended level of service is 26-28 students per classroom and 1,000 students on a 20-acre site.
Curtis Senior High Grades 10 through 12	Curtis Senior High School capacity is 1,600 students. The district's recommended level of service is 26-28 students per classroom.

FIRCREST-OWNED LAND AND BUILDINGS

Fircrest owns a number of tracts of land for the purpose of delivering urban services. The table below summarizes information about Fircrest's land, buildings and other facilities. Park, recreation, and open space facilities are noted in Table 3 and described in greater detail in the City of Fircrest PROS Plan.

Table 3 Park, Recreation and Open Space Facilities

Location, Size, and Use	Improvements
302 Regents Blvd. Approximately 0.5 acres Public Safety Building	Existing: This 9,750 sq. ft. building was completed in 1979 and is shared by the Fircrest Police Department and Tacoma Fire Department. The first floor (5760 sq. ft.) is mostly dedicated for fire purposes including 3 bays for fire apparatus, exception for the Police Department offices. The basement area (3,176 sq. ft.) is mostly dedicated to police uses, including a four-stall parking garage. Parking for employees and visitors is provided on site. The Tacoma Fire portion was remodeled in 1995. Planned: There are no plans to remodel or add facilities to the Public Safety Building at this time.
115 Ramsdell Street Approx. 1.44 acres City Hall	Existing: The building, which is approximately 7,800 sq. ft., serves as City Hall, Municipal Court, and Administrative Offices. It was built in 1998 and replaced the prior City hall building on the site. Parking for employees and visitors is provided on the building site and the south side of Ramsdell Street. Planned: There are no plans to remodel or add facilities to the City Hall at this time.
120 Ramsdell Street 7.07 acres Public Works Building, 1 water well (well 4)	Existing: The 3,600 sq. ft. public works building with offices, meeting rooms, showers, and shared office facilities was completed in 1993. Associated with the building are two 2,400 sq. ft. enclosed vehicle/equipment storage bays and four 4,800 sq. ft. open bays. Planned: There are no plans to remodel or add facilities to the Public Works Building at this time.
Pierce County Parcel 668000-001 (Paradise Parkway Lot 1, Block 1) Pierce County Parcel 0220143-008 (1500 block of Alameda Ave) Pierce County Parcel 0220113-001 (Property owned by Fircrest Golf Club) Orchard and 25th Street (Located outside of City boundaries; Access to site is via 25th Street). Pierce County Parcel 7160200370	These tracts are improved as described: Contains water wells 6 and 7 Contains water well 8 Contains one water tank Contains two water tanks (one high, one low) Contains water well 9 (located in Masko Park)

Location, Size, and Use	Improvements
805 San Juan Avenue 1.2 acres Masko Park Special Use Area	Existing: Veterans Memorial Garden, Rhododendron Garden, and Seabrook Specialty Garden. Planned: See PROS Plan.
601 San Juan Avenue 0.2 acres Alice Peers Park Pocket Park	Existing: City of Fircrest flagpole, rose garden, and community message board. Planned: See PROS Plan.
611 Contra Costa Avenue 1.4 acres Gene Goodwin Tot Lot Neighborhood Park	Existing: Tot Lot contains children's play area with pre- school play opportunities, playground equipment, large sand area, restrooms, lawn and picnic area. The park also has three tennis courts with fencing separation between the children's playground area and the active courts. Planned: See PROS Plan.
545/555 Contra Costa Avenue 7.8 acres Roy H. Murphy Community Center/Fircrest Park	Existing: Community Center, seasonal swimming pool and wading pool, Ron Russo Pavilion group picnic shelter, sports fields for soccer and
Community Park	ball games, and open space for annual community events. The park maintenance facility is located onsite, as is limited parking. Planned: See PROS Plan.
921 Contra Costa Avenue 10.0 acres Whittier Park Community Park	Existing: Baseball field, softball field, two soccer fields, three outdoor tennis courts, basketball court, group picnic shelter, restrooms, Bocce courts and nature trail. Planned: See PROS Plan.
1404 Evergreen Drive 6.5 acres Thelma Gilmur Park Natural Open Space	Existing: Mostly undeveloped with a designated wetland. Nature trails bisect the forested hillside on the eastern edge of the site and the native plant-dominated upland area abutting the centrally located wetland. Planned: See PROS Plan.

LEVEL OF SERVICE STANDARDS

In order to determine existing capacity and future capital improvement needs, level of service standards are required. Level of service (LOS) standards are an indicator of the extent or degree of service provided by, or proposed to be provided by, a facility or improvement. These levels of service, the land use vision, or the capital facilities program may need to be modified in the future in response to changing community expectations or vision, revenue shortfalls, or unforeseen or emergency expenditures.

It is important to note that the level of service standards listed below should be considered minimums. Future capital improvements are not limited to meeting these standards, and in some cases the City may choose to exceed these standards.

The City's 2021 Comprehensive Water System Plan Update, 2002 Comprehensive Sewer System Plan, and 2014 PROS Plan contain capital and non- capital improvements that exceed the level of service standards. These plans contain additional projects and improvements that although desirable for the community are not essential to the day-to-day operation of the City. Table 4 identifies level of service standards that are used to determine what capital improvements are essential to the community.

Table 4 Summary of LOS Standards

Facility/Improvement	Level of Service Standard
Fire/EMS	4-minute response time
Law Enforcement	1.33 uniformed commissioned officers/1000 population
Parks/Open Space	See PROS Plan for each type of facility
Power (electric)	Undergrounding for new facilities; National Electric Code and Washington State Electric Code; LOS as adopted by Tacoma Power
Schools	LOS as adopted by Tacoma Public School and University Place School Districts
Sanitary Sewer	220 gpd/eru
Stormwater	Department of Ecology Stormwater Management Manual for Western Washington – Latest Adopted Version
Streets (arterial)	LOS "D"
Streets (collector/local)	FMC Chapters 22.22 and 22.64
Water (supply service)	230 gpd/eru
Water (fire flow)	1000 gpm @ 20 psi for residential; 2500 gpm @ 20 psi for non-residential

Facility/Improvement	Level of Service Standard
Note: For additional detailed information on existing and proposed levels of service and LOS standards, please see the Transportation, Utilities, and Park, Recreation and Open Space Elements, and specific facility plans referenced in this Comprehensive Plan.	

CURRENT AND POSSIBLE FUNDING SOURCES

This section of the Capital Facilities Element describes the current budgeted sources of City revenue for the General Fund. The possible funding sources listed within this Element are subject to change and should be periodically reviewed for applicability and appropriateness for the City. Additional sources in other funds will also be used in the Six-Year Capital Improvement Program.

Possible Funding Sources

The following are major sources of funding that could be explored to meet existing and projected capital improvement needs. These funding sources are divided into the following categories, with the more common funding sources within each of these categories described in greater detail in the following pages.

- Debt Financing
- Local Multi-Purpose Levies
- Local Single Purpose Levies
- Local Non-Levy Financing Mechanisms
- State Grants and Loans
- Federal Grants and Loans
- Utility Rates

DEBT FINANCING

- Short-Term Borrowing: The extremely high cost of many capital improvements requires local governments to occasionally utilize short-term financing through local banks.
- Revenue Bonds: Bonds financed directly by those benefiting from the capital improvement. Revenue obtained from these bonds is used to finance publicly owned facilities. The debt is retired using charges collected from the users of these facilities. In this respect, the capital project is self-supporting. Interest rates tend to be higher than for general obligation bonds, and issuance of the bonds may be approved without a voter referendum.
- General Obligation Bonds: Bonds backed by the value of the property within the jurisdiction. Voter-approved bonds increase property tax rates and dedicate the increased revenue to repay bondholders. Councilmanic bonds do not increase taxes and are repaid with general revenues. Revenue may be used for new capital facilities, or maintenance and operations at existing facilities. These bonds should be used for projects that benefit the city.

Local Multipurpose Levies

- Ad Valorem Property Taxes: (Tax rate in mills (1/10 cent per dollar of taxable value). The maximum rate is $3.75 per $1,000 assessed valuation. The city is prohibited from raising its levy more than 1% of the highest amount levied in the previous year, before adjustments for new construction and annexation. A temporary or permanent excess levy may be assessed with voter approval. Revenue may be used for new capital facilities, or maintenance and operations of existing facilities.
- Local Option Sales Tax: Retail sales and use tax of up to 1%.
- Real Estate Excise Tax (REET): REET 1 authorizes a 0.25% tax on each sale of real property and the Growth Management Act authorized another 0.25%. Revenues must be used solely to finance new capital facilities, or maintenance and operations of existing facilities, as specified in the Capital Facilities Element.
- Utility Tax: A tax assessed on the gross receipts of electric, gas, telephone, water, sewer, stormwater utilities, cable TV and solid waste services. Revenue may be used for new capital facilities, or maintenance and operations of existing facilities.

Local Single Purpose Levies

- Emergency Medical Services Tax: Property tax level of $0.50/1,000 assessed valuation for emergency medical services. Revenue may be used to offset the costs of emergency medical services provided by the Tacoma Fire Department.
- Motor Vehicle Fuel Tax: Tax paid by gasoline distributors. Local jurisdiction receives a percentage of total tax receipts. Shared revenue is distributed by the State of Washington. Revenues must be spent for highway construction, maintenance, or operation; policing of local roads; or related activities.
- Zoo Tax: A Countywide voter approved tax equivalent to one-tenth of 1% sales and use tax to provide funds for capital and operating costs for parks and nationally accredited zoos, aquariums and wildlife preserves pursuant to RCW 82.14.400. Fifty percent is authorized for Point Defiance Zoo and Northwest Trek. The remainder is distributed on a per-capita basis for parks to Pierce County (with a required match), Tacoma Metropolitan Park District, and each city and town in the county (except Tacoma).

Local Non-Levy Financing Mechanisms

- Fines, Forfeitures, and Charges for Services: This includes various administrative fees and user charges for services and facilities operated by the jurisdiction. Examples are franchise fees, sales of public documents, permits, sale of public property, and all private contributions to the city. Revenue from these sources may be restricted in use.
- Impact Fees: These fees are paid by new development based upon its impact to the delivery of services. Impact fees must be used for capital facilities needed by growth, not for current deficiencies in levels of service, and cannot be used for operating expenses. These fees must be equitably allocated to the specific entities that will directly benefit from the capital improvement, and the assessment levied must fairly reflect the true costs of these improvements. Impact fees may be imposed for public streets, parks, open space, recreational facilities, school facilities, and fire protection facilities.
- Reserve Funds: Revenue that is accumulated in advance. Sources of funds can be surplus revenues, funds in depreciation reserves, or funds resulting from the sale of capital assets.

- Special Assessment District: District created to service entities completely or partially outside of the jurisdiction. Special assessments are levied against those who directly benefit from the new service or facility. Includes Local Improvement Districts (LIDs), Road Improvement Districts, Utility Improvement Districts, and the collection of development fees. Funds must be used solely to finance the purpose for which special assessment district was created.
- Special Purpose District: District created to provide a specified service. Often the district will encompass more than one jurisdiction. Includes districts for fire facilities, hospitals, libraries, metropolitan parks, airports, ferries, parks and recreation facilities, cultural art/stadiums/ convention centers, sewers, water flood control, irrigation, and cemeteries. Voter approval required for airports, parks and recreation facilities, and cultural art/ stadiums/convention center districts. The district has authority to impose levies or charges. Funds must be used solely to finance the purpose of which the district was created.
- User Fees, Program Fees, and Tipping Fees: Fees or charges for using park and recreational facilities, solid waste disposal facilities, sewer and water services, surface water drainage facilities. Fee may be based on measure of usage, flat rate, or design features. Revenue may be used for new capital facilities, or maintenance and operations of existing facilities.

State Grants and Loans

- Community Development Block Grants: Grant funds available for public facilities, economic development, housing, and infrastructure projects that benefit low- and moderate-income households. Grants distributed by the Department of Community, Trade and Economic Development primarily to applicants who indicate prior commitment to a project. Revenue restricted in type of project and may not be used for maintenance and operations.
- Drinking Water State Revolving Fund (DWSRF): The Drinking Water State Revolving Fund loan is an agreement entered into between the City and the State of Washington, and the Public Works Board, acting through the Department of Community Trade & Economic Development. Funds for the loan are provided by the United States Environmental Protection Agency, CFDA No. 66.468, Title: Safe Drinking Water State Revolving Fund. The loan funds local improvement projects that further the goals and objectives of the Washington State Drinking Water State Revolving Loan Fund Program.
- Recreation and Conservation Office: Administers several grant programs for outdoor recreation and habitat conservation purposes. Each grant program requires that monies be spent for specific types of projects. The program requires sponsors to complete a systematic planning process prior to seeking IAC funding. IAC has grant limits on most of its programs, and also encourages and often requires sponsors to share in the project's cost. Grants are awarded by the Committee based on a public, competitive process that weighs the merits of proposed projects against established program criteria.
- Public Works Trust Fund: Low interest loans to finance capital facility construction, public works emergency planning, and capital improvement planning. To apply for the loans, the city must have a Capital Facilities Element in place and must be levying the original .25% REET authorized for capital facilities. Funds are distributed by the Department of Commerce. Loans for construction projects require matching funds generated only from local revenues or state shared entitlement revenues.

- Transportation Improvement Account: Revenue available for projects to alleviate and prevent traffic congestion caused by economic development or growth. Entitlement funds are distributed by the State Transportation Improvement Board subject to a percentage match. Revenue may be used for capital facility projects that are multi-modal and involve more than one agency.
- Water Pollution Control State Revolving Fund: Low interest loans and loan guarantees for water pollution control projects. Loans distributed by the Department of Ecology. Applicant must show water quality need, have a facility plan for treatment, and show a dedicated source of funding for repayment.

Federal Grants and Loans

- Congestion Mitigation/Air Quality: Established under the ISTEA Section 1009. The purpose of the program is to fund transportation projects and programs that will contribute to attainment of National Ambient Air Quality Standards. Federal participation for most CM/AQ projects is 80 percent, which increased to 86.50 percent due to public lands adjustments. Federal participation can be 90 percent for some activities that are on the Interstate system. Pedestrian and bicycle activities are limited to 80 percent federal participation.

Utility Rates

- Utility Rates: Revenues for replacement and repair of existing capital improvements and for new capital improvements can be collected through utility rates.

SIX-YEAR CAPITAL IMPROVEMENT PROGRAM

This section of the Capital Facilities Element determines whether sufficient revenue will be available under the current budgeting assumptions to fund needed capital improvements. It provides an analysis of revenue sources available for capital improvements and balances these revenues against anticipated expenditures for capital improvements. Using this process, the City can estimate annual revenue surpluses and shortfalls. Proposed funding sources for currently unfunded capital projects have also been provided.

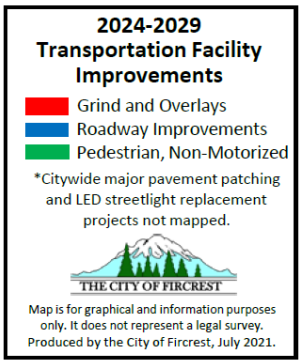
The improvements schedules provided in the following pages set forth each capital project that the City intends to construct over the next six years and presents estimates of the resources needed to finance the projects. The schedules will reflect the goals and policies of the Capital Facilities Element and the other elements of the Comprehensive Plan. The first year of the schedules will be included within the annual capital budget, while the remaining five-year programs will provide long-term planning. The Six-Year Capital Improvement Program is a rolling plan that will be revised and extended annually to reflect changing needs and aspirations of the community, revenue projections, implementation of utility, transportation, and park, recreation and open space plans, and changing circumstances. Improvement schedules are included for the following facilities:

- Transportation
- Sanitary sewer
- Stormwater management
- Water
- Parks, recreation, and open space

The Transportation schedule extends through 2030, Fircrest's 20-year planning horizon, to provide additional information required under RCW 36.70A.070(6) for the City's multi-year transportation financing plan.

Table 5 Sanitary Sewer Project List

Year	Project Type	Lineal Feet	Pipe Diameter	Project Name
2000	Dig In	450	8" SDR 35	Harvard - Regents/Farollone
2001	Lift Station			44th St/67th Ave W - Upgrade
2003	Dig In	900	8" SDR 35	500 Block Berkeley Ave
2003	Dig In	1680	8" SDR 35	100-300 Block Berkeley Ave
2003	Dig In	240	8" SDR 35	600 Block Regents
2005	Dig In	260	8" SDR 35	700 Block Fir Park Lane - Sewer Rebuild / Redirected Service Line
2005	Dig In	200	8" SDR 35	400 Block Del Monte
2005	Dig In	1670	8" SDR 35	Princeton St from Arondale to Contra Costa
2006	Dig In	900	8" SDR 35	Ramsdell from Contra Costa to Alameda
2007	Dig In	460	8" SDR 35	Dartmouth from Del Monte to Contra Costa
2007	Dig In	235	8" SDR 35	1200 Block Berkeley - Claremont to 1209 Berkeley Ave
2007	Dig In	350	8" SDR 35	Electron from Tennis Courts to Pasadena
2007	Dig In	700	8" SDR 35	San Juan Ave 660ft from Ramsdell to Cornell Manhole to Amherst St
2008	Lift Station			Contra Costa Improvement - Rebuild
2011	Dig In	360	8" SDR 35	400/500 Block Columbia - New Main Connecting to China Lake Lift Station
2012	Pipe Burst	1000	8" HDPE	400 Block Alameda/Buena Vista
2013	Lift Station			Princeton St - New
2013	Dig In	1080	8" SDR 35	100/200 Blocks Del Monte
2013	Dig In	400	8" SDR 35	700 Block Regents
2013	Dig In	520	8" SDR 35	Alameda from Baylor to Rosewood Lane - Replaced 12"-15" Main
2014	Dig In	710	8" SDR 35	100 Block Harvard



Year	Project Type	Lineal Feet	Pipe Diameter	Project Name
2014	Dig In	1070	8" SDR 35	300 Block Farollone / El Dorado
2016	Pipe Burst	1300	8" HDPE	100-300 Block Summit / Golden Gate
2016	Pipe Burst	840	8" HDPE	300 Block Del Monte / El Dorado
2016	Pipe Burst	1030	8" HDPE	100-200 Block Summit / Farallone
2018	Dig In	600	8" SDR 35	100 Block Golden Gate / Harvard
2018	Lift Station			Alameda - Rebuild
2019	Lift Station			Drake St - Rebuild
2019	Pipe Burst	200	6" SDR 35	100 Block Farollone between 114-116
2021	Lift Station			The Commons - Upgrade
2021	Pipe Burst	530	8" HDPE	Between Cornell and Amherst from San Juan to Orchard
2021	Pipe Burst	260	8" HDPE	900 Block between Daniels and Alameda
2022	Lift Station			Estate Place - Upgrade
2022	Pipe Burst	395	6" HDPE	Annapolis between Alameda and Paradise Lane
2023	Pipe Burst	375	6" HDPE	100 El Dorado and Farollone
2024	Lift Station			44th St/67th Ave W - Upgrade
2024	Pipe Burst		8" HDPE	900 block from Linwood between Sunrise and Crestwood (300ft)
2025	Pipe Burst		8" HDPE	1200 block from Drake between Contra Costa and Del Monte (1000ft)
2026	Pipe Burst		8" HDPE	1000 block from Linwood between Sunrise and Broadview (1300ft)
2027	Dig In		8" SDR 35	100 and 200 blocks of El Dorado (750ft)
2028	Dig In		8" SDR 35	300 block from Princeton to Regents (3000ft)
2029	Pipe Burst		8" HDPE	1000 block between Crestwood and Laurel Ct (700ft)
Total Main Replaced		**18715**		

Table 6 Water Capital Project List

Water Department Capital Project List					
Year	**Lineal Feet**	**Pipe Diameter**	**Location**	**From**	**To**
1995	1700	12"	Electron Way	Regents Blvd	Buena Vista Ave
	280	8"	Electron Way	Buena Vista Ave	Alameda Ave
1995	725	12"	Arondale Dr	Regents Blvd	FGCC Maint Shop
	430	8"	Flora Dr	67th Ave W	Cul De Sac
1996	1000	16"	FGCC Reservoir	FGCC Reservoir	9th Fairway T
	400	12"	9th Fairway	9th Fairway T	Clubhouse
	500	12"	Regents Blvd	Costless (west) Driveway	Columbia Bank

Water Department Capital Project List					
Year	**Lineal Feet**	**Pipe Diameter**	**Location**	**From**	**To**
1997			Well #9 Installed	Masko Park / City Hall	
	600	12"	Cornell St	Well #9	So Orchard St
1999	630	12"	Princeton St	Contra Costa Ave	Alameda Ave
	730	8"	Amherst St	San Juan Ave	So Orchard St
2000	850	8"	Regents Blvd	Electron Way	Del Monte Ave
2001	1600	12"	Summit / Harvard / Regents	Electron Way	So Orchard St
	1800	12"	Contra Costa / Paradise Ln	Forrest Park	Baylor Ave
2002	970	12"	Contra Costa	Electron Way	Forrest Park
	3020	12"	Baylor Ave / Boise St	Baylor / Berkeley	Emerson / Boise
2003	860	8"	500 block Berkeley	Electron Way	Spring St
2004	1900	16"	FGCC / Greenway & Electron	Golf Course	Electron Way
2005	2040	16"	Alameda Ave	Electron Way	Regents Blvd
	800	12"	Arondale Dr	FGCC Maint Shop	Regents Blvd
2006	800	8"	Ramsdell St	Alameda Ave	Contra Costa Ave
2008	3300	12"	Alameda Ave	Greenway Ave	Panorama Dr
2011	1710	12"	Columbia St	Alameda Ave	Summit Ave
	500	8"	Arondale Dr (alley)	Regents Blvd	Arondale Dr
2013	1110	8"	Harvard St	Princeton St	Columbia St
	1110	8"	Del Monte St	Princeton St	Columbia St
2014	1000	8"	Golden Gate Ave	Princeton St	Columbia St
2015	1110	8"	Farallone Ave	Princeton St	Columbia St
2017	470	8"	Summit Ave	Golden Gate Ave	Stanford St
2019	450	8"	Farallone Ave	Golden Gate Ave	Vassar St
2021	290	8"	Contra Costa Ave	Rose St	Princeton St
2022	300	8"	Contra Costa Ave	Rose St	Dartmouth St
2022	980	12"	Summit Ave	Columbia St	Princeton St
2022	780	8"	Summit Ave	Princeton St	Stanford St
2023	380	8"	700 block Regents	Buena Vista Ave	Berkeley Ave
2023	400	8"	Rose St	Del Monte Ave	Contra Costa Ave
2024		12"	South Orchard St (800ft)	Ramsdell St	Holly Dr
2024			Rebuild Well #4 (PW Yard)		
2025		8"	Yale St (400ft)	Contra Costa Ave	Del Monte Ave
2026		8"	100 block Contra Costa (600ft)	Columbia St	Dartmouth St
2027		8"	El Dorado (750ft)	Princeton St	Columbia St

Water Department Capital Project List					
Year	**Lineal Feet**	**Pipe Diameter**	**Location**	**From**	**To**
2028		12"	400 and 500 block Contra Costa (2000ft)	Electron Way	Regents Blvd
2029		8"	Buena Vista (2000ft)	Electron Way	Regents Blvd
Total Main Replaced	**35525**				

APPENDIX F: UTILITIES

List of Figures

Figure 1 Existing Water Facilities 4
Figure 2 Water Facilities Improvements 5
Figure 3 Sewer Service Area 10
Figure 4 Existing Sewer Facilities 13
Figure 5 Drainage Basin 17
Figure 6 Existing Storm Facilities 19

List of Tables

Table 1 Demand and Adequacy 7
Table 2 Major Sewer Facilities 11
Table 3 Service Levels and Standards 14
Table 4 Projected Residential Demand in 2035 15
Table 5 Major Stormwater Facilities 18

This Appendix provides additional information and context to the goals and policies of the Utilities Element.

UTILITY SERVICES AND FACILITIES

The City of Fircrest owns and operates water, sanitary sewer, and stormwater utilities within its corporate boundaries. Tacoma Power, a division of Tacoma Public Utilities, is the electrical provider to Fircrest. Other utility services – natural gas, telecommunications, cable, and solid waste – are provided by private companies. Puget Sound Energy is the natural gas provider; Century Link provides telephone service; Click!, Xfinity, and Rainier Connect provide partial and overlapping cable internet within the city; and Westside Disposal provides solid waste collection services.

Since the last Comprehensive Plan, the following list of upgrades have been made to the City-owned water, sanitary sewer, and stormwater utilities:

- Upgrades or replacement to Estate Place, Drake Street, and Alameda Lift Stations
- Various gravity sewer improvements on Farallone Ave, El Dorado Ave, and Cornell Street
- Continued backyard sewer replacements and/or rehabilitation
- GIS Mapping System Upgrades
- Installed fluoride monitors at each well site
- Water main replacement on Golden Gate Ave, from Princeton Street to Columbia Street
- Water main replacement on Farallone Ave, from Columbia Street to Princeton Street
- Recoated exterior of High Tank Reservoir

- Water main replacement on Ramsdell Ave
- Water main replacement on Farallone Ave, from Vassar Street to Golden Gate Ave

Further information on City-owned utilities is provided below.

Water

SUMMARY OF SERVICES AND FACILITIES

Water services are provided in Fircrest within the context of federal, state, regional, and county regulatory acts, plans, and programs. A host of agencies are responsible for implementing and overseeing programs ensuring water quality and supply, allocating rights, controlling distribution, and promoting conservation. The Fircrest Public Works Department, which provides water service within Fircrest, conforms to regulations through the ongoing implementation of its Comprehensive Water System Plan. Tacoma Public Utilities, which provides water service to portions of the areas annexed to the City in the 1990s and 2018, conforms through the ongoing implementation of its Water System Plan. The delineation of service area boundaries is contained in a May 27, 2014 service area agreement as part of the Comprehensive Water System Plan.

FIRCREST FACILITIES INVENTORY

Figure 1 shows Fircrest's major water facilities and their capacities. Fircrest relies on five existing groundwater wells located within its municipal boundaries for its entire water supply. Fircrest has groundwater rights and pumping capacity projected to be sufficient to serve a population of 10,000-15,000 (depending on consumption levels). The City is forecasted to have sufficient water rights to meet water system demands for at least the next 20 years.

In addition to the five wells, the City owns and operates a booster pump station and three reservoirs with a total storage capacity of 1.8 million gallons and 26 miles of transmission and distribution piping. Descriptions of the current service area and customer base, consumption patterns, and service levels are provided in Fircrest's Comprehensive Water System Plan. The water system plan also contains a detailed inventory of facilities (including locations and capacities), projections of demand through 2033, system adequacy to meet projected demand, and a list of capital improvement projects and costs.

A map of the Existing Water Facilities is provided below in Figure 1.

TACOMA FACILITIES INVENTORY IN FIRCREST AREA

Tacoma Public Utilities provides water service to 24 parcels in the northwest corner of the City, properties within the 1300 blocks of Buena Vista Avenue, Berkeley Avenue, and Contra Costa Avenue, the Valley Firs Condominiums and the former 67th Avenue PAA. Tacoma Public Utilities is governed by a five-member board, appointed by the Tacoma City Council.

Fircrest utilizes groundwater as its primary water source. The primary water supply to this area comes from the Green River in King County and five active wells in the City's system. To supplement supply during periods of high demand, mostly in the summer, or during emergency situations, there is also an intertie with Tacoma's water system. Tacoma Water's Green River First Diversion water right can supply up to 73 million gallons of water each day.

Tacoma Water's Green River Second Diversion water right can provide up to 65 million gallons of water each day. This second diversion is subject to minimum streamflow standards and is a resource shared with Tacoma Water and its Regional Water Supply System partners. Tacoma Water's share of the second diversion equals 27 million gallons of water per day. In addition to the Green River, Tacoma Water owns wells located in and around the City of Tacoma. Tacoma Water's wells have a short-term combined pumping capacity of approximately 60 million gallons per day.

Maps for existing water facilities and improvements are on the following two pages.

Figure 1 Existing Water Facilities

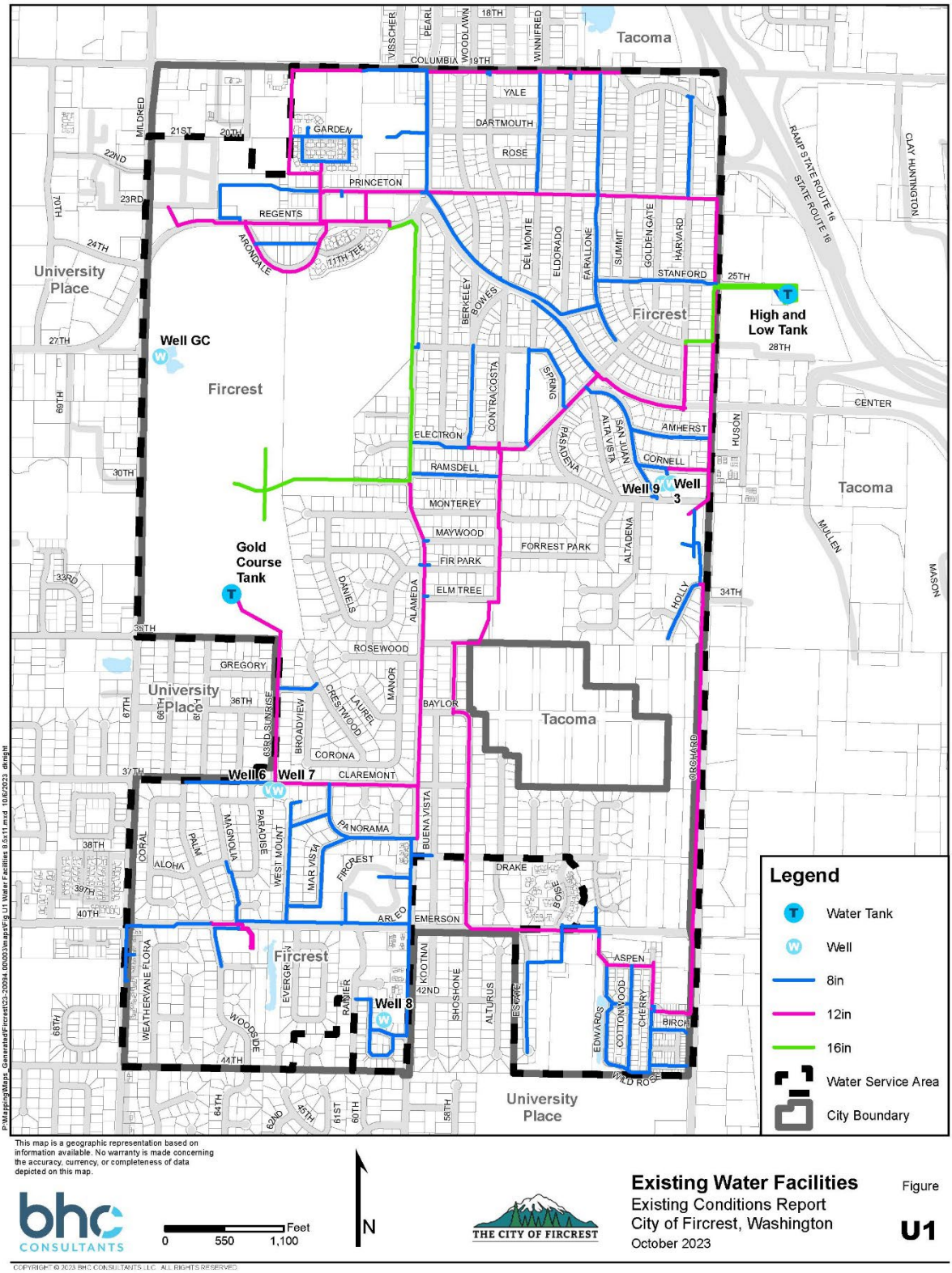
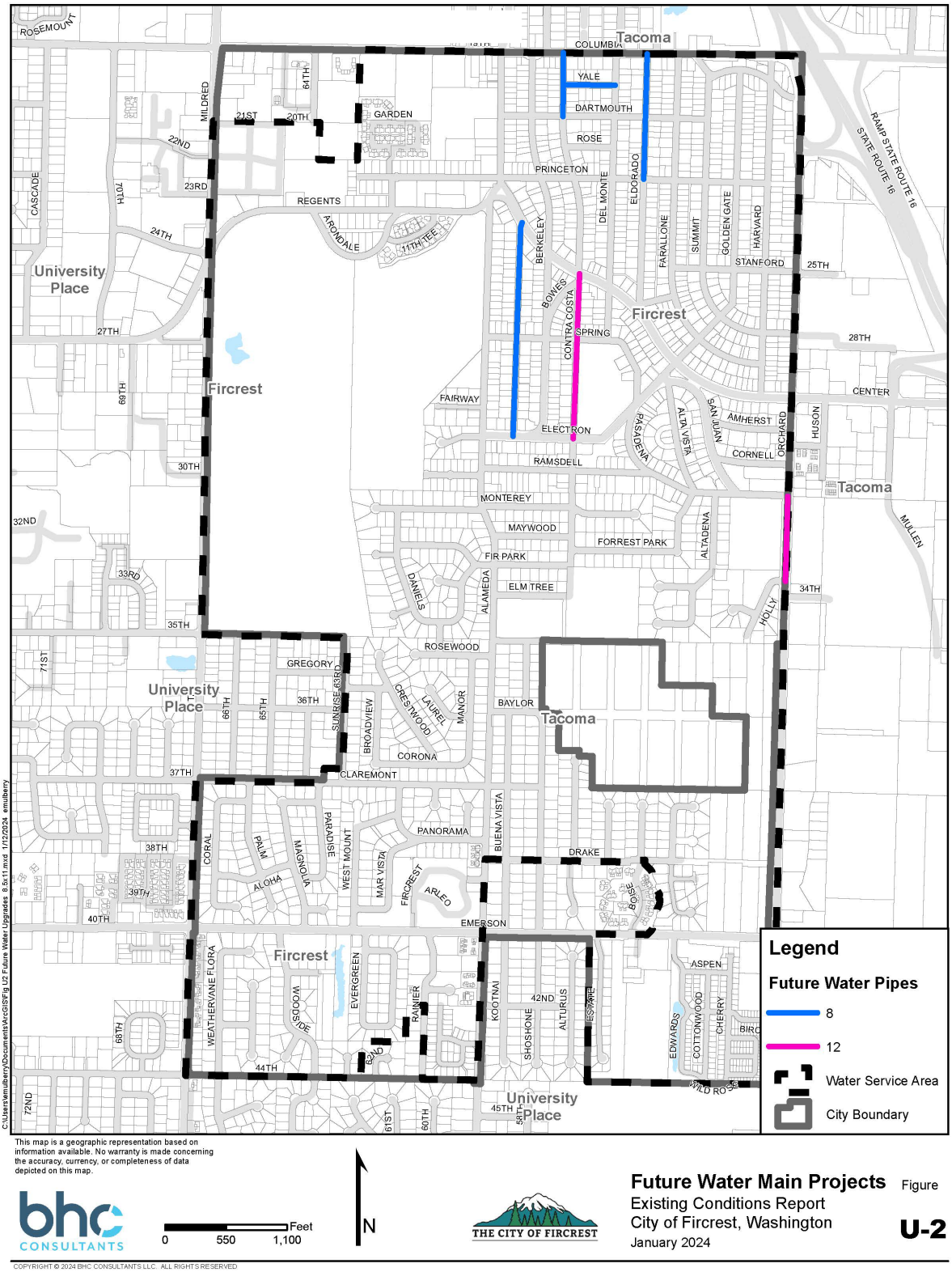


Figure 2 Water Facilities Improvements



This map is a geographic representation based on information available. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.

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THE CITY OF FIRCREST

Future Water Main Projects Figure
Existing Conditions Report
City of Fircrest, Washington
January 2024
U-2

A water system consists of a transmission supply and distribution system made up of various sized mains (transmission and distribution), reservoirs, standpipes, wells, and pump stations. Tacoma Water supplies water to Fircrest's 2018 annexed area, some properties located in the northwestern corner of the city, and a small area in the southeastern corner of the City.

The City of Tacoma Capital Facilities Plan (CFP) establishes a level of service of 442 gallons per day per equivalent residential unit (ERU) and/or as contained in Tacoma Water's current Washington State Department of Health approved water system plan. 442 gallons per day per ERU represents a 4-day peak period demand, with a peak factor of 2.01 times the actual average daily residential water consumption of 220 gpd per ERU. Based on Tacoma Water current demand forecast, Tacoma Water has excess supplies when considering peak day requirements looking out to year 2060.

Tacoma Water will complete construction and initiate operations of a new Green River filtration facility in 2015. Filtration of the supply will meet regulatory requirements and provide enhanced reliability for the supply.

SERVICE LEVELS AND CURRENT DEMAND AND ADEQUACY

As with all other aspects of water supply, service levels and standards applicable in Fircrest are determined by federal, state, regional, and county regulations. Fircrest's Comprehensive Water System Plan Update plan is being implemented in conformance with all applicable regulations.

Supply

Fircrest consumption levels conform to the assumptions used for county-wide long-term planning in Pierce County's Coordinated Water System Plan (CWSP). The CWSP assumes consumption for Fircrest as 180 gallons per capita per day. Fircrest's average consumption is currently 172 gallons per day per equivalent residential unit (ERU), which is the amount consumed by a household in a single-family dwelling unit.

Storage

The available storage for the Fircrest water system is 1.8 million gallons. Based on the hydraulic analysis and the "Source and Storage" analysis in the Fircrest Comprehensive Water System Plan, the Fircrest water system has sufficient storage for the planning period.

Fire Flows

In Fircrest, the standard for fire flow in residential areas has been set at 1,000 gallons per minute and in commercial areas, 2000 gallons per minute. The engineering analysis of areas requiring improved fire flows is contained in Fircrest's Comprehensive Water System Plan. Projects to improve fire flows are listed in this plan.

FUTURE DEMAND AND ADEQUACY

Demand and Adequacy in Fircrest's Service Area

The City is in the final stages of a Comprehensive Water System Plan (WSP). A final draft of the WSP was issued in September 2022 and is currently under Department of Health (DOH) review for approval. The following water system upgrade projects are anticipated as part of the City's 6-year capital improvement plan:

- Water main replacement – Rose Street from Contra Costa to Del Monte; Yale from Contra Costa to Del Monte
- Water main replacement – upsize to 12" main from Harvard to Contra Costa
- Water main replacement – Regents and Buena Vista; transfer 2 services and replace hydrants
- Finish meter exchanges
- Abandon/remove 8" water main in Whittier Park
- Loop 12" water main to existing 6" water main in Paradise Lane
- Connect Boise Street to 12" main on 40th Street & Emerson
- Estate Place water main replacement
- Well 4 Reroute, Orchard to Holly; Well house improvements
- On-site power generation for wells
- Weathervane Booster Pump Station Improvements

Table 1 summarizes the adequacy of Fircrest's facilities to meet future demand.

Table 1 Demand and Adequacy

Demand Factor	Future Adequacy
Supply	Fircrest has sufficient water rights to meet water system demands for at least the next 20 years.
Storage	Storage facilities have sufficient capacity to meet future demands of the system beyond the year 2040.
Transmission & distribution	Weathervane Booster Pump Station does not have sufficient capacity to meet new Department of Health Water System Design Manual criteria. Capital improvement projects are identified for water mains that are undersized or not looped adequately to provide fire flow.
Telemetry	Replaced in 2009. Adequate and in good working order.
Service metering	Adequate; installation of individual service meters at all services was completed in 2001.

Overall, water system planning indicates the water system is in good operating condition but will require some improvements to ensure that a high level of service is maintained.

WATER FACILITY ISSUES

Fircrest faces issues concerning transmission and distribution piping, consumption levels, and potential contamination of Fircrest's water supply. A summary of each of these issues is provided in the Comprehensive Water System Plan. In the event the Fircrest water system is not capable of meeting system demands due to an emergency or unforeseen circumstance an intertie with the City of Tacoma water system will supply the needed water. This intertie was completed in 1994 and is located on the east side of Orchard Street across from Stanford Street.

WATER FACILITY PROJECTS

The capital improvements program in the 2014 Comprehensive Water System Plan identifies the improvements needed for the current planning period. Figure 2 shows the proposed water system for Fircrest and includes new or updated facilities as well as existing facilities. Project schedules, costs, and financing are summarized in the Capital Facilities Element.

Sanitary Sewer

The City of Fircrest owns and operates approximately 32 miles of sanitary sewer main and six sanitary sewer lift stations. By agreement with City of Tacoma, wastewater is conveyed to and treated at the Tacoma Central Wastewater Treatment Plant (WWTP). Fircrest does not own or operate a WWTP. A map of the Existing Sewer Facilities is provided below in Figure 4.

The sanitary sewer service area boundary is generally the same as the City boundary. Properties within Fircrest are mostly developed. The majority of Fircrest's service area is on the sewer system, with the primary exceptions being a portion of the West End Addition that was annexed in 1997 and the 2018 annexation, where a number of residences use septic systems.

There is one large undeveloped parcel in the northwest corner of Fircrest, at the northeast corner Regents Boulevard and Mildred Street West. The property is commonly referred to as the "Goat Farm" property. There is a preliminary development proposal to develop the property as mixed-use and multi-family. The development is referred to as the "Prose" development. The property is in Fircrest City limits but identified previously as Pierce County sewer service area. Preliminary indications are that Pierce County will provide sanitary sewer service to the development. Future consideration will need to be given to address the remaining properties along 19th and Mildred Street for possible annexation into the City's Sewer Service Area.

No updates have been made to the sanitary sewer or stormwater planning documents since the last Comprehensive Plan.

The City has upgraded all lift stations except 44th Street and continued backyard sewer replacement/rehabilitation projects since the last Comprehensive Plan. The following sewer system upgrade projects are anticipated as part of the City's 6-year capital improvement plan:

- 44th Street Lift Station

- Regents Blvd and Amherst St – Pipe bursting project
- 100 block - Farallone Ave and Eldorado Ave – Pipe bursting project
- 1200 block – Contra Costa Ave and Del Monte Ave Pipe bursting project
- 1000 block – Sunrise Lane and Broadview Drive – Pipe bursting project
- 900 block – Sunrise Lane and Crestwood Lane – Pipe bursting project
- 100 and 200 blocks – Front Steet and Eldorado Ave – Pipe bursting project
- GIS Mapping Updates

Fircrest are part of the Chambers Creek-Clover Creek Drainage Basin, which is an aquifer recharge area providing groundwater for public use. As Pierce County has developed, ensuring wastewater treatment capacity sufficient to handle increasing wastewater volumes and to protect groundwater quality has increasingly become a focus of sanitary sewer facilities planning. Septic systems, which dispose of wastewater through percolation into the aquifer, are a known source of groundwater pollution.

Hence, Fircrest and Pierce County share the long-term goal of eventually connecting all development in the Chambers Creek-Clover Creek Drainage Basin to a sewer system. The sewer system replaces septic tanks and drain fields with wastewater collection and conveyance facilities and percolation of untreated effluent with wastewater treatment and biosolid disposal.

In August 2000, Fircrest hired a consultant to develop a Comprehensive Sewer System Plan. This plan was approved by the City and the Washington State Department of Ecology in 2002.

SUMMARY OF SERVICES AND FACILITIES

Fircrest is provided with wastewater collection services by the City of Fircrest Public Works Department. Refer to Figure 3 for service area boundaries. The majority of Fircrest's service area is on the sewer system, with the primary exceptions being a portion of the West End Addition that was annexed in 1997 and the 2018 annexation, where a number of residences use septic systems.

The primary components of Fircrest's sanitary sewer system are 32 miles of sewer main and six lift stations. The lift stations pump wastewater against gravity to overcome elevation gains on the route to a Tacoma Public Utilities treatment plant. Wastewater is conveyed to a Tacoma treatment plant outside of Fircrest.

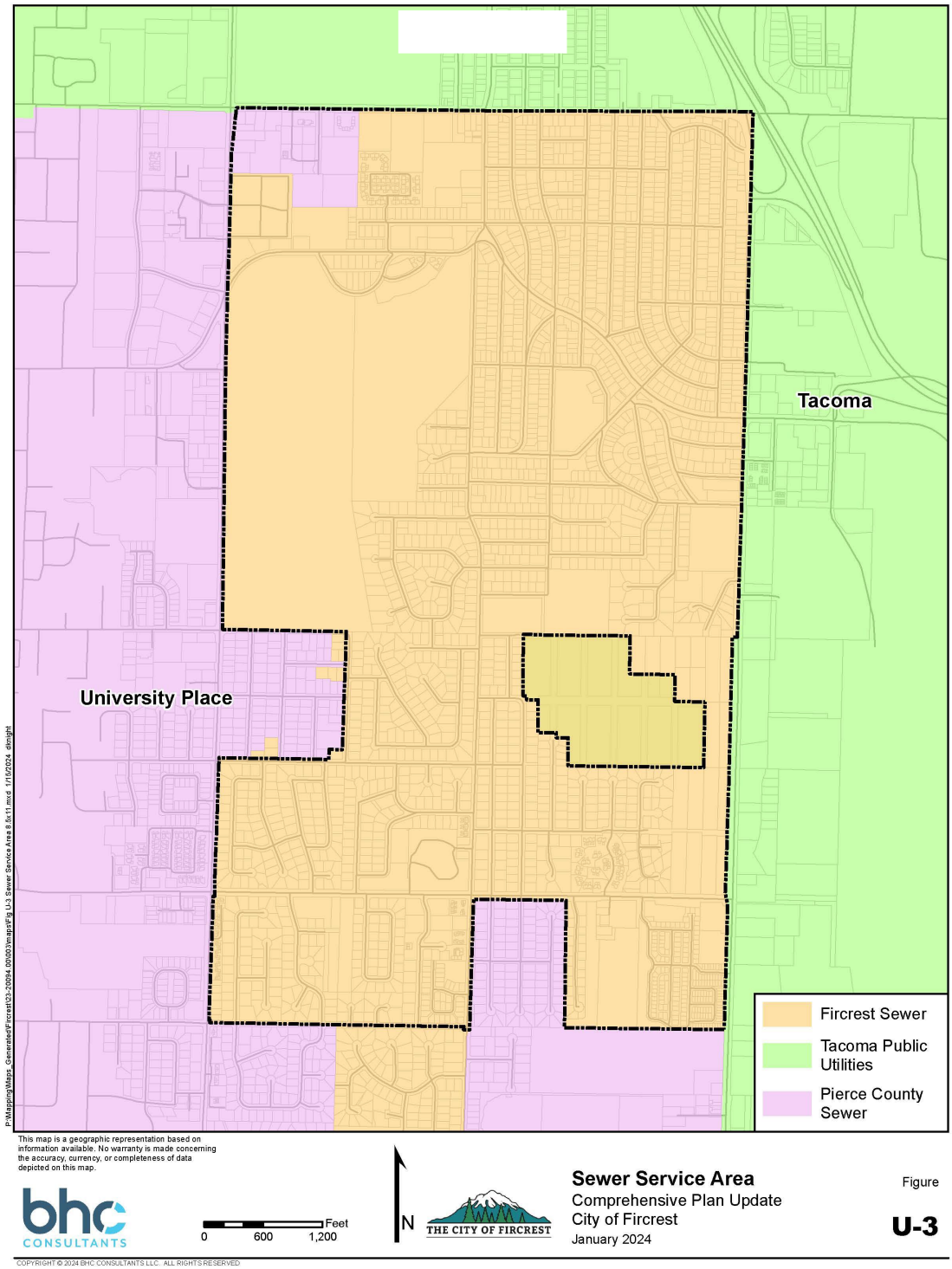
Part of the development of the Comprehensive Sewer System Plan included in-line video inspections of the pipes and manholes, which occurred in 2013. Updated and prioritized repair and replacement projects were identified and will be completed by 2016.

SERVICE AGREEMENTS

Fircrest has agreements with other service providers concerning service area boundaries and wastewater treatment. An ongoing agreement with the City of University Place delineates service area boundaries. Under this agreement, Fircrest provides service to specific areas outside of its corporate boundaries.

Wastewater treatment is provided through the Tacoma-Fircrest Sewer Agreement, which began in 1979 and was updated in 2014. This agreement provides for treatment of all wastewater from Fircrest at the Tacoma Central Wastewater Treatment Plant.

Figure 3 Sewer Service Area



ALTERNATIVE SERVICE

The Pierce County Sewer Division Unified Sewer Plan was adopted in 2001 and updated in 2010 with final state Department of Ecology approval in 2012. The plan identifies future service needs for the County and makes provision for expansions to meet those needs, including expansion of the Chambers Creek Wastewater Plant (WWTP) to 43-45 MGD (million gallons per day) capacity in the first phase of a five-phase major expansion to be completed in December 2016.

The Unified Sewer Plan identifies one project, the Upper Leach Creek Interceptor, which is on schedule to be completed by 2020. This improvement will enable new service to be provided to areas of eastern University Place not served and could also serve the City of Fircrest in the event its flows were to be transferred to Pierce County. This system component would be generally gravity fed, designed to direct flows downhill to the WWTP. Current treatment capacity is rated at 28.7 MGD and the WWTP operates at an average capacity of 18.0 - 20.0 MGD. Expansion is expected to continue to meet demand, accommodate anticipated growth (including possible flows from Fircrest), and meet increasingly stringent water quality standards over the next 25 years. Total build out is expected to be 60 MGD as outlined in the Unified Sewer Plan.

FACILITIES INVENTORY

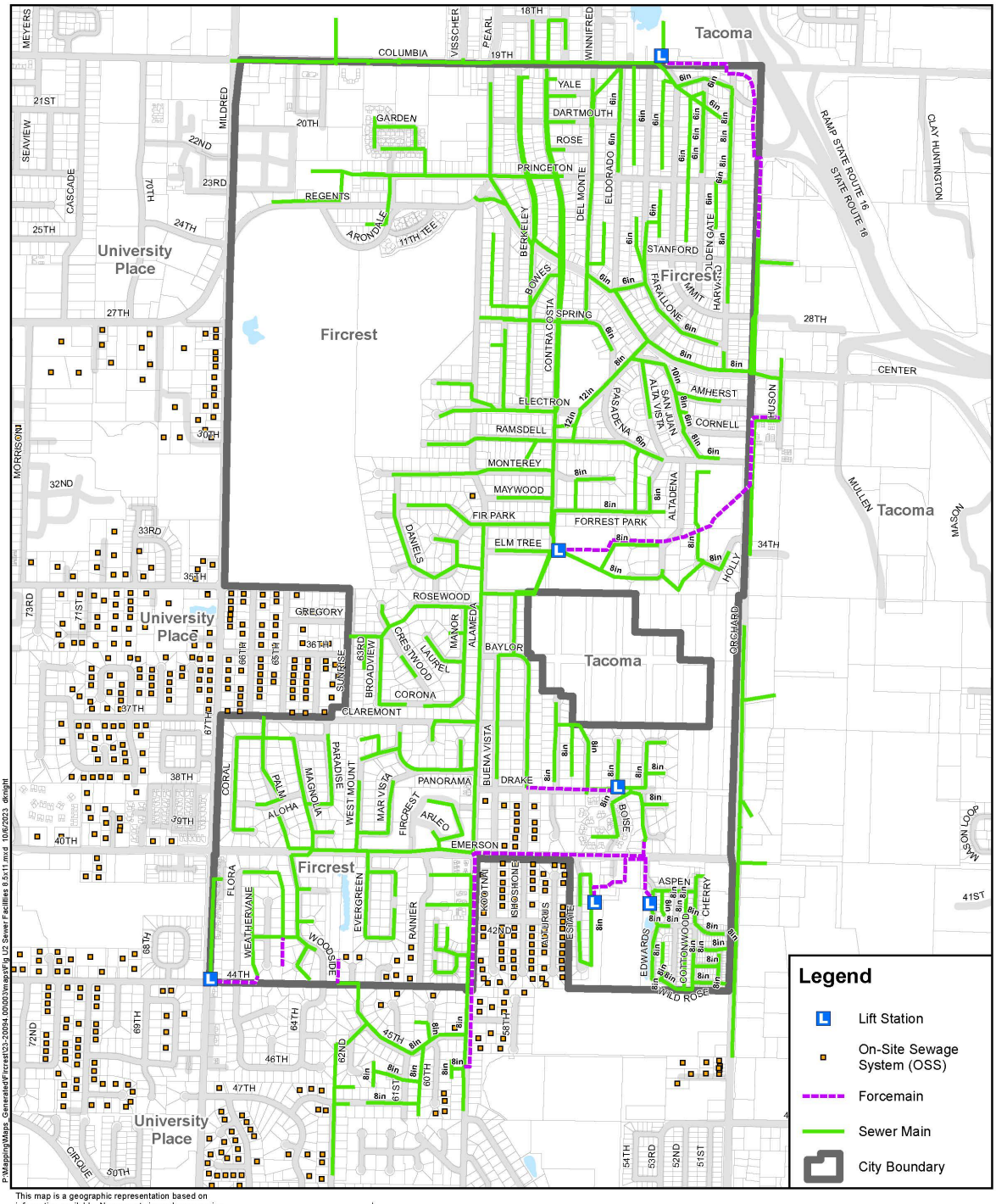
Table 2 summarizes Fircrest's major sewer facilities. Figure 4 shows locations of major facilities. Detailed maps showing all sewer lines are available through the Fircrest Public Work Department.

Table 2 Major Sewer Facilities

Facility Name and Location	Capacity and Condition
Sewer mains: located primarily in road and alley rights-of-way; some are located on private property.	Fircrest's service area has approximately 32 miles of sewer mains ranging in diameter from 4 to 24 inches. The majority of the pipe is 8-inch. Fircrest also uses a 14-inch force main that conveys large amounts of wastewater across extensive geographic areas on the route to a treatment plant. Some sewer mains are force mains through which lift stations pump wastewater to adjacent gravity systems. Lengths of force mains depend on the elevation rise. Sewer main conditions range from failure to excellent depending on the age of the pipe, the quality of the installation, and the quality of ongoing maintenance.

Facility Name and Location	Capacity and Condition
Lift stations (6): Contra Costa Av. & Elm Tree Lane Drake & Farallone Alameda & 46th St. 67th Av. & 44th St. Estate Place Princeton Place	Pump 1: 1,850 gallons per minute (gpm) maximum Pump 2: 1,800 gpm max. Combined capacity: 2,550 100 gpm normal, 234 gpm max. 100 gpm normal, 200 gpm max. 100 gpm normal, 200 gpm max. 172 gpm constant output 150 gpm, two pumps alternating All lift stations are in fair to good condition.
Manholes	Manholes are typically located approximately every 300 feet along sewer mains. Fircrest has approximately 600 manholes, which vary from good to poor.

Figure 4 Existing Sewer Facilities



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THE CITY OF FIRCREST

Existing Sewer Facilities
Existing Conditions Report
City of Fircrest, Washington
October 2023

Figure **U-4**

SERVICE LEVELS AND STANDARDS

Table 3 summarizes the service levels and standards applicable in Fircrest.

Table 3 Service Levels and Standards

Service Parameter	Service Level
Capacity	220 gallons per day (gpd) per single-family dwelling, which is referred to as a *residential equivalent* (one RE); service levels for multi-family dwellings, commercial and industrial businesses, public service organizations, etc. are expressed in numbers of REs; for example, multi-family units are expected to produce .83 RE or 183 gpd.
Average daily and peak flows	Average daily flow in 2014: 482,000 gpd Peak flow in 2014: 790,000 gpd
Wastewater quality	Sewage quality must conform to County Sanitary Sewer Utility Administrative Code and county Pretreatment Code requirements.
Design and construction of facilities	Construction of new facilities and rehabilitation of old facilities must conform to the standards of the wastewater treatment service provider.

DEMAND AND ADEQUACY

This section discusses current and future demand for sanitary sewer services and adequacy of facilities to meet demand.

Current demand from Fircrest's service area was studied by a consulting firm under the supervision of the Fircrest Public Works Department. The system is capable of handling current demand and future projected growth demand.

Future demand is based on assumptions of successful reduction of infiltration and inflow and of decreased residential water consumption. Therefore, a standard effluent rate of 220 gallons/RE has been used for computing future demand. Table 4 summarizes future residential demand in Fircrest.

Future demand is based on assumptions of successful reduction of infiltration and inflow and of decreased residential water consumption. Therefore, a standard effluent rate of 220 gallons/RE has been used for computing future demand. The following table summarizes future residential demand in Fircrest.

Table 4 Projected Residential Demand in 2035

Area	Single-family (millions of gallons/day [mgd])	Duplex, Multi-family and ADUs (mgd)	Total (mgd)
Total projected residential demand	0.558 (2,535 units)	0.162 (884 units)	0.720 (3,419 units)

Stormwater Management

Surface water and stormwater in Fircrest originate with precipitation falling in and north, west, and east of Fircrest. Fircrest is located in the approximate center of this drainage area, which is known as the Leach Creek drainage subbasin. The Leach Creek subbasin has a total of 7.18 square miles and is a portion of the larger Chambers Bay drainage basin. This drainage basin is located in the Chambers - Clover Creek Watershed Resource Inventory Area 12 (WRIA 12). A small portion of Fircrest falls within the Tacoma West drainage basin. Figure 5 illustrates those portions of the Chambers Bay and Tacoma West drainage basins located in close proximity to Fircrest.

Stormwater within the Leach Creek subbasin, along with stormwater from the entire Chambers Bay basin, eventually reaches Puget Sound via Chambers Bay. The following section provides a general overview of flows in the Leach Creek subbasin.

SUMMARY OF SERVICES AND FACILITIES

Stormwater flows over the surface into dry wells, swales, ponds, and basins where some of it percolates through the soil into groundwater. The remainder is conveyed to detention facilities via ditches and subsurface storm drainage pipes. Fircrest owns and operates stormwater systems in conjunction with the City of Tacoma. Much of the stormwater originating in the northern portion of the Leach Creek subbasin is collected in the Leach Creek holding basin, which provides sediment removal, infiltration to groundwater, peak discharge control, and outflow to Leach Creek. Subsurface water at Fircrest Park, the former site of Spring Lake, also is intercepted and piped to the holding basin. The remainder flows over the surface into dry wells, swales, ponds, and basins, where it percolates through the soil.

In the southern portion of Fircrest, stormwater is conveyed to a pond within Thelma Gilmur Park. Like the holding basin, this pond provides sediment removal and infiltration with overflow to Leach Creek. Leach Creek flows into Chambers Creek, which flows into Puget Sound via Chambers Bay.

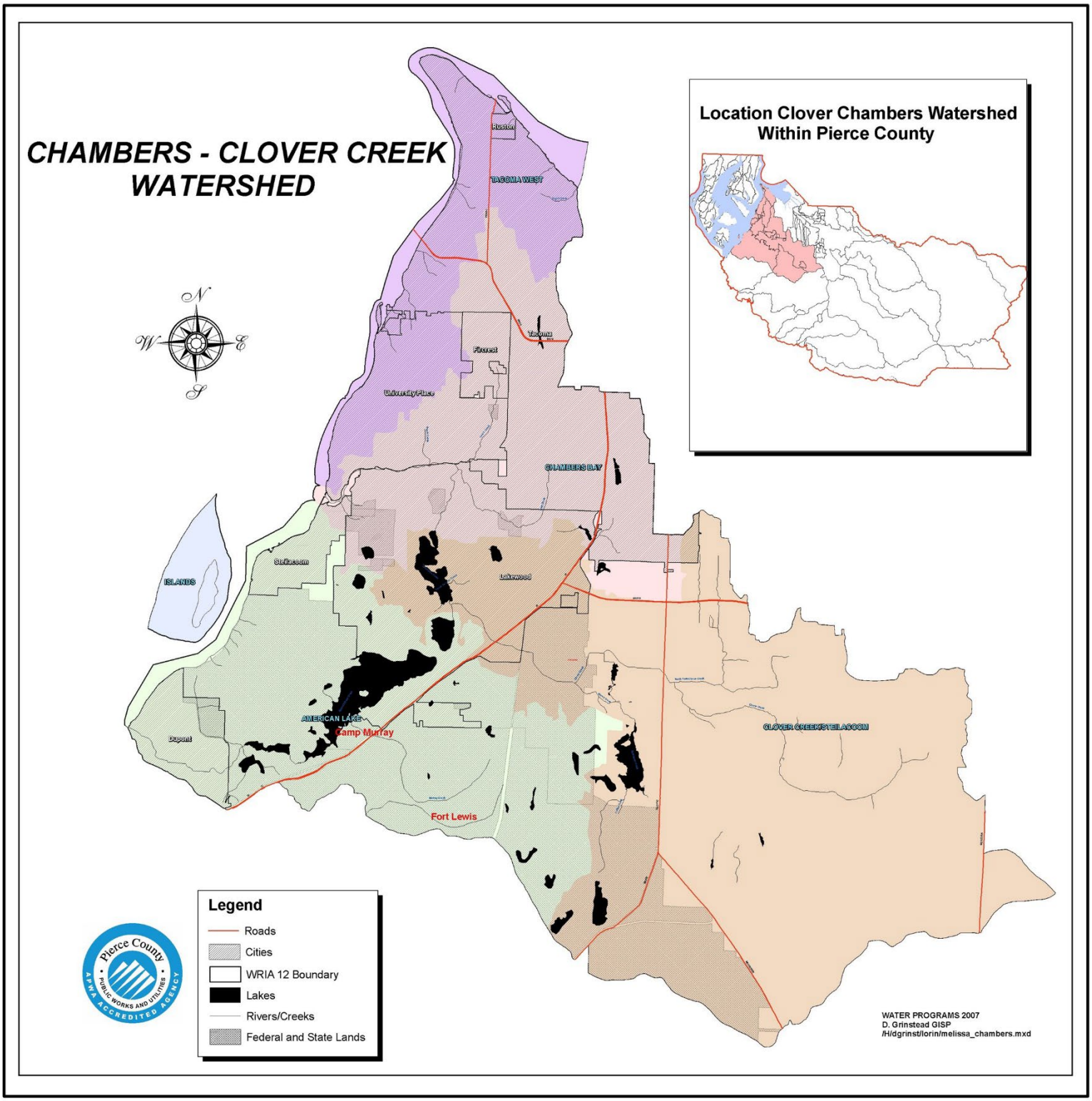
A small amount of stormwater within the western boundary of Fircrest sheds west toward Puget Sound rather than east; this area is part of the Tacoma West drainage basin. The small number of facilities in that area conveys stormwater away from Fircrest and Leach Creek.

Stormwater in the Tacoma West drainage basin does not have a significant impact on Fircrest stormwater facilities.

Because stormwater originating in the City of Tacoma, City of University Place and unincorporated Pierce County flows through Fircrest, how stormwater is managed in those jurisdictions directly impacts the stormwater present in Fircrest. Likewise, Fircrest's stormwater management practices affect the water present in Leach and Chambers Creeks.

Fircrest has adopted the latest version of Department of Ecology (DOE) Stormwater Management Manual for Western Washington, which addresses the standards, procedures, and development practices needed to implement good stormwater management.

Figure 5 Drainage Basin



FACILITIES INVENTORY

Stormwater facilities in Fircrest are owned by the City of Fircrest and the City of Tacoma and are planned, installed, maintained, and operated under the supervision of the respective Public Works Departments. Each jurisdiction assesses properties for stormwater management within its own boundaries. Fircrest adopts the latest version of the Department of Ecology Stormwater Management Manual for Western Washington for stormwater standards, specifications, and best management practices. No updates have been made to the City's Stormwater Comprehensive Plan since the last Comprehensive Plan update. The following stormwater system upgrade projects are anticipated as part of the City's 6-year capital improvement plan:

- Estate Place and Emerson – Pretreatment and Catch basin upgrades
- Curb and gutter replacements
- NPDES Compliance – ongoing

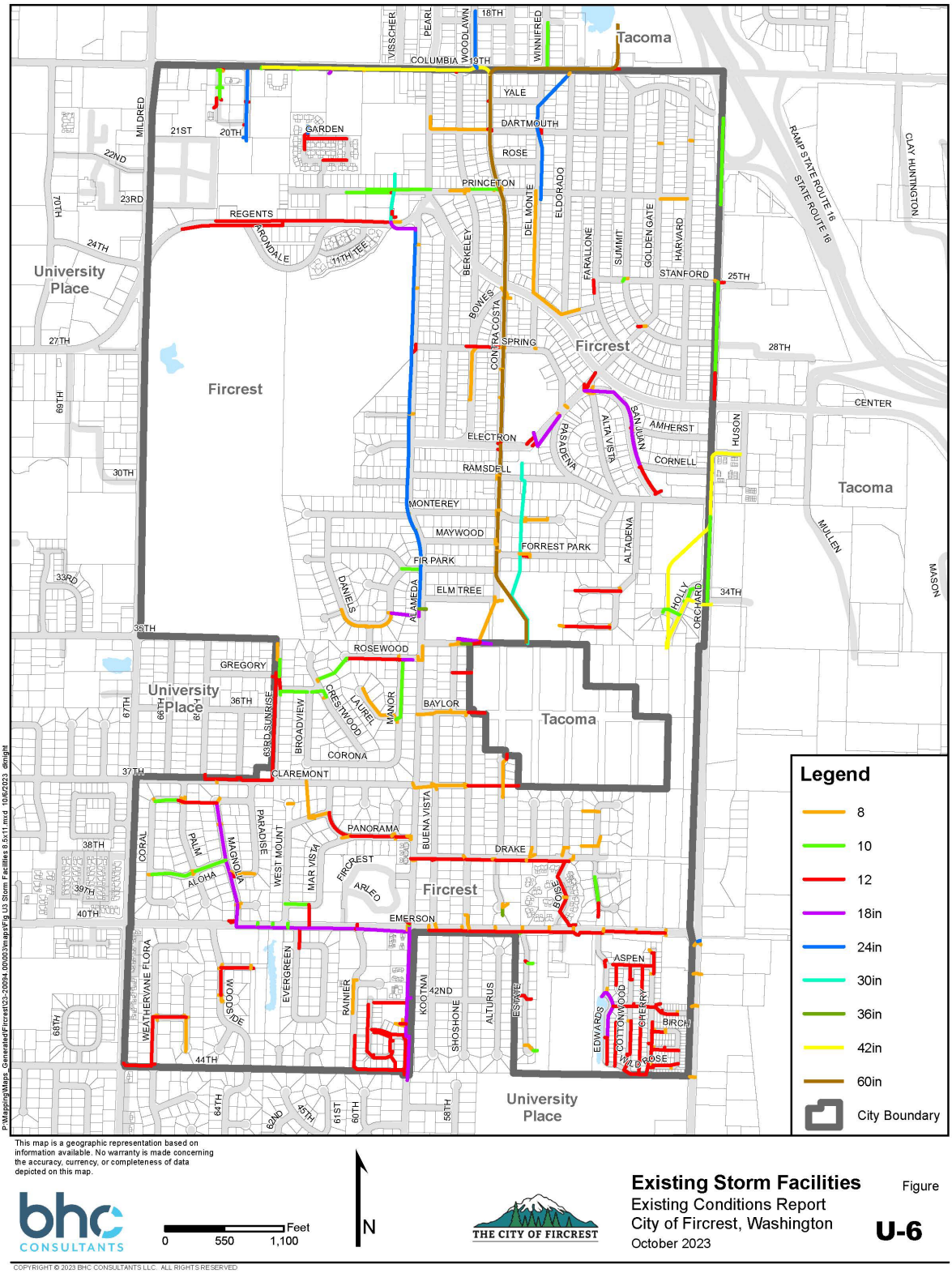
In addition to publicly-owned stormwater facilities, there are some privately- owned stormwater facilities. Privately-owned stormwater facilities are not discussed in this document.

Table 5 lists major stormwater facilities and their owners and capacities. Jurisdiction-specific maps showing the locations of all facilities listed below are available in the City of Fircrest Public Works Department. A map of the City's major stormwater facilities is provided below in Figure 6.

Table 5 Major Stormwater Facilities

Facility Name (Owner)	Location, Capacity, and Condition
Leach Creek holding basin and pump (Tacoma Public Works)	Located near Fircrest's eastern boundary between 35th Street West and 37th Street West Drainage area: 2,450 acres Storage capacity: 82 acre-feet Pumping capacity: 96 cubic feet per second When stormwater flows discharged from the holding basin exceed a preset level, the pump redirects some of the stormwater to the Thea Foss Waterway in Commencement Bay.
Conveyance system facilities (Tacoma Public Works)	Design event: 10-year, 24-hour storm
Trunk lines (Tacoma Public Works)	Design event: 25-year, 24-hour storm
Detention pond (Fircrest Public Works)	Thelma Gilmur Park contains a natural detention pond south of Emerson St. between Woodside and Evergreen Drives. Capacity data is not available.
Conveyance system facilities and trunk lines (Fircrest Public Works)	Design events: Existing stormwater facilities in Fircrest have been designed in accord with the Standard Plans for Road, Bridge, and Municipal Construction by the Washington State Department of Transportation and the American Public Works Association.

Figure 6 Existing Storm Facilities



SERVICE LEVELS AND STANDARDS

The primary controls for stormwater quality in Fircrest have been administrative. Administrative techniques are still in use. For example, development projects are controlled through site plan review, conditioned permits, and on-site inspection. Controls also include Public Works maintenance techniques such as street sweeping and cleaning of sedimentation out of catch basins. Operational solutions such as installation of oil/water separators are also employed. Fircrest publishes educational articles in the City's newsletter that encourage the reduction of non-point pollution sources from households and businesses.

Standards, specifications, and best management practices to prevent, control, and treat pollution in stormwater in new development and redevelopment in Fircrest must conform to those defined in the latest version of the Department of Ecology Stormwater Management Manual for Western Washington.

Fircrest will need to comply with Phase II Western Washington Municipal Stormwater Permit requirements in accordance with the EPA's National Pollutant Discharge Elimination System (NPDES). The City will need to incorporate best management practices during periodic refinement of stormwater regulations to address stormwater quality and quantity, erosion prevention, and minimizing downstream impacts of runoff in a manner consistent with NPDES Phase II requirements.

STORMWATER MANAGEMENT ISSUES AND PROJECTS

The City of Fircrest has been developing a Stormwater Management Program since 2007. The first Stormwater Management Program was adopted in 2009 and an update of the program was completed in April, 2015. The purpose of the program is to reduce the discharge of pollutants to the “maximum extent practicable”, protect water quality and satisfy the appropriate requirements of the Clean Water Act. This program is operated by the City and regulates its surface and stormwater facilities. The program includes five permit specific elements:

- Public Education and Outreach;
- Public Involvement and Participation;
- Illicit Discharge Detection and Elimination;
- Controlling Runoff from New Development, Redevelopment and Construction Sites; and
- Pollution Prevention, and Operations and Maintenance for Municipal Operations.

Planned improvements that are consistent with this program are identified in the Capital Facilities Element. These improvements are intended primarily to provide for treatment of existing stormwater facilities.

Electric

Tacoma Power, a division of Tacoma Public Utilities, is the electrical provider to Fircrest. The utility is governed by a five-member utility board appointed by the Tacoma City Council. Tacoma Power has a 180 square mile service area that includes the cities of Tacoma, Ruston, University Place, Fife, and Fircrest, part of Lakewood, as well as portions of unincorporated

Pierce County including Graham, Spanaway, Parkland, Joint Base Lewis McChord, Midland, Summit, Frederickson, Waller, South Hill Puyallup, and Elk Plan.

SUMMARY OF SERVICES AND FACILITIES

Tacoma Power operates both transmission and distribution facilities. Tacoma Power has one transmission line that runs through Fircrest. Six distribution substations, each located outside of Fircrest, supply customer load for the city, and the total nameplate capacity is 150 Megavolt Amperes (MVA). Several feeders from these substations ring the area along major arterials. Through these feeders, the substations back one another up in case of substation outage. Of the 3082 customers served by Tacoma Power in Fircrest, approximately 92.7 percent are residential, and 7.3 percent are commercial and other non-residential.

Tacoma Power utilizes forecasts produced by the Puget Sound Regional Council (PSRC) and local municipalities to project future load growth. Tacoma Power uses this information in conjunction with its system planning criteria to prepare a Six-Year facilities plan. The Six-Year plan helps Tacoma Power identify those strategic projects that will ensure a safe, reliable, and operable system. Tacoma Power's current level of service is to maintain the standard voltage level within + or - 5% of nominal voltage. All distribution service shall be provided within the acceptable range established by current industry standards.

Pursuant to its Six-Year plan, Tacoma Power does not anticipate development of new substations or major line replacements within Fircrest. The addition of a large commercial or industrial load in the area may require development of additional new facilities.

Natural Gas

COMPANY OVERVIEW

Natural gas is provided in Fircrest by Puget Sound Energy (PSE), an investor-owned utility. PSE is a private utility providing natural gas and electric service to homes and businesses in Puget Sound region of Western Washington and portions of Eastern Washington, covering 10 counties and approximately 6,000 square miles. PSE's regional and local natural gas and electric planning efforts are integrated and centered on providing safe, dependable, and efficient energy service. PSE provides natural gas to more than 770,000 customers, throughout six counties, covering approximately 2,900 square-mile area. As of March 2015, PSE provides natural gas service to approximately 1,893 customers within the City of Fircrest.

REGULATORY ENVIRONMENT

PSE's operations and rates are governed by the Washington Utilities and Transportation Commission (WUTC). PSE natural gas utility operations and standards are further regulated by the U.S. Department of Transportation (DOT), including the Pipeline and Hazardous Materials Administration (PHMSA). PHMSA's Pipeline Safety Enforcement Program is designed to monitor and enforce compliance with pipeline safety regulations. This includes confirmation that operators are meeting expectations for safe, reliable, and environmentally sound operation of PSE's pipeline infrastructure. PHMSA and the WUTC update pipeline standards and regulations on an ongoing basis to assure the utmost compliance with standards to ensure public safety. The businesses and residents within the City of Fircrest rely on the coordinated effort between PSE and the City for the adoption and enforcement of

ordinances and/or codes to support on the safe, reliable, and environmentally sound construction, operation and maintenance of PSE's natural gas facilities.

INTEGRATED RESOURCE PLAN

In order for PSE to meet its regulatory requirements, it updates and files an Integrated Resource Plan (IRP) with the WUTC every two years. The IRP identifies methods to provide dependable and cost-effective natural gas service that address the needs of retail natural gas customers. Natural gas sales resource need is driven by design peak day demand. The current design standard ensures that supply is planned to meet firm loads on a 13-degree design peak day, which corresponds to a 52 Heating Degree Day (HDD). Currently, PSE's supply/capacity is approximately 970 MDth/Day at peak. This figure will be updated in the fall of 2015. The IRP suggests the use of liquefied natural gas (LNG) for peak day supply and to support the needs of emerging local maritime traffic and truck transport transportation markets.

NATURAL GAS SUPPLY

PSE controls its gas-supply costs by acquiring gas, under contract, from a variety of gas producers and suppliers across the western United States and Canada. PSE purchases 100 percent of its natural-gas supplies needed to serve its customers. About half the natural gas is obtained from producers and marketers in British Columbia and Alberta, and the rest comes from Rocky Mountain States. All the gas PSE acquires is transported into PSE's service area through large interstate pipelines owned and operated by Williams Northwest Pipeline. PSE buys and stores significant amounts of natural gas during the summer months, when wholesale gas prices and customer demand are low, and stores it in large underground facilities and withdraws it in winter when customer usage is highest; ensuring a reliable supply of gas is available.

SYSTEM OVERVIEW

To provide the City of Fircrest and adjacent communities with natural gas, PSE builds, operates, and maintains an extensive system consisting of transmission and distribution natural gas mains, odorizing stations, pressure regulation stations, heaters, corrosion protection systems, above ground appurtenances, and metering systems. When PSE takes possession of the gas from its supplier, it is distributed to customers through more than 21,000 miles of PSE-owned natural gas mains and service lines.

PSE receives natural gas transported by Williams Northwest Pipeline's 36" and 30" high pressure transmission mains at pressures ranging from 500 PSIG to 960 PSIG. The custody change and measurement of the natural gas occurs at locations known as Gate Stations. PSE currently has 39 such locations throughout its service territory. This is also typically where the gas is injected with the odorant mercaptan. Since natural gas is naturally odorless, this odorant is used so that leaks can be detected. The Gate Station is not only a place of custody transfer and measurement but is also a common location of pressure reduction through the use of "pressure regulators". Due to state requirements, the pressure is most commonly reduced to levels at or below 250 PSIG. This reduced pressure gas continues throughout PSE's high-pressure supply system in steel mains ranging in diameter of 2" to 20" until it reaches various other pressure reducing locations. PSE currently has 755 pressure regulating

stations throughout its service territory. These locations consist of Limiting Stations, Heaters, District Regulators, and/or high-pressure Meter Set Assemblies.

The most common of these is the intermediate pressure District Regulator. It is at these locations that pressures are reduced to the most common levels ranging from 25 PSIG to 60 PSIG. This reduced pressure gas continues throughout PSE's intermediate pressure distribution system in mains of various materials consisting of polyethylene and wrapped steel that range in diameters from 1-1/4" to 8" (and in a few cases, larger pipe). The gas flows through the intermediate pressure system until it reaches either a low- pressure District Regulator or a customer's Meter Set Assembly.

To safeguard against excessive pressures throughout the supply and distribution systems due to regulator failure, over-pressure protection is installed. This over-pressure protection will release gas to the atmosphere, enact secondary regulation, or completely shut off the supply of gas. To safeguard steel main against corrosion, PSE builds, operates, and maintains corrosion control mitigation systems to prevent damaged pipe as a result of corrosion.

FUTURE PROJECTS

To meet the regional and City of Fircrest's natural gas demand, PSE's delivery system is modified every year to address new or existing customer growth, load changes that require system reinforcement, rights-of-way improvements, and pipeline integrity issues. The system responds differently year to year and PSE is constantly adding or modifying infrastructure to meet gas volume and pressure demands. Ongoing system integrity work includes:

The replacement of DuPont manufactured polyethylene main and service piping and certain/qualified steel wrapped intermediate pressure main and service piping. There will be ongoing pipe investigations throughout the city to determine the exact location of any DuPont pipe and qualified steel wrapped pipe to be replaced.

Investigations throughout the City to determine the location of where gas lines have been cross bored through sewer lines and make subsequent repairs.

Telecommunications

Telecommunications services in Fircrest consist of land-based telephone service, cellular telephone service, and cable television service furnished by private providers. The following subsections summarize the information provided to Fircrest by each of the private service providers.

LAND-BASED TELEPHONE SERVICE

CenturyLink, a private for-profit corporation, is certified by the Washington Utilities and Transportation Commission (WUTC) to provide local telephone and other related special services (alarm circuits and data transmittal) throughout Fircrest. The WUTC regulates the provision of telecommunication services, including those provided by local exchange carriers such as CenturyLink. Telephone utilities are considered an essential utility by the WUTC; therefore, CenturyLink has an obligation to serve the public requirements for communication

utilities. CenturyLink is also subject to various federal laws and regulations administered by the Federal Communications Commission (FCC).

Local jurisdictions in Washington fall within a particular Local Access and Transportation Area (LATA). A LATA is a telephone exchange area that services to define the area within which Century Link is permitted to transport telecommunications traffic. Century Link is permitted to carry telephone calls only within LATA boundaries. Calls outside of the LATA require long distance carriers, which Fircrest residents may select for this service.

Hundreds of Central Offices (COs) serve Century Link customers in Washington. A CO is a telecommunications common carrier facility where calls are switched. For local exchange or intra-LATA calls the central office switches calls within and between line exchange groupings.

The transmission facilities that serve Fircrest originate with the Logan Central Office located at 2823 Bridgeport Way, from which main cable routes extend generally north, south, east, and west to serve Fircrest and the surrounding area. From each main cable route are branch feeder routes. Branch feeder routes may be aerial or buried, copper or fiber. Extending from the branch feeder routes are the local loops that provide dial tone to every telephone subscriber. Century Link construction planning is driven by the needs of its customers. As communities grow, facilities are upgraded to ensure adequate service levels. RCW 80.36.090 requires Century Link to provide adequate telecommunications services on demand. To comply with RCW 80.36.090, Century Link regularly evaluates the capacity of its facilities. Century Link's goal is to maintain its routes at 85 percent capacity. When usage exceeds 85 percent, additional facilities are planned, budgeted, and installed. Moreover, facilities are upgraded as technology makes additional services available. Capacity is available to serve the area.

CELLULAR SERVICE

There are seven cellular providers licensed by the FCC to serve in the Puget Sound area. With the passage of the Federal Telecommunications Act of 1996, service area competition has increased. Prior to the Act's passage, only two cellular providers would be licensed by the FCC to service a particular area. With the Act's passage, the number of carriers competing in a particular market may conceivably include all seven. In the future, the FCC may also expand the frequency range available to wireless providers, potentially resulting in new providers entering the market.

Where feasible, cellular companies site facilities on existing structures, poles, and buildings. This is where antennas can be mounted on rooftops and electronic equipment located within the building itself. Topography and other engineering constraints influence specific site selection because of the need to "hand off" the signal so that it can be picked up by another facility. The City has adopted telecommunications regulations to address the siting of cellular and other telecommunications facilities inside of the City limits.

There are two cellular transmission facilities in Fircrest. The facilities are located on the City's water tank within the Fircrest Golf Club and the Fircrest water tower located east of the City's Orchard Street boundary across from Stanford Street.

CABLE TELEVISION SERVICE

Click!, a division of Tacoma Public Utilities, and Comcast provide cable service to the City of Fircrest under separate franchise agreements. Fircrest is a member of Rainier Communications Commission, which was created through an inter-local agreement with Pierce County and other cities and towns in the County, to establish inter- jurisdictional cooperation on regulation and oversight activities and to build expertise in negotiating with cable companies.

Cable service is delivered to customers through a complex series of electrical components and many miles of cable. Located at the origin of the cable system is the *receive site* where towers with antennae and earth station receivers are located to pick up off-air and satellite signals. From the receive site, signals are sent to the *headend* to be processed for entry onto the *trunk line*, which is the main artery of the cable system. From the trunk, the signals are branched off onto *feeder lines*, which carry the signals through neighborhoods past individual residences. The signals are branched off again from the feeder onto *drop cable* that allows the signal to flow to the subscriber's television set or computer cable modem.

The Comcast headend serving Fircrest is located at S. 56th St. and Orchard St. The trunk line runs north along Orchard St. from the headend. At Emerson Street St. it branches west and follows Emerson west through Fircrest. Feeder lines branch off from this trunk line to reach every street in Fircrest. Feeder lines are generally co-located with electric lines. Detailed maps indicating the locations of all facilities in Fircrest are available in the Fircrest Public Works Department.

Click! offers cable television packages for residential and commercial locations in Fircrest. Two internet service providers (ISPs) operate on its network: Advanced Stream and Rainier Connect. These ISPs offer a variety of high-speed internet and phone packages to residential and commercial locations.

Commercial customers in Fircrest have access to custom network solutions through Click's Authorized Service Partners: Integra, Rainier Connect, Optic Fusion and Spectrum Networks. These Authorized Service Partners offer voice and data services, internet, co-location, and local and long-distance phone services. Services can be delivered over SONET Based Line Services or Metro Ethernet Services.

Comcast and Click! make every attempt to provide service to all residents within their franchise areas. Factors considered in extending service include the overall technical integrity, economic feasibility, and franchise agreements. Both Comcast and Click! can serve future growth in Fircrest.

Solid Waste

State law requires counties, in coordination with their cities, to adopt comprehensive solid waste plans for the management, handling, and disposal of solid waste for twenty years and to update them every five years. Cities may choose to be joint participants in the plan, delegate planning to the county, or do their own plan. In Pierce County, waste management and recycling activities for all jurisdictions are coordinated under the umbrella of the Tacoma-Pierce County Solid Waste Plan.

There are three separate collection and disposal systems in the County: 1) The County's system includes the unincorporated areas of the county and 19 cities and towns using the County's disposal system; 2) Tacoma, as a joint participant in the plan, has its own collection utility and disposal system and the Town of Ruston operates its own collection utility, but has an inter-local agreement with Tacoma for disposal and an inter-local agreement with the County adopting the Solid Waste Plan; and, 3) Joint Base Lewis McChord use the Fort's disposal system but coordinate with the County on public outreach and educational programs about waste reduction and recycling.

An update of the Solid Waste Plan was adopted in 2008 and the City signed an interlocal agreement with Pierce County pursuant to the plan. Under this agreement, the County has

responsibility for overall planning, disposal and waste reduction and recycling education. Cities are responsible for collection and the development of any recycling program specific to their jurisdiction. Waste is collected in Fircrest by Westside Disposal, a subsidiary of University Place Refuse. Collected waste is handled through the Pierce County disposal system.

Westside Disposal has a franchise with the City that runs through 2022. The company offers residents solid waste, recycling, and yard waste collection programs coordinated with the unincorporated areas and 18 other cities and towns. Further, the company coordinates with the City to provide citywide clean-up programs in the spring and fall of each year plus special yard waste pick-up programs each spring and fall. The County provides public outreach and school education programs about waste management, waste reduction, and recycling for all residents of 19 cities and unincorporated areas.

Cities are responsible for collection and the development of any recycling program specific to their jurisdiction.

Essential Public Facilities

By Statute (RCW 36.70A.200), essential public facilities include:

- Airports
- State education facilities
- State or regional transportation facilities (defined in RCW 47.06.140)
- State and local correctional facilities
- Solid waste handling facilities
- Inpatient facilities, including substance abuse facilities, mental health facilities, group homes, community facilities (defined in RCW 72.05.020)
- Secure community transition facilities (defined in RCW 71.09.020)
- Regional transit authority facilities (defined in RCW 81.112.020)

The City of Fircrest does not have any essential public facilities within its incorporated boundary. The City does not anticipate the addition of essential public facilities in the near future. The City will maintain its current policy and goals from the previous Plan related to essential public facilities.

APPENDIX G: CLIMATE RESILIENCE

List of Figures

Figure 1 Pierce County 2019 Emissions Profile 2
Figure 2 Change in Average Summer Temperature by 2050 3
Figure 3 Percent Change in Total Annual Precipitation 3
Figure 4 Environmental Health Disparities Map Overview 4
Figure 5 Social Vulnerability Index 4
Figure 6 Environmental Effects and Hazards 5

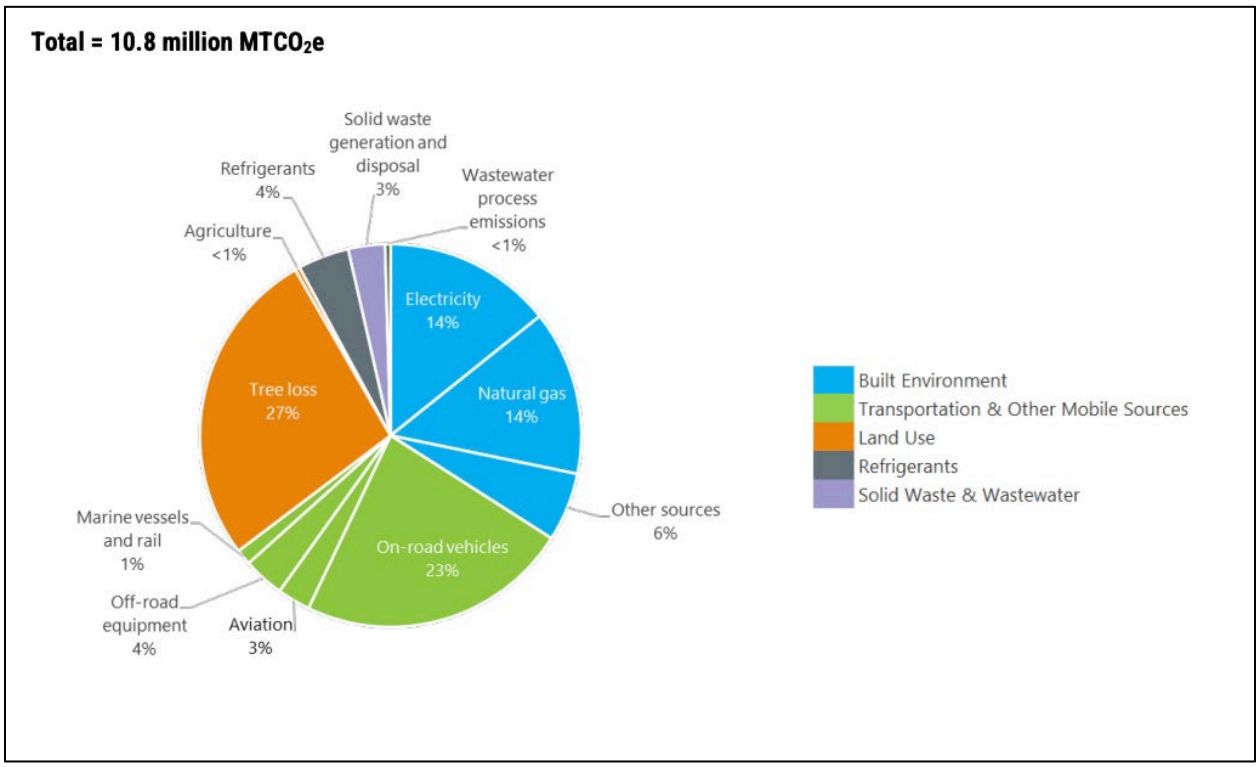
GREENHOUSE GAS EMISSIONS

Fircrest's incorporation of climate mitigation or adaptation efforts in the Comprehensive Plan should correspond to regional and statewide goals. Pierce County's Greenhouse Gas Reduction Plan, as aligned with statewide goals, includes an emissions reduction target of 45% by 2030. Pierce County's climate goals include strategies to address five broad categories: Energy and Built Environment, Transportation, Consumption and Waste Reduction, Carbon Sequestration, and Education and Outreach.

EMISSIONS PROFILE

The City of Fircrest does not have an existing emissions profile or climate action plan. Countywide emissions for Pierce County are shown in Figure 1. Emissions in Pierce County are primarily derived from the built environment and transportation, which make up 34% and 31%, respectively. Other emissions sources include land use (specifically from tree loss), refrigerants, and solid waste and wastewater. Per capita emissions in Pierce County are 12.2MT CO2e/year as of 2019, which is lower than statewide per capita emissions of 13.5 MY in 2019.

Figure 1 Pierce County 2019 Emissions Profile



Source: Pierce County Communitywide Geographic Greenhouse Gas Emissions.

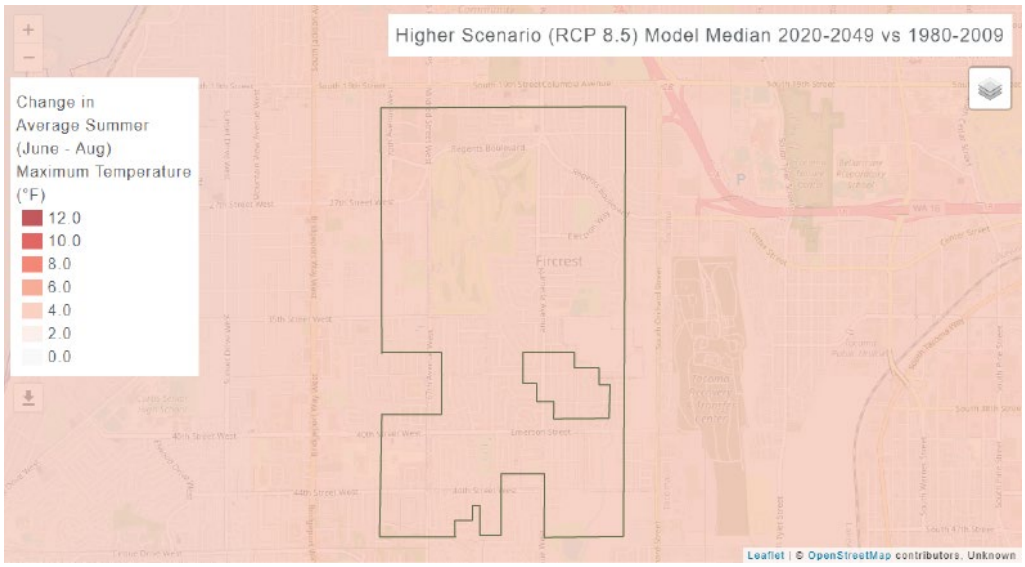
CLIMATE IMPACTS

Climate Hazards

Climate impacts expected to affect the region at large are more frequent and intense heat waves, increased precipitation, and increased flooding risks, among others. Fircrest is predicted to experience warmer summers, with an average increase of 4˚F in maximum summer temperatures by 2050 (Figure 2).

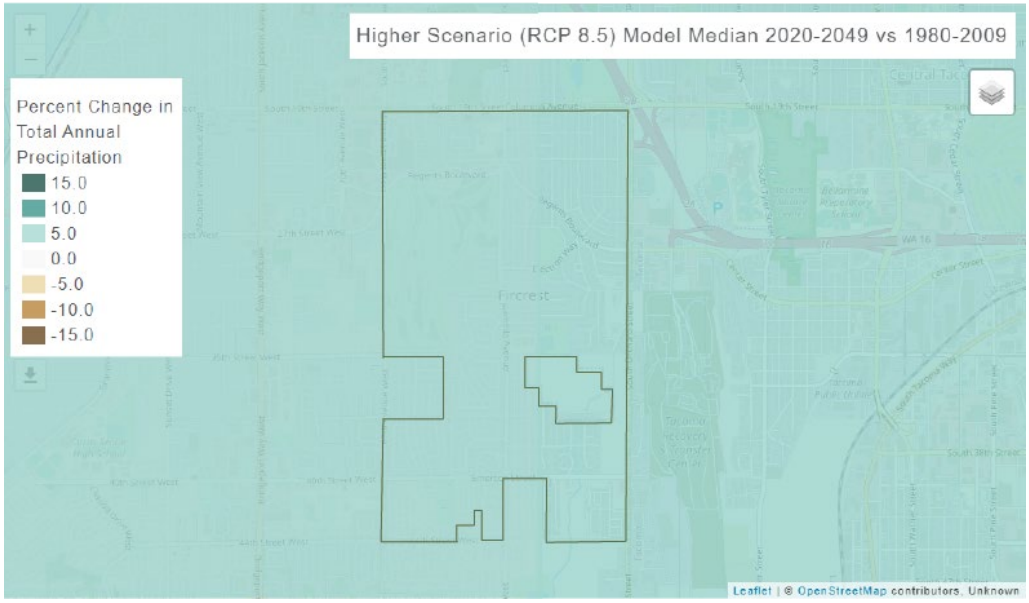
Annual precipitation is predicted to increase by about 5% over the next 30 years as compared to the average precipitation from 1980-2009. However, summer precipitation will decrease in Fircrest over the same period; there is a 35-40% chance that any year in the next 30 years will have at least 75% less precipitation than historical normal values (Figure 3Figure 3).

Figure 2 Change in Average Summer Temperature by 2050



Source: Climate Impacts Group, Climate Mapping for a Resilient Washington Tool

Figure 3 Percent Change in Total Annual Precipitation

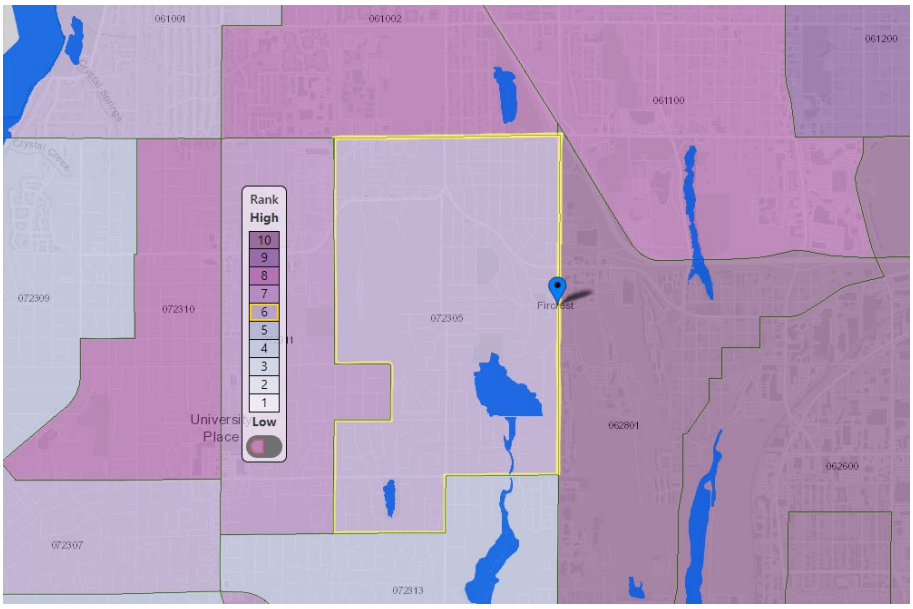


Source: Climate Impacts Group, Climate Mapping for a Resilient Washington Tool

CLIMATE VULNERABILITY ASSESSMENT

Vulnerability to climate hazards in Fircrest is relatively low compared to surrounding census tracts, with an overall vulnerability index of 6/10 according to the Washington Environmental Health Disparities Map, as shown in Figure 4 below.

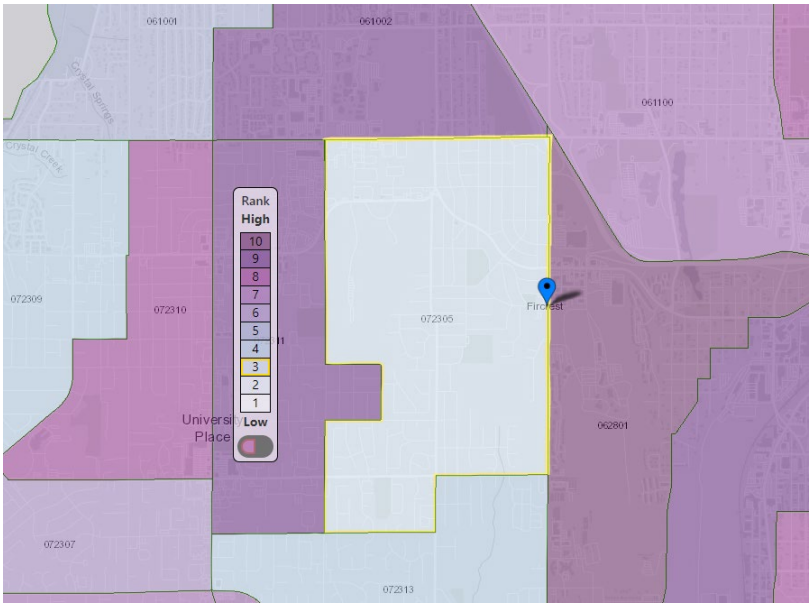
Figure 4 Environmental Health Disparities Map Overview



Source: Washington Environmental Health Disparities Map.

Fircrest has a low social vulnerability index of 3/10 compared to surrounding tracts, though there are a few communities that are most vulnerable (Figure 5). Such populations are households with a single parent (9/10), and those over 65 and under 18 (7/10 for both). Other vulnerable communities in Fircrest are those who are unemployed (7/10) or are living in poverty (6/10).

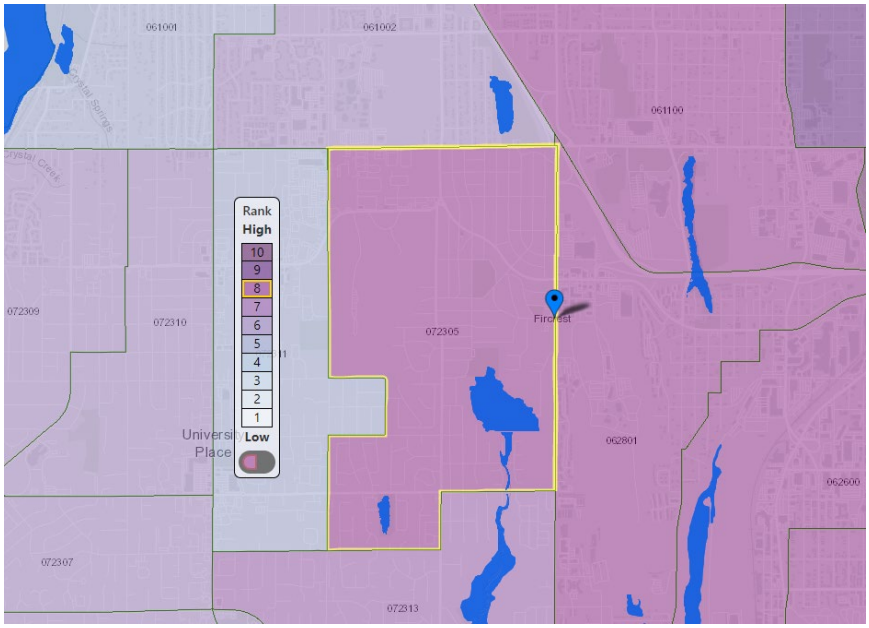
Figure 5 Social Vulnerability Index



Source: Washington Environmental Health Disparities Map.

Vulnerabilities from environmental effects are relatively high among surrounding census tracts, perhaps due to its proximity to industrial activity in Tacoma. Vulnerabilities from environmental effects (Figure 6Figure 6) stem from the proximity to superfund sites, risk management plan facilities, hazardous waste facilities, heavy traffic roadways, and the presence of air pollutants and lead in some housing (8/10).

Figure 6 Environmental Effects and Hazards



Source: Washington Environmental Health Disparities Map.

Vulnerable populations in Fircrest could be defined with greater spatial detail to ensure these communities don't disproportionately experience climate impacts. Overall, Fircrest's vulnerability is low compared to surrounding census tracts, but the populations identified in this brief analysis will need to be prioritized for climate action and preparedness efforts.