TUKWILA COMPREHENSIVE PLAN

ELEMENTS

Introduction
Community Character
Land Use
Regional Centers
Housing
Economic Development
Natural Environment
Shoreline
Parks, Recreation, and Open Space
Transportation
Utilities
Capital Facilities

Introduction

The City of Tukwila (City) Comprehensive Plan is a 20-year plan that articulates the community's vision and values about how it will grow into the future. The goals, policies and implementation strategies included in this Plan provide a basis for the City's regulations and guide future decision-making. The Plan also addresses anticipated population, housing, and employment growth, and how facilities and services will be maintained or improved to accommodate expected growth between now and the year 2044.

The purpose of the City of Tukwila's Comprehensive Plan is to provide a comprehensive statement of City goals and policies to focus, direct, and coordinate the efforts of departments within the City's government. It serves as a basic source of reference for decision-making officials as they consider enacting ordinances or regulations that will affect the community's physical and economic development. The Comprehensive Plan communicates to the public and City staff the policies of the City Council, and it provides predictability to public and private sectors interested in the City of Tukwila.

The Comprehensive Plan is designed to be:

- **Comprehensive** in addressing all the geographic and functional elements relevant to the community's physical development.
- **General** in summarizing the major policies and proposals of the City, but not defining specific locations or establishing detailed regulations -- *except* for in the City's designated Regional Growth Centers and subareas.
- **Long Range** in looking beyond the current issues facing the City, but also anticipating issues that will likely occur in the future.

Why Plan?

Tukwila's future is built on the conditions of yesterday and today and looks down the road to changes that may occur in the future. The Comprehensive Plan is for all people in Tukwila, including residents, the business community, and visitors. People need a safe and secure place to live, an economy that provides jobs, ways to get around, schools and recreational opportunities. It is the local government's responsibility to provide public services and facilities, develop policies, and adopt regulations to guide the growth of a city that meets the needs of its people both now and in the future.

What is a Comprehensive Plan?

A comprehensive plan is a broad statement of community goals and policies that direct the orderly and coordinated physical development of a city into the future. It is designed to be a readable, functional document that reflects current community goals and needs, anticipates change, and provides specific guidance for future legislative and administrative actions. It reflects the results of public involvement, technical analysis, and the judgment of decision makers.

The goals, policies, and maps in this Comprehensive Plan provide the guide for designating the use of land, implementing flexible regulations, investing in infrastructure, and developing programs and services. The elements of this Comprehensive Plan address every aspect of the community – social, economic, and environmental. Each element consists of goals, policies, and implementation strategies.

TERMS

- **Vision**: A community's best desired future.
- **Goals** are broad statements of community aspiration related to an element;
- **Policies** are specific statements of the community's position on particular issues to guide land use review, development decisions, and operational programs that will be pursued in achieving goals.
- **Implementation strategies** are the approaches staff will use to implement policies, as well as how and when the actions will be undertaken.
- **Regulation**: A rule or directive found in City ordinances or the municipal code. See **Exhibit XX** illustrating the relationship of goals, policies, regulations (development rules), and programs, and project review for development.

Readers and users of this Comprehensive Plan should bear in mind four important points:

- The **policies** articulated in the Plan are the **foundation for decision making** and **represent the City's official position**.
- The **goals and policies presented** in this plan were developed in **response to the community conditions identified in the background reports**, **and the Vision** identified for the community. Links to background reports and other foundational resources are listed in this document.
- **Policies are not applied in isolation**, but are weighed in relation to other relevant policies, and considered within the context of the goal they are intended to achieve.
- **Implementation strategies** listed in the Plan elements provide direction on how the Plan's policies will be acted upon by the City and community. The strategies note which city department/s or outside group/s is responsible for the action and on what timeline. Not all policies include implementation strategies, and some strategies may support multiple policies. Within five years of Plan adoption, the City will report back to King County and the Puget Sound Regional Council on how well it did in completing the short term strategies (i.e., those identified as being completed within 5 years) to which it committed.

Comprehensive Plan Amendments

Tukwila's Comprehensive Plan is an evolving document and will be periodically reviewed and revised over the next 20 years as better information becomes available and public attitudes, development technologies, and economic forces and legislative policy change over time. The GMA limits Comprehensive Plan amendments to no more than once per calendar year, except for certain exemptions and emergency actions. Whenever the plan is amended it is important to verify that it is "internally consistent" and that development regulations are consistent with implementing the comprehensive plan.

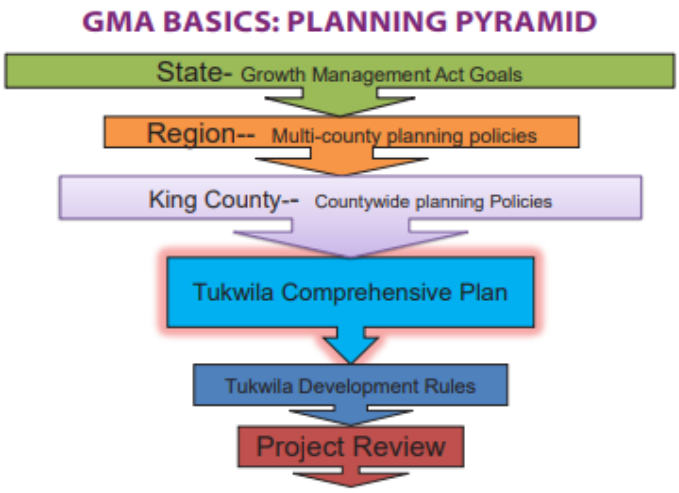
THE PLANNING FRAMEWORK

Growth Management Act

Washington State's Growth Management Act (GMA) of 1990 and 1991 provides a managed framework for growth and development throughout the State. Among other things, it mandates that fast-growing counties and cities must develop and maintain a comprehensive plan – covering the subsequent 20 years – that incorporates a number of specific elements.

GROWTH MANAGEMENT ACT GOALS

- Urban growth
- Reduce sprawl
- Transportation
- Housing
- Economic development
- Property rights
- Permits
- Natural resource industries
- Open space and recreation
- Environment
- Citizen participation and coordination
- Public facilities and services
- Historic preservation



A major emphasis of the GMA is the coordination and consistency of local, regional, and State planning efforts. This includes consistency with adopted multi-county planning policies, including VISION 2050, and Countywide planning policies.

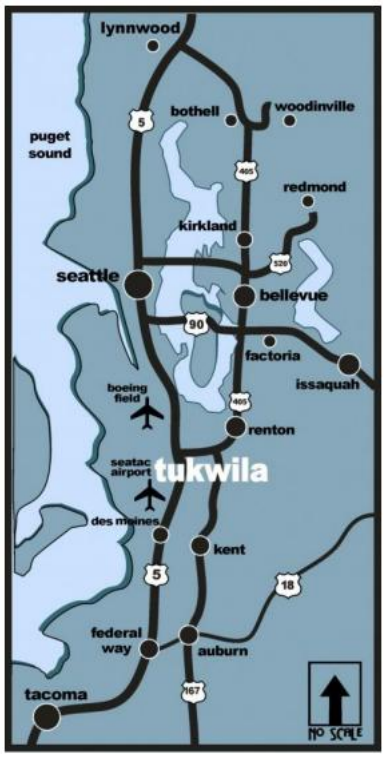
One of the most important characteristics of the Growth Management Act (GMA) and the Comprehensive Plan is concurrency. Concurrency is the requirement that a jurisdiction must have infrastructure and facilities (i.e., transportation, sewer, water, police, fire, stormwater, schools, and parks and recreation) in place at the time, or within six years of, a development. This requirement can have a significant impact on the pace and type of development in the City, particularly areas of the City which require significant infrastructure improvements to

accommodate new growth. If the City or a developer cannot provide adequate facilities as described, then the development may not occur, and the vision described in the Comprehensive Plan should be reevaluated. Similarly, the City must identify sources of funding and commit those funds to support capital facility projects it has identified in its six-year Capital Facilities plan, adopted by reference into the Comprehensive Plan.

Tukwila Snapshot

Using data from the U.S. Census Bureau, Washington State Office of Financial Management, Puget Sound Regional Council, and other sources, a snapshot of the Tukwila's population has been developed:

- Tukwila, incorporated on June 23, 1908, is a non-charter, optional code city operating under a Mayor-Council form of government, which includes a full-time Mayor, seven-member City Council elected at large, and a City Administrator. All elected-official terms are for a period of four years.
- Tukwila is located in the heart of the Puget Sound region, approximately 12 miles south of downtown Seattle, 17 miles north of Tacoma, and just east of Seattle-Tacoma International airport.
- Tukwila is 9.2 square miles in size (2020), with a population of 2,373 persons per square mile.
- Tukwila had an estimated population of 22,780 in 2023 and had an estimated employment of around 45,825 in 2022. Between 2018 and 2022, more than 82 percent of those 25 years and older reported being a high school graduate, and 26 percent had a bachelor's degree or higher.
- Tukwila is an increasingly diverse city, with more than 69 percent of its population identifying as nonwhite in 2023, and 40 percent born outside of the United States or Puerto Rico. Approximately 47 percent of the residents speak a language other than English at home.
- As of 2023, Tukwila had estimated 8,098 households with an average of 2.64 persons per household.
- Tukwila's 2023 median household income was $76,331, and the Census Bureau estimates that 13.3 percent of the City's residents live in poverty.
- In 2023, 18 percent of the population was under 18 years old, and 11 percent were over 65 years old.
- Business Tukwila has more than 2,000 businesses, which comprise over 40,000 jobs. Businesses cover multiple sectors with concentrations in retail, manufacturing, services, and distribution and specialties in entertainment and aerospace.
- Between 2018 and 2022, 72 percent of the population age 16 and up participated in the civilian labor force.



King County Countywide Planning Policies / Vision 2050

Tukwila is located within King County. The King County Growth Management Planning Council (GMPC) has adopted a series of Countywide Planning Policies (CPPs) that provide guidelines and requirements for the 39 cities within the County in implementing the Growth Management Act mandates. The policies are adopted by the King County Council, and subsequently ratified by the County's cities. Taken together, the CPPs try to balance issues related to growth, economics, land use, and the environment. CPP objectives These requirements include:

- Providing a fair share of **housing affordable** to all segments of the population at a variety of densities and at varying income levels through investment in needed infrastructure and modification of land use regulations.
- Designating an Urban Growth Boundary that can **accommodate at least 20 years of new population and employment** and, where appropriate, Urban Centers of concentrated population and employment.
- Providing all King County residents with **a more equitable future that offers access** to housing, transportation, education, employment choices, and open space amenities, regardless of race, social or economic status.
- Designing efficient **multimodal transportation** systems that are based on local and regional priorities.
- Shaping sustainable communities by integrating **sustainable development** and business practices, including **environmental justice** principles, with ecological, social, and economic concerns.
- Ensuring that public **facilities and services necessary to support development are adequate** for growth without decreasing levels of service below local standards.
- Designating Manufacturing/Industrial Centers to **protect industrial and other high wage jobs** they provide.
- Identifying, establishing, and **protecting open space; access to natural resource lands and water; parks and recreation facilities; and fish and wildlife corridors** of regional significance.

In addition to the GMA and CPPs, Tukwila's Comprehensive Plan is guided by the multicounty policies of Vision 2050, the regional plan developed by the Puget Sound Regional Council (PSRC). Vision 2050 is an integrated, long-range vision for maintaining a healthy region by promoting the well-being of people and communities, economic vitality, and a healthy environment. It contains an environmental framework, a regional growth strategy, and policy sections that are guided by overarching goals, implementation actions, and measures to monitor progress. The Tukwila Comprehensive Plan must be certified by PSRC as being consistent with Vision 2050 to be eligible to apply for and receive regional transportation funding.

WHAT IS IN A PLAN?

Comprehensive Plan Elements

Comprehensive plans are required by the GMA in RCW 36.70a.070 to address specific required issues, or "elements." In addition, a city may include other elements as local needs and goals dictate. Tukwila's Comprehensive Plan is made up of 11 elements, seven of which are mandated by the GMA. The mandated elements include the following:

- Land Use
- Housing
- Capital Facilities
- Utilities
- Transportation
- Economic Development
- Parks, Recreation and Open Space

Tukwila's Comprehensive Plan also includes the following optional elements identified as important to this community:

- Community Character
- Natural Environment
- Shoreline
- Regional Centers

HOW WAS THE PLAN DEVELOPED?

Over the years, the City has conducted extensive outreach to shape the creation and periodic updates of its Comprehensive Plan. This outreach has guided many of the local planning documents that serve as the foundation for the City's Comprehensive Plan.

1992 - Comprehensive Plan Visioning – "Tukwila Tomorrow"

In 1992, a 17-member advisory committee composed of residents, business representatives and property owners began to work with ideas gathered from an earlier "Vision Tukwila" community visioning process. The community vision and ideas for achieving that emerged were discussed with the Planning Commission and City Council and were ultimately refined into the basis of the Comprehensive Plan.

The Comprehensive Plan has been kept current with specific annual updates, as well as through a more comprehensive review in 2004, a phased review from 2011 through 2015, and the update process that is developing the 2024 to 2044 horizon Plan.

In addition, other local planning efforts have contributed to the community's guidance for the Comprehensive Plan.

2012 - Tukwila Strategic Plan

The City Council developed a City Strategic Plan to provide a process for moving from the Comprehensive Plan's long range (10- to 20-year) goals and policies to more specific short-term initiatives and actions. The strategic process examined a number is considerations:

Where are we now?

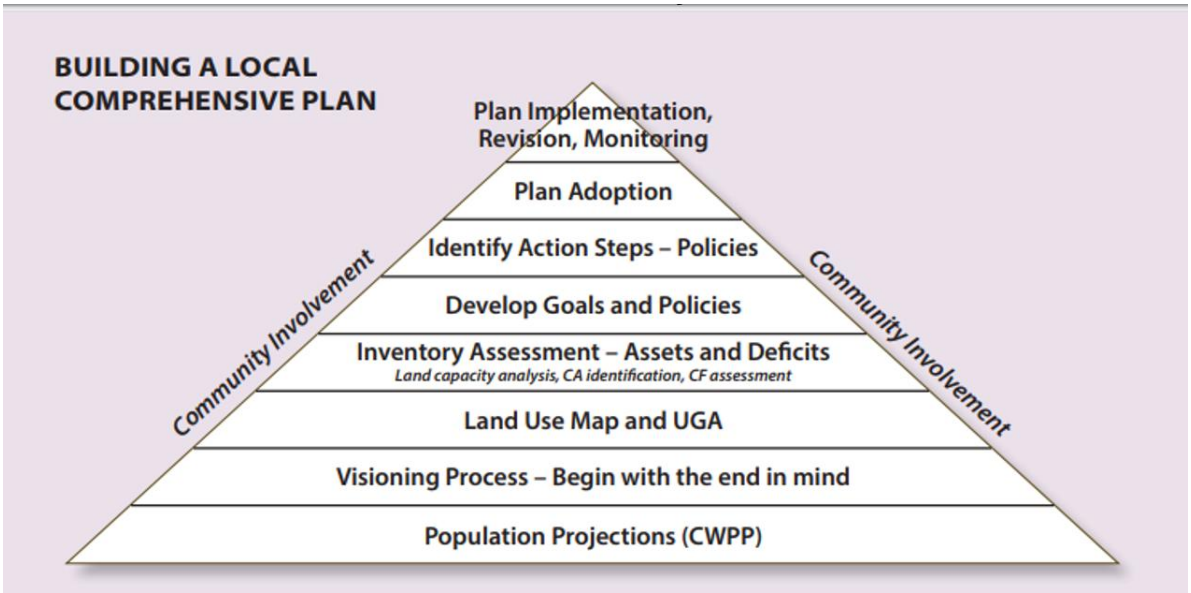
- Who makes up the community and how is the population changing?
- What are the major businesses and the City's role in the regional economy?
- What are the City's greatest strengths and challenges?

Where do we want to go?

- What is the Community vision for the future of Tukwila?
- What do City residents want the community to be like in the future?

How do we get there?

- What actions and investments are necessary to make the vision a reality?
- What timeline is feasible for accomplishing the City's goals and priorities?
- How can the City and community best serve the needs of Tukwila's diverse community, including residents, businesses and visitors?



The 2012 City Strategic Plan established a Vision for Tukwila - "*The City of Opportunity, the Community of Choice"* - that included five aspirational goals:

Goal One: ***A Community of Inviting Neighborhoods & Vibrant Business Districts***
Goal Two: ***A Solid Foundation for All Tukwila Residents***
Goal Three: ***A Diverse & Regionally Competitive Economy***
Goal Four: ***A High-Performing & Effective Organization***
Goal Five: ***A Positive Community Identity & Image***

In 2018, the City conducted an extensive outreach effort to determine if the Plan still reflected community priorities and values. The update identified improvements that had been completed over the years as well as opportunities for ongoing progress, which were incorporated into the updated Strategic Plan.

Items needing ongoing attention: Community input identified that the City still had work to do to improve safety and project a positive image. The primary item needing work was ensuring that Tukwila residents can get basic needs, especially affordable housing. In addition, the community stated Tukwila should ensure that there are opportunities for community outreach and engagement.

Is the 2012 Plan still valid? How should the City Prioritize its budget? Generally, constituents agreed with the vision, mission, goals and objectives identified in the 2012 Strategic Plan, and supported the City continuing to work toward the aspirational vision of being "The City of Opportunity, the Community of Choice."

What changes should be made in the Plan – what is missing? The community and staff identified the following important items that were missing from the Strategic Plan:

1. Equity, particularly with regard to race
2. Addressing gentrification and displacement
3. Health and environmental health
4. Infrastructure
5. Technology and innovation

2015 and 2024 Comprehensive Plan Periodic Updates

Over the years the City has reached out to all residents, employees, and property owners in Tukwila about the Comprehensive Plan process and encouraged them to participate. The City has used a variety of approaches to encourage engagement over the years, including all-city mailings, the Hazelnut newsletter, and information posted to the City website. For some topics the City formed advisory committees or conducted video interviews with residents, businesses, and other stakeholders to provide guidance on new policy directions. In addition, staff has held informal open houses where residents, property owners, and business representatives could review changes and provide input on the Plan. Ultimately, the plan is reviewed at public hearings with the Planning Commission and City Council.

During the 2015 update, the City used trained community liaisons to reach out to different language groups to conduct surveys and hold "Community Conversations" meetings in multiple languages. In early 2023, the City received a limited amount of state funding to use for outreach to community-based organizations around the topic of housing. Staff conducted interviews with affordable housing developers, realtors, and City elected, appointed, and community leaders to talk about City planning issues, with special focus on housing type options and affordability, as well as conducted Open Houses. Translation services have been provided at Community meetings and the Comprehensive Plan Update webpage has offered text and surveys in numerous languages. The input from these engagement events and activities has been folded into the goals and policies identified in the 2024-2044 Comprehensive Plan.

Prior to the passage of SHB 1717 in 2022, the Growth Management Act was largely silent on coordination between jurisdictions preparing their Comprehensive Plans and Tribal governments. The GMAS now requires that local governments invite a local tribe to participate in a local comprehensive planning process and establish a memorandum of agreement regarding collaboration and coordination (RCW 36.70A.040). In 2022, Tukwila reached out to both the

Muckleshoot Tribe and the Duwamish tribe to invite that participation, however, neither tribe expressed an interest in participating in the Plan development process.

Environmental Review
With its original Comprehensive Plan, Tukwila prepared an Environmental Impact Statement (EIS). Over the years, as the Plan has been updated, the EIS has been updated as well. Through the environmental review public participation process, the City has solicited review and discussion of the Comprehensive Plan with neighboring jurisdictions and affected agencies.

TUKWILA'S VISION

The vision for the community, which was articulated by the community in multiple community engagement opportunities, emerge from the community's core values – respect for the past and present, compassion and support for individuals and families, pride of place, and quality opportunities for working, living and community involvement. This vision, discussed in the following section, provides the foundation for the Goals of this Comprehensive Plan, described in each element of the Plan.

RESPECT FOR THE PAST AND PRESENT

- ***TUKWILA WAS, AND WILL CONTINUE AS, A REGIONAL CROSSROADS***

Puget Sound is a part of a larger area that has been the traditional aboriginal territory of the Coast Salish peoples, who live around the Salish Sea in what is now Washington State and the Canadian province of British Columbia. The Coast Salish Tribes have lived here since time immemorial and while each tribe is unique, all share a deep historical connection and legacy of respect for the land and its natural resources. These sovereign tribal nations enrich the region through environmental stewardship, cultural heritage, and economic development. The Duwamish and Muckleshoot Tribes bring their perspectives to collaborate with Tukwila to shape the region's future.

Given its central location and convenient access to many modes of transportation Tukwila will continue to be at a strategic crossroads. First the Duwamish River, then the Interurban railroad, and later major highways have provided transportation access – first, for native Americans drawn to the river's fish, then for 19th- and early 20th- century immigrants who harvested the timber and established farms, and now for people who conduct business, shop, visit, or live in this urban area.

Modern methods of transportation such as Link Light Rail and bus rapid transit are important attractors for new investment and should serve our residents while connecting local and regional travelers and the region.

- ***WE HONOR THE PAST AS WE MOVE TOWARD THE FUTURE***

Our present institutions and housing, businesses, and public infrastructure facilities have resulted from the efforts of many people to pursue their individual and collective dreams. We honor this past and seek to preserve and enhance our community and environment by dreaming, planning, and investing in our future. We support cultural preservation programs and activities that draw on the strengths of long-term residents and families who provide a direct connection with the past.

COMPASSION AND SUPPORT FOR INDIVIDUALS AND FAMILIES

- ***WE SUPPORT OUR RESIDENTS***

We seek to maintain each neighborhood fairly and equitably so that individuals and families can thrive and reach out to their neighbors. We value the diversity of our residents; however, the rising cost of housing threatens the ability of people to remain in their communities. The housing market has experienced great highs and lows. This has benefitted some, while creating and exacerbating hardship and inequalities for others. There are substantial disparities in housing access between white and person of color households, underscoring the ongoing effects of systemic racism in housing. This update of the plan will focus on approaches the community can use to address the ongoing housing crisis and the issues of equity in how housing and city resources are distributed.

We encourage home ownership, and support both owners and renters in maintaining and improving their homes. Research has shown that people of color are less likely to secure a home loan and have significantly lower rates of homeownership compared to white households. In accordance with GMA amendment HB 1220 this update will examine racially disparate impacts, displacement, and exclusion in local housing policies. We cooperate with residents to improve neighborhood infrastructure. We encourage neighborhood pride and interaction.

- ***WE SUPPORT OUR FAMILIES***

We support our families so they can thrive as caretakers for all family members, including elders. We encourage their efforts to be self-supporting, engaged, responsible members of our community. We seek opportunities to protect our residents from crime, accidents, and illness.

- ***WE SUPPORT OUR CHILDREN***

Our children are our future. We honor them. We protect them from harmful influences and will provide educational, recreational, and other opportunities that enable them to become healthy, educated, responsible adults.

PRIDE OF PLACE

- ***WE VALUE OUR ENVIRONMENT***

We seek to enable our residents to appreciate, participate in and enjoy the many benefits of a healthy, thriving natural environment. We seek to protect our shoreline, streams, wetlands, and other natural amenities, such as trees, to provide habitat for our native species of plants and animals. We support wise use of existing resources and a transition to renewable resources to improve climate resilience and adapt to the ongoing effects of climate change. We acknowledge the disproportionate impacts of extreme weather, flooding, and wildfires due to climate change on our vulnerable populations.

- ***WE APPRECIATE OUR SURROUNDINGS***

Each distinctive residential neighborhood, commercial area, and manufacturing area contributes to our wholesome living and working experience. We seek to create a natural environment, a physical infrastructure, and a community image that prompts people to respect and care for each other, and which attracts newcomers to live, do business, shop in, visit, and enjoy the special features of the City. People who arrive here want to stay here and invest their time and resources in making the community a better place.

QUALITY OPPORTUNITIES FOR WORKING, LIVING, AND COMMUNITY INVOLVEMENT

■ ***THRIVING AND RESPONSIBLE BUSINESSES***

We support a stable, thriving economy that provides quality work experiences and income, and generates revenue for public services. We cooperate with our business community and seek to attract new businesses by supporting their development and necessary infrastructure. In return, we expect them to maintain high standards and participate in attaining our community vision.

■ ***RESPONSIVE GOVERNMENT THAT RESPECTS INDIVIDUAL RIGHTS***

We value all our residents. We respect the rights of our residents, workers, property owners, and visitors to pursue their individual and collective visions, provided that their actions respect the same rights of others. We strive to limit government regulations to those necessary to protect the rights of present and future generations and to achieve our community goals. We encourage all members of the community to become actively involved in community affairs, and we provide opportunities for participation in the decisions that affect them.

■ ***WE SEEK TO PROVIDE OPPORTUNITIES FOR RESIDENTS***

We believe that while individuals bear primary responsibility for themselves, their communities perform a vital role in providing a positive environment, support, and growth opportunities. We also acknowledge the legacy of legal racial, ethnic, and gender discrimination that has limited the opportunities available to segments of our community. We believe that, in addition to City provided social services, many opportunities and services are best provided by non-profits, private businesses and voluntary organizations. We encourage these efforts, partner with organizations that help meet the basic needs of our residents, and support Tukwila's active spirit of volunteerism. We encourage the social and civic engagement of all community residents who are a tremendous resource and have much to contribute.

We pay special attention to those whose opportunities have been, and continue to be, limited by circumstances they cannot control, and use our limited resources to develop a solid foundation for all Tukwila residents.

PLAN OBJECTIVES

As discussed, Tukwila's Comprehensive Plan essential function is to serve the residents and business community by providing guidelines for a safe, livable, environmentally sustainable, and economically viable community with which they are proud to identify. The Plan, based on its Vision for the Future of Tukwila, provides the framework that allows Tukwila to respond dynamically to the changes that are inevitable over the immediate long term.

The Plan's goals and policies contribute to shaping the major emphases of this periodic Plan update:

- To Identify opportunities to increase housing type availability and affordability for Tukwila's community, today and tomorrow.
- To ensure that City processes address historic racial disparities in the prioritization of how resources are spent and City processes conducted.

- To focus future housing and job development in the City's two regional growth centers, Southcenter and the Manufacturing Industrial Center, while also focusing on other opportunities for growth in transit-oriented development areas within the City.
- To encourage and pursue opportunities for preparing the City, its infrastructure, and community for the environmental and social changes that will come with increased climate change.
- To build the City's relationship with all quadrants of the community, including community-based organizations, the business community, and residents, and strive to provide the highest level of governmental services and responsiveness.

COMPREHENSIVE PLAN MAP

The Growth Management Act requires that the Plan be internally consistent, and that all elements be consistent with the future land use map. Tukwila's Future Land Use Map, located in the Land Use element, meets State requirements to identify locations for the following land uses: housing, commerce, industry, recreation, open space, public utilities, and public facilities.[1] The Future Land Use map sets forth the categories of allowable land uses and densities for the purpose of directing future development and redevelopment of private and public property in the City. It is implemented in large part through the City's official Zoning Map, which is a regulatory tool. The Comprehensive Future Land Use Map is available at the City of Tukwila Department of Community Development and online.

PLAN IMPLEMENTATION

Adopting an updated Comprehensive Plan is the first step toward adjusting and maintaining the City's vision. The Plan is implemented through policies and strategies listed in the Elements, as well as through adopted functional and special plans, and service programs and funding priorities established by the City.

Tukwila's implementation program comprises a combination of short-term, mid-term, long-term, and ongoing actions that contribute to the City achieving its vision. Actions identified as "short term" would require up to 5 years, "mid-term" actions require up to 10 years, "long term" actions require up to 15 years, and "ongoing" actions would be progressively worked on over the years. A short-term action could include implementing a Citywide communications plan including language translation strategies to reach and involve all residents. Other implementing actions could include amending regulations such as the Zoning Code to align with newly developed policies and State regulations. Longer-term actions include sub-area planning, facility development, and developing a Capital Improvement Plan (CIP) that allocates resources to projects that will spur the City's development in the direction envisioned in the Plan.

Other actions will be taken by the City when required or as resources become available. A successful Plan is one that can respond to changing conditions. As changes in land uses, regional trends, or the economic or environmental climate occur over time, it may be necessary to reassess or modify how to implement the community's vision. The Comprehensive Plan contains the policy wording that provides for monitoring, evaluating, and amending the plan as community needs

change. Comprehensive Plans are allowed to be modified and updated annually between major updates cycles that occur each decade. The City will also be obligated to report back to PSRC and King County on the success it has had (or not had) with implementing its strategies.

City Plans

Many City departments have adopted functional plans that serve to implement the vision, policies, principles, and guidelines set forth in the Comprehensive plan. Typically, functional plans are more wide reaching, but there is a range of more specific plans that also support the Comprehensive Plan's vision. Examples of some of the City's plans include:

- ADA Transition Plan, 2016
- Capital Improvement Program, 2023-2024
- Comprehensive Emergency Management Plan (CEMP), every 5 years
- Comprehensive Sanitary Sewer Plan Update, 2023
- Comprehensive Water Plan Update - 2015, 2022
- Economic Development Strategy
- Green Tukwila 20-Year Stewardship Plan
- King County Regional Hazard Mitigation Plan, 2020-2025
- Neighborhood Traffic Calming Program: Top-10 Recommended NTCP Projects), 2022
- Older Adults Recreational Services Needs Assessment, 2019
- Parks, Recreation, and Open Space Plan, 2020 (and Technical Supplement, 2019)
- Public Arts & Culture Master Plan, 2018
- Public Facilities Plan, underway in 2023
- Recreation Program Plan, *completion expected in January 2025*
- Residential Streets Prioritization program, 2016
- Shoreline Master Program, 2020
- Shoreline Restoration Plan, 2007
- Surface Water Comprehensive Plan - 2024
- Stormwater Management Program Plan - 2024
- Stormwater Management Action Plan, underway in 2023
- Transit-Oriented Development Housing Strategies Plan, a.k.a., *Housing Action Plan*, 2021
- Transportation Plan, 2024

In addition, there are numerous site-specific City plans that the community has developed that reflect the Comprehensive Plan priorities, including:

- Community Center Master Plan, no date
- Tukwila International Boulevard - Implementing the Vision: CNU Legacy Plan, 2017
- Tukwila South Development Agreement (Ordinance 2233, 6-8-2009) + Exhibits 1 to 11 to Ordinance 2233
- Southcenter Subarea Plan, 2014
- Southcenter Design Manual, 2014
- Manufacturing and Industrial Center Plan, 2011
- Teen & Senior Center Project
- Tukwila Pond Park Master Plan, 2022

External Agency Plans

External agencies have also developed plans, in conjunction with Tukwila, that implement local and regional priorities. These agencies include King County and the Tukwila and other School Districts with facilities in City limits:

- King County Water Resources Inventory Area 9
- King County Flood Control District Lower Green River Flood Hazard Management plan
- King County Flood Hazard Management Plan
- Highline Water District Plan
- King County Water District #125 Plan
- King County Water District #20 Plan
- Valley View Sewer District Plan
- City of Seattle Plans for Water and Sewer Service
- Etc.

Community Character

WHAT YOU WILL FIND IN THIS CHAPTER:

- A basic framework that celebrates Tukwila's history, builds on its diversity, and fosters civic engagement while accommodating growth that furthers the community's vision;
- A discussion of issues that shape Tukwila's identity and describe the community's vision for safety and security, healthy living, communication, and public engagement;
- Goals and policies for promoting the positive community character envisioned; and
- Goals, policies, and strategies to achieve a stronger community and expand regional opportunities

PURPOSE

The Community Character element establishes the framework that celebrates the City's history and environment – both physical and social. The community's character reflects both the values placed on the views of Mt. Rainier, the Cascades, and the Green/Duwamish River system, but also the social values surrounding the community's diversity and vision for compassion and support, governmental responsiveness, civic engagement, and the components that are essential to making Tukwila a safe, secure, successful, forward-looking community.

ISSUES

Tukwila is an economically and geographically unique community. It has a large proportion and expanse of commercial and industrial activity compared to the amount of residential development.

It is divided into distinct areas by freeways and crisscrossing arterials, with the Green/Duwamish River winding throughout the entire length of the City. The hillsides and valleys in the area further split the City into numerous, almost disconnected segments. Local streets and major arterials do not follow a predictable grid pattern. Large industrial and commercial developments, together with associated parking, tend to dominate the City's landscape when seen from freeways and major arterials. This persists as the overall image of the City despite the community's many areas of quiet residential streets and abundant vegetation. This geology also contributes to a sense of division between

neighborhoods, resulting in the challenge of developing solutions that serve all the residents.

Spectacular views of Mount Rainier, the Cascade Mountains and even the Seattle skyline are available from many hillsides around the City. In addition, numerous streets run along the hillsides and afford sweeping vistas of land and greenery. And finally, the Green/Duwamish River and Tukwila Pond could serve as prominent and dramatic elements of the community's image and identity. The potential of these two natural features as unique amenities has yet to be fully realized.

Despite the region's wealth and the ongoing investments in public and human services, inequity persists and has in some cases expanded. Historical data has consistently revealed disparities in social, educational, health and economic outcomes based on race, income, and other factors. Tukwila's community, similar to other South King County cities, has experienced lower incomes, less educational attainment, higher rates of chronic disease and morbidity, and a higher percentage of residents needing human services assistance.

Tukwila's high numbers of immigrants, refugees and their children may struggle as they seek employment or services or when in the classroom, trying to learn English while receiving limited support for their home language and culture. Long-time residents, including minorities, seniors, adults, and families, may face challenges in meeting basic needs.

Native American Culture and Settlement in Tukwila Area[1]

> *"In days gone by, there was once a war between the North Wind people and the Chinook Wind people. Chinook Wind was married to Mountain Beaver Woman, the daughter of North Wind. The people of North Wind village did not like the man and so they killed him and his tribe. The only one left alive was Chinook Wind's mother, an old woman who lived on a stone mountain down along the Duwamish River."*

So begins the *Epic of the Winds*, a story told by Southern Coast Salish peoples that recounts the creation of the post-glacial landscape and climate of the Duwamish/Green

[1] Sources:
David B. Williams, *Homewaters: A Human and Natural History of Puget Sound* (Seattle: University of Washington Press, 2021). Excerpted in Seattle Times, June 20, 2021. <Link>
Alan Stein, *Story of the Origin of the North Wind Weir on the Duwamish River* (HistoryLink.org, 2000). <Link>
Alan Stein, *Fort Dent Park* (HistoryLink.org, 2003). <Link>
The Waterlines Map, Burke Museum, 2014. <Link>
Coll-Peter Thrush, *The Lushootseed Peoples of Puget Sound Country* (University of Washington Libraries). <Link>.
Muckleshoot Indian Tribe: https://www.muckleshoot.nsn.us/about
Duwamish Tribe: https://www.duwamishtribe.org/culture-today
Cultural Resources Assessment for the 42nd Avenue South Bridge Replacement Project, prepared by Cultural Resource Consultants, 2024.

River valley. The tale is one of the best-known indigenous stories of the central Puget Sound region and prominently features locations that are in what is now known as Tukwila. North Wind's Weir, a rock formation in the river channel near Cecil Moses Park; beaver lodge (*stxəqáxʷ*), now known as the *Duwamish Hill Preserve*; and Grandmother hill, across the river from the Allentown Bridge and Tukwila Community Center, are elements of a landscape that was imbued with meaning and power.

Prior to dredging, damming, and re-channelization by Euro-Americans, the Duwamish watershed connected a huge, well-populated area via the Black River (connecting to Lake Washington, Lake Sammamish, and the Cedar River), the White River (connecting to Enumclaw plateau and Mt. Rainier foothills), the Green River valley, and the vast Salish Sea. This river system provided both a travel network and, with seasonal salmon harvests, an abundant source of food. The confluence of the Black and Duwamish rivers, a place known as *sqʼʷuʔalqʷuʔ* or "meeting of rivers" at what is today Tukwila's Fort Dent Park, was among the most important places in this river system and was the site of a permanent winter village.

Villages like this included several long, communal cedar plank houses, which served as the central hubs for activities and were the heart of social and ceremonial life. Every year, with the arrival of spring and warmer weather, families would disperse from winter villages, traveling by canoe to hunt, fish, gather, and trade at long-accustomed sites. This was part of a sustainable and resilient lifestyle based on collaboration between groups inhabiting different watersheds. Through these patterns of travel and interaction, native tribes established a rich and enduring culture across the region over thousands of years.

The cultural identity of the Southern Coast Salish peoples, shaped over millennia, faced an existential threat with the occupation of native lands by Euro-American settlers. This displacement was codified by the treaties of Medicine Creek and Point Elliot in 1854/55, which gave legal sanction to the removal of native people and established designated tribal reservations. Tribal sovereignty was further threatened by the 1887 Dawes Act, which permitted the sale of already limited reservation lands to settlers. These events, aimed at fundamentally altering or erasing indigenous ways of life, continue to profoundly shape life in Tukwila in ways both seen and unseen.

Despite these challenges, Southern Coast Salish peoples remain resilient and strong. Landmark legal victories, such as the Boldt Decision of 1974, represent ongoing efforts to reclaim and protect treaty-established sovereign rights. Today, local tribes and organizations, including the federally recognized Muckleshoot, Tulalip, and Suquamish tribes and the Duwamish tribe, which seeks federal recognition, continue to serve their communities and honor tribal heritage through preservation of traditional language, fishing and culinary practices, music, art, and dance, canoe journeys and cultural celebrations.

Historic Preservation and Cultural Awareness

While Tukwila has a rich history that has involved farming, the river, rail transportation and the development of the aircraft industry, there are few visible indications of its earlier days. With the exception of the Museum of Flight, the Duwamish Hill Preserve and some interpretive markers along the Green/Duwamish River, there are no explanations or celebrations of the major features of the community's heritage, such as the Interurban rail line. Only a few places are given any degree of commemoration with respect to their role in the history and growth of Tukwila.

Due to Tukwila's location on the Green/Duwamish River, the area has been home to many Native American settlements and plays an important role in local Native American culture. Development along certain portions of the river has exposed artifacts from the days when Native Americans travelled the river and camped along its banks. These artifacts require protection from future development, and improved interpretation so that the public can appreciate their origin and significance. The Muckleshoot Tribe continues to be actively involved in preserving and improving the habitat quality of the Green/Duwamish River.

Cultural Diversity

Tukwila's demographics have changed significantly in the nearly 30 years since the original Comprehensive Plan was adopted. Similar to changes seen throughout all South King County, Tukwila has become home to a diverse mix of people from many backgrounds and countries. Our challenge is to create a community where residents – including both the long-term and the recently-arrived, with varied backgrounds, traditions, languages, and countries of origin – feel connected and committed to each other, their neighborhoods, their community groups and organizations, and to the City as a whole.

Many people feel involved in their own piece of Tukwila, be it a block, a neighborhood, a business park or a particular linguistic, cultural or interest group. In planning for the whole community, Tukwila has sought to ensure that its planning efforts provide a shared sense of belonging and involvement in Tukwila as a whole. To achieve that, the City has conducted culturally appropriate and language-specific approaches to encourage participation in City planning efforts that include the development of the City's Strategic Plan (2012), as well as the City's Comprehensive Plan.

City Boundaries

There is little sense of entering or leaving either the community as a whole or individual neighborhoods, because in many areas the City limits are irregular or do not coincide with natural boundaries. In addition, Tukwila's growth through petitioned annexations has created certain boundary anomalies:

- The border configuration between Tukwila and Seattle in the King County Airport area, in which the boundary crosses Interstate 5 more than once and splits certain industrial properties, creates a number of jurisdictional issues, including police response.

- On the southwest, the boundary between Tukwila and SeaTac crosses Interstate 5 and other streets in several places, creating difficulties for the reasonable provision of services. With major expansion largely ended, there is an opportunity to make Tukwila's size and extent more visible by providing identifiable boundary markers.

Commercial Development, Urban Design, and Safety

Previous planning strategies noted that residents and businesses want a safe and visually attractive community. The design of residential and commercial development is key to accomplishing this goal. Visually attractive development occurs through the application of design criteria that are functional, attractive, and safe. Safe and visually attractive communities are also achieved through the enforcement of existing standards.

City planning and investment in infrastructure promotes safe, attractive neighborhoods and business districts, and supports and enhances Tukwila's position as a major shopping and employment center. Areas of focus include making the City more accessible for bicyclists and walkers, and engaging residents and businesses in setting expectations for how Tukwila's public and private spaces will look.

Perceived or actual lack of safety and security can hinder both individual and community development and feelings of well-being. The City continues to seek opportunities to collaborate with the whole community to reduce and prevent crime and enhance the overall sense of safety and security.

Security also extends to emergency planning for natural and man-made emergency events, such as earthquakes, terrorism, or the effects of climate change. The City anticipates and has planned for these types of situations through efforts such as its Comprehensive Emergency Management Plan, and Continuity of Operations Plan. Strategies that enhance public safety and security will ultimately strengthen the community.

Healthy Living and Parks, Recreation and Open Space

The urban form – including the infrastructure and built environment – affects the health of residents and workers, as well as the overall community identity. The proximity of trails, sidewalks for safe walking, transit connections to reduce the use of single-occupant vehicles that contribute to air pollution, the availability of recreation programs, and access to healthy and affordable food choices all contribute to the health of a community.

The importance of providing healthy living choices is reflected throughout the Comprehensive Plan especially in this element, as well as in the Parks, Recreation and Open Space, Economic Development, and Transportation elements.

In the past, community members have consistently expressed their desire for better access to recreational opportunities, safer routes to schools for children, and better access to affordable, good quality food, including fresh fruits and vegetables. The U.S. Department of Agriculture identified Tukwila ad "food desert," based on its definition that Tukwila's low-

income census tracts show a significant number of residents are located more than one mile from the nearest supermarket.

Expanding access to healthy food and providing job training opportunities is an important City goal. The City will continue to seek out opportunities to ensure that community members have access to hands-on vocational training that provides the opportunity to become better integrated into local communities and economies.

Community Image

Tukwila's image, as perceived within the community and region and portrayed by the media, is often at odds with its many positive attributes. The City faces challenges in shifting negative perceptions about public safety and crime to create and communicate an image that better reflects reality, engages residents, and attracts visitors and businesses.

Communication and Involvement

Meetings at City Hall, printed mailings and website articles often have been used to inform citizens about issues and events and solicit their opinions and involvement in City affairs. While these methods are effective with some people, a broader approach is necessary to communicate to the full community. Some Tukwila residents may choose to be involved in City activities, while others may not be involved or represented due to cultural differences, language issues, age, economic status, or lack of time or awareness. Diverse communities may require the use of new methods of communication and engagement.

City processes and regulations that seem confusing and difficult for the public may present an additional obstacle to clear communication and engagement between the community and the City. A key challenge is developing communication tools that are clear, effective, and appropriate, so that all residents are aware of and can choose to participate in the processes and decisions that affect them. Communication within and across City departments is crucial for developing a coordinated approach to problem-solving.

Regional Opportunity and Role

Many issues that the City faces are not exclusive to Tukwila and are prevalent throughout the region. City representatives participating in various regional forums can both drive and support policy and strategy that benefits Tukwila. The City's activities in regional partnerships can help it achieve its long-term goals.

For example, the City's Human Services program has long engaged with other cities and King County to craft more efficient ways to plan and deliver services and provide strategic direction about how the County allocates funds for housing and community development. Emergency Management staff participate in multiple regional planning efforts, including maintaining the Regional Coordination Framework so that resources can be shared between jurisdictions and efficiencies gained. Community Development staff are involved with inter-jurisdictional groups to analyze, develop, and share data, policies, and standards. Participation by elected officials in local, regional, Statewide, and national

organizations provides many benefits, including education on emerging issues and forging valuable partnerships.

GOALS AND POLICIES

Overall Community Design

GOAL CC-1 **A community of inviting neighborhoods and vibrant business districts that are visually attractive, draw visitors, add value to the community and encourage people to walk, bike and use transit.**

POLICIES

Policy CC-1.1 Encourage the creation of locations and facilities where residents of all ages and cultures can gather for activities and events, such as public markets, parades, and festivals, including those that are representative of the City's diverse population.

Policy CC-1.2 Capitalize on the potential that public projects, arts, and cultural facilities have for serving as symbols of the community, catalyzing local development, and contributing to a unique sense of place within a neighborhood.

Policy CC-1.3 Expand the system of incentives, tools, and supports that encourage investment in and maintenance of private and public spaces.

Policy CC-1.4 Encourage placemaking through creative use of signage, art, landmark designation and improvement, and streetscape improvements.

Policy CC-1.5 Require that sites have adequate lighting and are designed using crime-reduction principles to increase safety.

Policy CC-1.6 Seek opportunities to integrate public art into public improvements.

GOAL CC-2 **Design streets to create a cohesive network, including continuous non-motorized improvements that connect to the surrounding business and residential neighborhoods and enhance the visual quality of the community.**

Policy CC-2.1 Where appropriate and feasible, provide lighting, seating, landscaping, and other amenities for sidewalks, walkways, and trails.

Policy CC-2.2 Provide street lighting where needed and appropriate based on neighborhood context to improve visibility and safety while minimizing light/glare spillover.

Policy CC-2.3 Maintain, improve, and expand distinctive gateway features located at freeway off-ramps and at City limit lines where they cross major arterial streets; use graphics, orientation maps, informational signage, lighting, specimen trees, plantings with seasonal color, artwork, monument forms, or combinations thereof.

Policy CC-2.4 Promote the planting of street trees and other landscaping standards to enhance corridor appearance, neighborhood identification and streetscape unity.

Policy CC-2.5 Where possible, encourage developments to include pedestrian weather protection, see-through glass, and distinctive rooflines in new and redeveloped building facades.

Tukwila's Past, Present, and Future

GOAL CC-3 **Paleontological and archaeological artifacts and sites with cultural and Native American significance are protected and preserved.**

POLICIES

Policy CC-3.1 Ensure that the potential for the existence of paleontological and archaeological sites is considered during development of new construction projects.

Policy CC-3.2 Identify and protect archaeological resources and culturally significant sites and develop interpretive information that fosters public appreciation of historical traditions and practices.

GOAL CC-4 **A heritage conserved and interpreted so that Tukwila's citizens recognize connections with the past and celebrate the diverse cultures represented in the community today.**

POLICIES

Policy CC-4.1 Identify, protect, and designate historically significant properties, structures and sites.

Policy CC-4.2 Provide prominent public art and interpretive markers that celebrate the City's history of important buildings, sites, events or persons.

Policy CC-4.3 Establish a process for providing incentives for the preservation and reuse of historic landmarks.

Policy CC-4.4 Develop and implement plans, projects, and programs to protect and promote the historical legacy of the Green River Valley and its natural and built environment.

Policy CC-4.5 The Tukwila Arts Commission shall ensure that Tukwila's characteristics, such as its history and cultural diversity, are considered in public art projects.

Policy CC-4.6 Coordinate with tribes in regional and local planning, recognizing the mutual benefits and potential for impacts between growth occurring within and outside tribal boundaries.

GOAL CC-5 The Tukwila community is proud of its cultural diversity, distinctive identity, and unique character.

POLICIES

Policy CC-5.1 City staff and leaders seek opportunities to generate positive media coverage of the community and its attributes.

Policy CC-5.2 Promote Tukwila's international diversity as a strength.

Policy CC-5.3 Actively promote community engagement of all sectors of the City's diverse population using a wide range of innovative methods responsive to variety of communication requirements.

Policy CC-5.4 Encourage and support communities in celebrating, preserving, and transmitting their traditions through cultural and heritage activities and education.

Policy CC-5.5 Develop programs and City-wide events to celebrate the City's cultural diversity.

Policy CC-5.6 Enhance linkages with the school districts serving Tukwila to recognize and support the strengths of Tukwila's multi-lingual student body.

GOAL CC-6 **A healthy community where active living and access to affordable, culturally appropriate, and nutritious food is available to all.**

POLICIES

Policy CC-6.1 Encourage the development of public, private and non-profit partnerships to support the goal of healthy eating and active living, including education and awareness.

Policy CC-6.2 Develop and implement a communication plan and Healthy Tukwila website with information and links about healthy eating, active living, and related topics – including strategies for reaching communities who do not speak English or use computers (e.g., translated written as well as verbal).

Policy CC-6.3 Provide healthy and culturally appropriate food and beverages in City programs and facilities to promote healthy eating habits.

GOAL CC-7 **Food security, local food production and public health are promoted.**

POLICIES

Policy CC-7.1 Explore incentives or regulatory changes to encourage location of healthy food purveyors in underserved areas.

Policy CC-7.2 Support the Tukwila Food Pantry and other organizations that help provide food assistance to low-income residents so that all families, seniors, schools, and community– based organizations are able to access, purchase and increase intake of fresh fruits, vegetables, and other nutritious foods.

Tukwila Government - Service to the Community

GOAL CC-8 **Provide a high-performing, service- and results-oriented government that works with citizens, citizens groups, institutions, and service providers to recognize and solve problems within the community.**

POLICIES

Policy CC-8.1 Support the City's human services program in providing a solid foundation for all Tukwila residents through high-quality services and actively collaborating with service providers to help meet basic needs and job readiness, including:

- Safety net for urgent and basic needs,
- Positive and healthy relationships,
- Support for self-sufficiency, and
- Information referral (and system navigation).

Policy CC-8.2 Enhance and encourage effective partnerships across City departments and with providers to meet community needs.

Policy CC-8.3 Ensure that land use, urban design, transportation, economic development, and other policies, plans and projects in Tukwila consider human services impacts, and benefit existing and future populations in an equitable manner.

Policy CC-8.4 Promote health, safety, and quality of life through responsive and responsible investment of public funds in social and human services.

Policy CC-8.5 Enable culturally and linguistically appropriate equitable access to programs and services and help connect residents to service options, particularly for those most disproportionately cost-burdened or historically excluded.

Policy CC-8.6 Adopt and use an equity impact review tool when developing plans and policies to test for outcomes that might adversely impact Black, Indigenous, and People of Color communities; immigrants and refugees; people with low incomes; people with disabilities; and communities with language access needs. Regularly assess the impact of policies and programs to identify actual outcomes and adapt as needed to achieve intended goals.

Policy CC-8.7 Involve community groups especially immigrant, Black, Indigenous, and People of Color communities continuously in planning processes to promote civic engagement, government accountability, transparency, and personal agency.

POLICIES

Communication and Engagement

Policy CC-8.8 Use frequent and open communication and collaboration as an operating principle in all affairs of the City.

Policy CC-8.9 Design and implement processes and programs to be user-friendly for the public and efficient for City staff.

Policy CC-8.10 Strengthen the City's ability to engage with diverse populations within the community, particularly those that do not participate in traditional formats, by using a variety of participation techniques to reach all segments of the population.

Policy CC-8.11 Build meaningful and trusting connections between the City and the diverse communities that make up the broader Tukwila community to foster their participation and involvement in City affairs and decision-making processes.

Policy CC-8.12 Encourage the participation of dedicated, community-oriented volunteers on City boards and commissions, striving to achieve a broad and balanced representation of members from the entire community.

Safety, Security, and Emergency Preparedness

Policy CC-8.13 Foster an environment of safety and security for those who live in, work in, and visit Tukwila, through a broad and collaborative approach to reducing and preventing crime.

Policy CC-8.14 Equip residents, businesses, and community service providers through education and training to be active participants in public safety (including, but not limited to, emergency preparedness, crime prevention, first aid, fire prevention, and climate-related hazards).

Policy CC-8.15 The City Police Department works with community members and businesses to identify approaches to addressing crime in the City.

Policy CC-8.16 Maintain and update as required a City-wide Comprehensive Emergency Management Plan (CEMP) and program, that:

- Establishes a comprehensive all-hazards approach to incident management;
- Ensures ongoing operation and continuity of City government;
- Uses the National Incident Management System (NIMS);
- Serves to inform and educate City employees and the community about emergency preparedness measures for all hazards, including flood and climate-related emergencies;
- Effectively utilizes available resources from all City departments and mutual aid partners, in an adequate and timely response to emergency situations; and
- Addresses emergency preparedness for those with access and functional needs, coordinating a broad range of stakeholders to improve planning and responsive service.

Policy CC-8.17 Continue to meet or exceed federal minimum standards for the National Flood Insurance Program to better protect public health and safety, and to achieve flood insurance premium discounts.

Policy CC-8.18 Ensure the City of Tukwila's continued participation in the National Flood Insurance Program through periodic review and updating of flood plain management standards and the flood zone construction permit process.

Policy CC-8.19 Encourage long-term community environmental security by supporting and implementing the U.S. Conference of Mayor's Climate Protection Agreement, climate pledges and commitments undertaken by the City, and other multi-jurisdictional efforts to reduce greenhouse gas emissions, address climate change and other impacts of changing global conditions.

Policy CC-8.20 Lead by example to establish policy decisions and priorities, and design programs and facilities that consider long-term impacts on natural and human environments to address sustainability and climate change.

Regional Responsibility

GOAL CC-9 Foster a strong sense of Tukwila's regional responsibility and accountability balanced by an awareness of regional impacts on the City and its citizens.

POLICIES

Policy CC-9.1 Accept Tukwila's responsibility to coordinate regionally on the siting or expansion of Essential Public Facilities (see Land Use policies).

Policy CC-9.2 Site public capital facilities of a Countywide or Statewide nature to support the Countywide land use pattern, support economic activities, mitigate environmental impacts, provide amenities or incentives, and minimize public costs. Amenities or incentives shall be provided to neighborhoods/jurisdictions in which facilities are sited.

Policy CC-9.3 Work with affected citizens, property owners and the neighboring cities of SeaTac, Kent, and Seattle to develop interlocal agreements that may be necessary to address concerns regarding shared borders.

GOAL CC-10 Benefit the community by participating in regional, State, and national forums.

Policy CC-10.1 Enhance Tukwila's interests through participation in regional, State, and national organizations and committees, and by developing partnerships that can benefit the City, its residents, businesses, and the natural environment.

RELATED INFORMATION

Tukwila Strategic Plan, 2012, amended 2018
Tukwila Capital Improvement Program, Biennial Budget 2023-2024
Food Access Research Atlas, U.S. Department of Agriculture, Economic Research Service
Food Innovation Network

Land Use

WHAT YOU WILL FIND IN THIS CHAPTER:

- Regional Requirements
- Intentions for Growth
- Designation of Land Uses
- Subarea Planning Guidance

PURPOSE

The Land Use Element addresses the major land use issues facing the City of Tukwila over the next 20 years. The element considers the general distribution, location, intensity of land uses, and directs future growth. Countywide planning targets assign an additional 6,500 housing units and 15,890 new jobs by 2044, from the 2018 baseline year. Achieving these targets would total 63,074 jobs, 14,454 housing units and approximately 36,000 residents in the City. It provides a framework for the other elements of the comprehensive plan.

The Growth Management Act establishes the Land Use Element as the basis for development regulations within the City and requires those land use regulations to be consistent with the goals and policies in this Element. Additionally, the element shall be consistent with Vision 2050 and the Countywide Planning Policies as described below.

The following items are found in the Background Report:

- Information on Land Capacity and Growth Targets
- Community Demographics
- Information on potential annexation areas and historical annexations
- Current land use information

ISSUES

- Achieving Regional Growth Targets
- Accommodating Growth while Maximizing Quality of Life
- Capitalizing on Transit Investments in Tukwila
- Land use compatibility

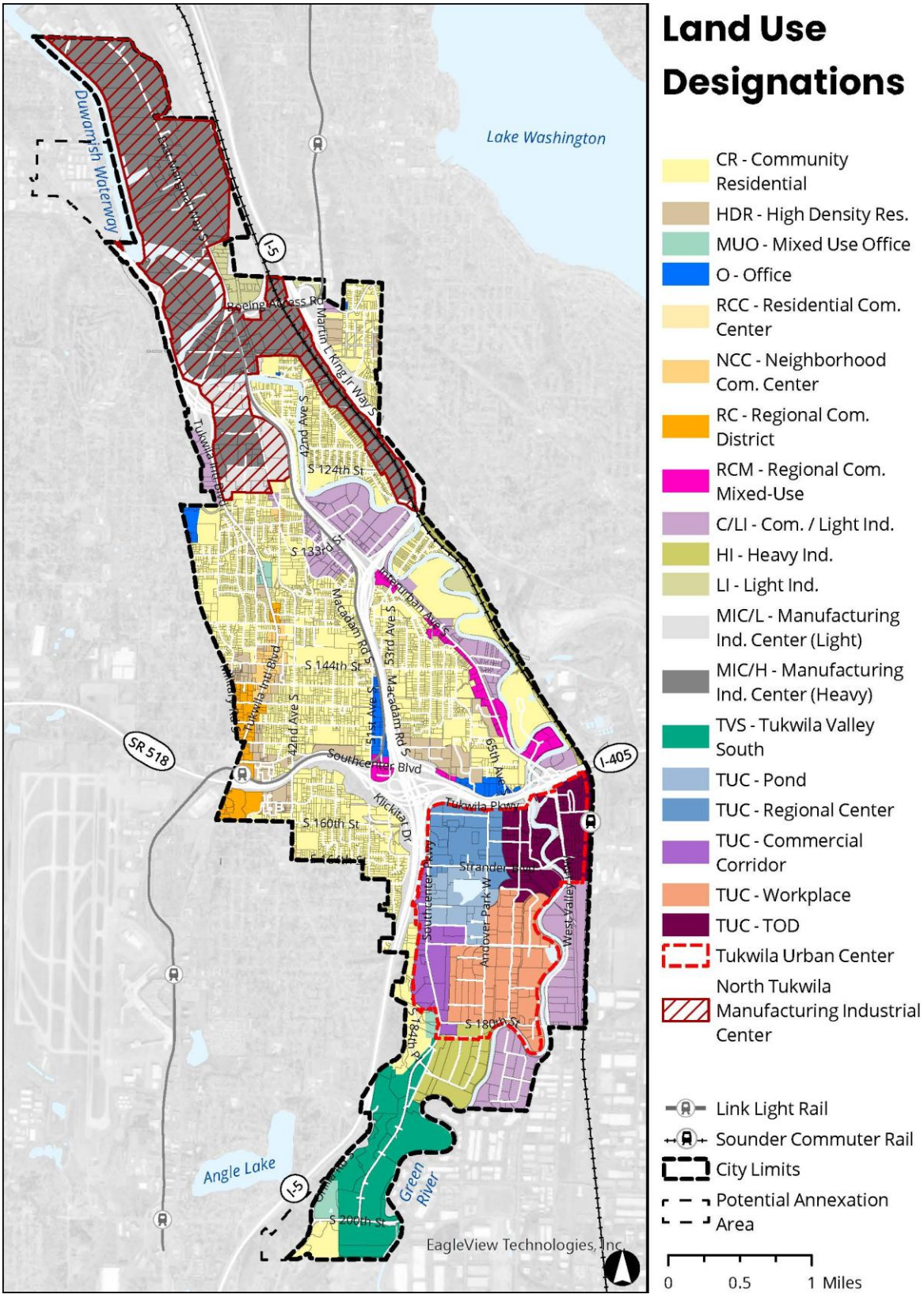


Figure 1: Land Use Designations

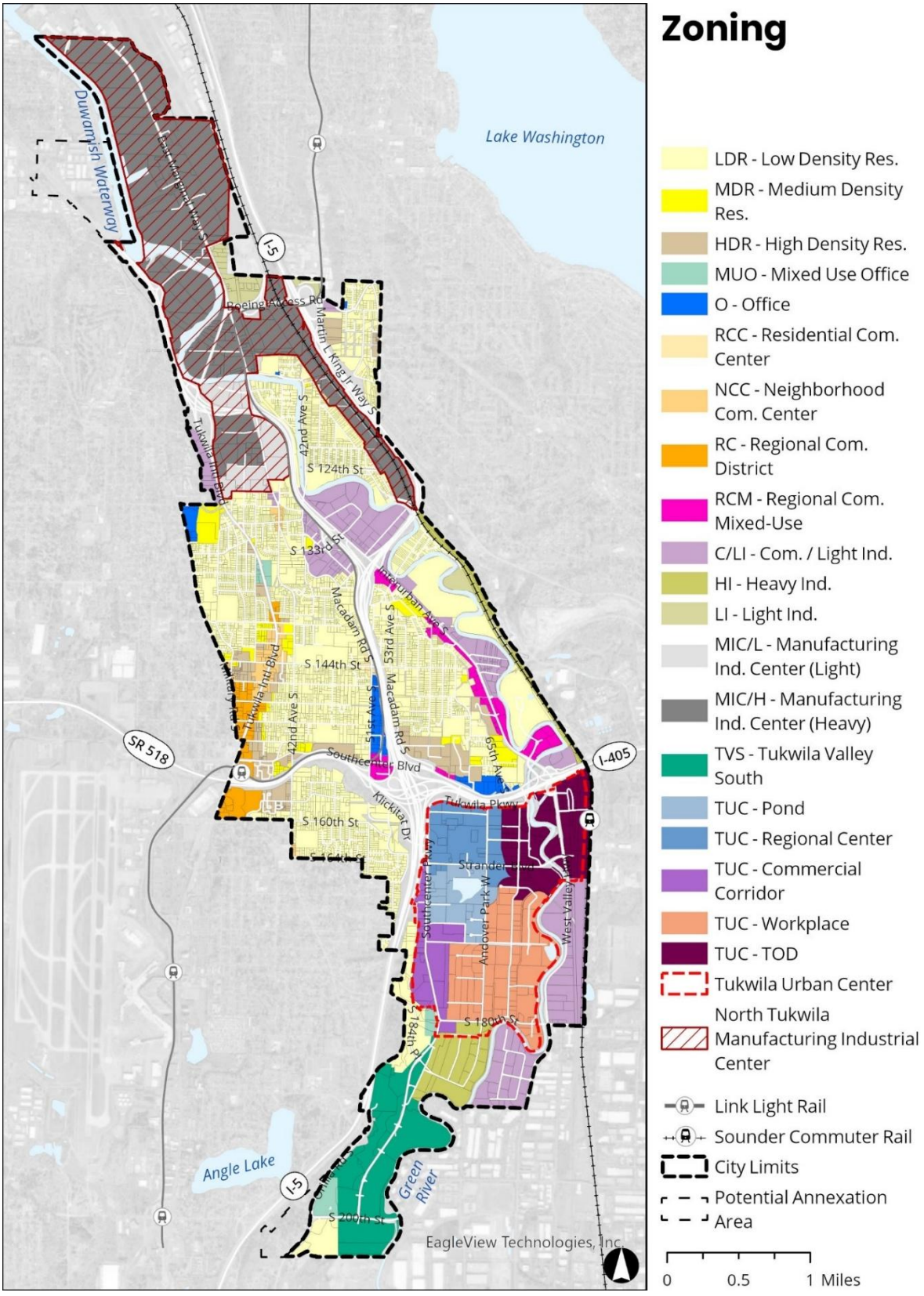


Figure 2: Zoning Designations

GOALS & POLICIES

Regional Roles and Obligations

GOAL 1 **Land Use Policies are consistent with state, regional and county requirements, and are updated to integrate new information to enable informed decisions.**

POLICIES

Policy LU 1.1 Monitor and maintain comprehensive plan goals and policies that are consistent with county-wide and regional planning policies.

Policy LU 1.2 Provide a consistent population projection throughout the plan, consistent with King County's sub-county allocation of that forecast for housing needs and employment targets.

Policy LU 1.3 Utilize a buildable lands program that meets or exceeds the review and evaluation requirements of the Growth Management Act. The purposes of the buildable lands program are:

a. To collect and analyze data on development activity, including land supply, zoning, development standards, land uses, critical areas, and capacity for residential, commercial, and industrial land uses in urban areas;
b. To determine whether jurisdictions are achieving urban densities and planned growth consistent with comprehensive plans, countywide planning policies, and multicounty planning policies; and
c. To evaluate the sufficiency of land capacity to accommodate growth for the remainder of the planning period.

Policy LU 1.4 Regularly monitor the City's land use plan, development regulations, and standards to guide progress toward the City meeting its identified growth targets.

Policy LU 1.5 Maintain a comprehensive land use map that designates future land use and urban growth areas.

Land Use Pattern

Growth

GOAL 2 Growth is actively guided and managed in a way that:

- Preserves and enhances the quality of life and the diverse residential neighborhoods of the community, and serves them with vibrant business districts, open space, recreational facilities, affordable housing, and other supportive land uses;
- Maximizes and leverages public infrastructure investments, including public transit facilities;
- Protects environmentally critical areas and shorelines; and
- Promotes economic development.

POLICIES

Policy LU 2.1 Promote a pattern of compact development within the City that includes housing in a range of urban densities, commercial and industrial development, and other urban facilities, including medical, governmental, institutional, educational uses and schools, and parks and open space.

Policy LU 2.2 The Tukwila Urban Growth Area promotes a mix of uses that are convenient to, and support, public transportation, in an effort to reduce reliance on single-occupancy vehicle travel for most daily activities.

Policy LU 2.3 Develop and use residential, commercial, and manufacturing land efficiently within the City to create healthy, vibrant, and equitable urban communities that offer a full range of urban services. Promote the efficient use of land within Tukwila by:

1. Focusing housing and employment growth and infill development in areas such as the City's designated regional centers, transit station areas, and locally designated local centers consistent with the goals of the Vision 2050 (the Regional Growth Strategy);
2. Optimizing the use of existing capacity for housing and employment;
3. Redeveloping underutilized lands, in a manner that considers equity and mitigates displacement; and
4. Coordinating plans for land use, transportation, schools, capital facilities, and services.

Policy LU 2.4 Development activity in Tukwila shall be adhere to the policies listed in the Natural Environment Element. These policies are intended to ensure that the City's air, land, and water resources are restored and protected for future generations and are resilient to a changing climate. Policies guiding development in the Natural Environment include those that pertain to protecting and enhancing the functional and values of the City's environmentally critical areas; protecting water quality and

quantity; ensuring stormwater best practices and natural flood attenuation are supported; and that the City's trees coverage is monitored and trees are supported.

Comprehensive Plan Designations

GOAL 3 Comprehensive Plan Designations provide general direction for desired land uses present in the designation or anticipated in future development in the designation over the planning period. Zoning Districts should correspond with Comprehensive Plan Designations when areas are redesignated as a new Zoning District (see table 1).

POLICIES

Residential

Policy LU 3.1 Community Residential (CR) designated areas are characterized by a variety of low and medium-density housing types including but not limited to single-family, duplexes, triplexes, fourplexes, townhomes, cottage housing, courtyard apartments, accessory housing units, and their accessory uses, along with educational, institutional, and recreational uses. These uses and densities are modified where covered by the Commercial Redevelopment and Urban Renewal Overlays.

Policy LU 3.2 High Density Residential (HDR) designated areas are characterized by larger and higher density multi-family buildings and their accessory uses, along with educational, institutional, and recreational uses. These uses and densities are modified where covered by the Commercial Redevelopment and Urban Renewal Overlays.

Commercial

Policy LU 3.3 Office (O) designated areas are characterized by professional and commercial office structures mixed with retail.

Mixed Use

Policy LU 3.4 Mixed Use Office (MUO) designated areas are characterized by professional and commercial office structures, mixed with retail and residential uses. These uses and densities are modified where covered by the Tukwila South Overlay.

Policy LU 3.5 Neighborhood Commercial Center (NCC) designated areas are characterized and scaled to serve multiple residential areas with a diverse mix of uses. Uses include commercial; residential, including senior citizen housing; retail; service; office; and recreational and

community facilities, generally along a transportation corridor. These uses are modified where covered by the Urban Renewal Overlay.

Policy LU 3.6 Residential Commercial Center (RCC) designated areas are pedestrian-friendly areas characterized and scaled to serve a local neighborhood, with a diverse mix of uses. Uses include certain commercial; residential; retail; service; office; and recreational and community facilities.

Policy LU 3.7 Regional Commercial (RC) designated areas are characterized by residential, mixed use, commercial services, offices, lodging, entertainment, and retail activities.

Policy LU 3.8 Regional Commercial Mixed-Use (RCM) designated areas are areas characterized by commercial services, offices, lodging, entertainment, retail activities and associated warehousing, and certain accessory light industrial uses. Residential uses mixed with certain commercial uses are also allowed.

Policy LU 3.9 The Tukwila Urban Center (TUC) designated Southcenter Urban Center subarea is intended to develop as a high-density, regionally oriented, mixed-use center. Residential development is encouraged in proximity to water amenities, or within walking distance of the Sounder commuter rail/Amtrak station or the bus transit center. It contains five sub-districts differentiated through uses and development standards: Regional Center (RC), Transit-Oriented Development (TOD), Pond (P), Commercial Corridor (CC), and Workplace (WP).

Policy LU 3.10 The Tukwila Valley South (TVS) designated areas are characterized by high-intensity regional uses that include commercial services, offices, light industry, warehousing and retail, with heavy industrial subject to a Conditional Use Permit. Mixed-use residential is conditionally permitted within 500 feet of the Green River. These uses and densities are modified where covered by the Tukwila South Overlay.

Industrial

Policy LU 3.11 Commercial/Light Industrial (C/LI) designated areas are characterized by a mix of commercial, office or light industrial uses.

Policy LU 3.12 Light Industrial (LI) designated areas are characterized by distributive and light manufacturing uses, with supportive commercial and office uses.

Policy LU 3.13 Heavy Industrial (HI) designated areas characterized by heavy or bulk manufacturing uses and distributive and light manufacturing uses, with supportive commercial and office uses. These uses are modified where covered by the Tukwila South Overlay.

Policy LU 3.14 Manufacturing Industrial Center/-Light (MIC/L) designated areas are a major regional employment area containing distributive, light manufacturing and limited office uses, with supportive commercial and office uses.

Policy LU 3.15 Manufacturing Industrial Center/-Heavy (MIC/H) designated areas are a major regional employment area containing distributive, light manufacturing and heavy manufacturing uses, with supportive commercial and office uses.

Table 1

Comprehensive Plan Designation	Corresponding Zoning Classifications
Residential	
Community Residential (CR)	Community Residential (CR) Low Density Residential (LDR) Medium Density Residential (MDR)
High Density Residential (HDR)	High Density Residential (HDR)
Commercial	
Office (O)	Office (O)
Mixed Use	
Mixed Use Office (MUO)	Mixed Use Office (MUO)
Neighborhood Commercial Center (NCC)	Neighborhood Commercial Center (NCC)
Regional Commercial (RC)	Regional Commercial (RC)
Residential Commercial Center (RCC)	Residential Commercial Center (RCC)
Regional Commercial Mixed Use (RCM)	Regional Commercial Mixed Use (RCM)
Tukwila Urban Center (***Regional Growth Center***)	TUC-CC, TUC-P, TUC-RC, TUC-TOD, TUC-WP (***Regional Growth Center***)
Tukwila Valley South (TVS)	Tukwila Valley South (TVS)
Industrial	
Commercial/Light Industrial (C/LI)	Commercial/Light Industrial (C/LI)
Light Industrial (LI)	Light Industrial (LI)
Heavy Industrial (HI)	Heavy Industrial (HI)
Manufacturing Industrial Center/-Light (MIC/L) (Regional Employment Center)	Manufacturing Industrial Center/-Light (MIC/L) (Regional Employment Center)
Manufacturing Industrial Center/-Heavy (MIC/H) (***Regional Employment Center***)	Manufacturing Industrial Center/-Heavy (MIC/H) (***Regional Employment Center***)

Special Overlays

GOAL 4 **Special Overlays are designated where appropriate to reflect unique public ownership, programs, agreements, or area specific intentions for development, amending or superseding the development standards of the underlying zoning district.**

POLICIES

Policy LU 4.1 Areas under the Public Recreation Overlay are owned or controlled by a public or quasi-public agency, which are dedicated for either passive or active public recreation use, or public education uses.

Policy LU 4.2 Areas under the Tukwila South Overlay includes lands designated TVS, HI, LDR and MUO, and supersedes the provisions of the underlying zoning districts. It is intended to create a multi-use employment center containing high technology, office, commercial, retail and residential uses at the south end of the City.

Policy LU 4.3 Areas under the Urban Renewal Overlay apply the Tukwila International Boulevard Revitalization and Urban Renewal Plans. The intent is to promote community redevelopment and revitalization, and to encourage investment that supports well-designed, compact, transit-oriented and pedestrian-friendly residential and business developments, to activate the community along Tukwila International Boulevard.

Annexation

GOAL 5 The annexation process will follow County guidance in a predictable, prescribed manner.

POLICIES

Policy LU 5.1 Coordinate with King County on Potential Annexation Areas and work to establish pre-annexation agreements that identify mutual interests and ensure coordinated planning and compatible development until annexation is feasible.

Policy LU 5.2 Evaluate proposals to annex or incorporate urban unincorporated land based on the following criteria, as applicable:

a. Conformance with Countywide Planning Policies including the Urban Growth Area boundary;
b. The ability of the annexing or incorporating jurisdiction to efficiently provide urban services at standards equal to or better than the current service providers;
c. The effect of the annexation or incorporation in avoiding or creating unincorporated islands of development;

d. The ability of the annexing or incorporating jurisdiction to serve the area in a manner that addresses racial and social equity and promotes access to opportunity; and
e. Outreach to community, the interest of the community in moving forward with a timely annexation or incorporation of the area.

Essential Public Facilities

GOAL 6 Essential public facilities are sited in coordination with King County, the State, and/or other cities and tribes, with consideration being provided for environmental justice principles that address development of healthy communities for all.

POLICIES

Policy LU 6.1 Ensure that any discussion of siting or expanding essential public facilities or facilities of regional importance use a process that incorporates broad public involvement, especially from historically marginalized and disproportionately burdened communities, and that impacts and benefits are equitably dispersed.

Policy LU 6.2 Ensure that regional discussions of essential public facilities siting address climate change, equity, economic, and health impacts to communities.

A Healthy and Equitable Community

GOAL 7 Tukwila offers a land use pattern, scale, and density that supports walking, biking, and transit, providing access to goods, services, education, employment, recreation, and access to culturally appropriate and nutritious food.

POLICIES

Policy LU 7.1 Increase access to healthy and culturally relevant food in communities throughout the City by incentivizing the location of healthy food purveyors, such as grocery stores, farmers markets, urban agriculture programs, and community food gardens in proximity to residential uses and transit facilities, particularly in those areas with limited access to healthy food.

Policy LU 7.2 Encourage locally based food production, distribution, and choice through urban agriculture, community gardens, farmers markets and food access initiatives.

Policy LU 7.3 Adopt land use and community investment strategies that promote public health and address racially and environmentally disparate health outcomes and promote access to opportunity. Focus on residents with

the highest needs in providing and enhancing opportunities for employment, safe and convenient daily physical activity, social connectivity, protection from exposure to harmful substances and environments, and housing in high opportunity areas.

Policy LU 7.4 Evaluate the potential physical, economic, and cultural displacement of residents and businesses near high-capacity transit station areas, particularly for Black, Indigenous, and other People of Color communities; immigrants and refugees, low- income populations; disabled communities; and other communities at greatest risk of displacement. Use a range of strategies to mitigate identified displacement impacts.

Policy LU 7.5 Mitigate potential displacement from City Actions through communication and collaboration with existing tenants, business and property owners, and seek to replace lost commercial and residential spaces within redevelopment.

Policy LU 7.6 Emphasize preserving and replacing affordable housing in redevelopment.

Policy LU 7.7 Mitigate new dense residential development from major sources of environmental pollutants to the extent possible.

Policy LU 7.8 Link commercial areas located within approximately one-quarter mile of residential areas with high-quality pedestrian and bicycle access facilities.

Policy LU 7.9 Encourage facilities and improvements that support transit use in new development, redevelopment, and street projects.

Policy LU 7.10 Encourage development in a manner that supports the physical activity of community members.

Policy LU 7.11 Reduce greenhouse gas emissions through land use strategies that promote a mix of housing, employment, and services at densities sufficient to encourage walking, bicycling, transit use, and other alternatives to auto travel, and by locating housing closer to areas of high employment.

Land Use Compatibility and Nuisances

GOAL 8 Land uses within and adjacent to the City are located and managed in a way that mitigate nuisances and health impacts to residents, workers, and businesses within the City of Tukwila.

POLICIES

Policy LU 8.1 Coordinate with neighboring cities, tribal governments, the Port of Seattle, King County, and other related entities to avoid or mitigate the potential cross-border impacts of urban development and encroachment of incompatible uses.

Policy LU 8.2 Consider regulations, infrastructure investments, or other measures, as appropriate, to address major noise impacts to residents, workers, and businesses.

Policy LU 8.3 Encourage increased residential density in areas with limited nuisance impacts.

Policy LU 8.4 Avoid locating land uses and infrastructure that produce unhealthy noise, vibration, light, or odor levels in residential areas.

Policy LU 8.5 Work with the Port of Seattle, King County Airport, and the Federal Aviation Administration to decrease adverse effects of airport operations on Tukwila and its residents.

Policy LU 8.6 Ensure that zoning designations discourage the siting of incompatible uses adjacent to general aviation airports, and that proposed development adheres to Environmental Protection Agency and Federal Aviation Administration standards.

Policy LU 8.7 Consider the potential impacts of development to culturally significant sites and tribal treaty fishing, hunting, and gathering grounds.

Policy LU 8.8 Consider potential wildfire risk prevention measures in updates to development standards.

Subareas in Tukwila

Boeing Access Road Station Area

GOAL 9 The Boeing Access Road Infill Station is supported by planning efforts and accompanying development regulations which lead to transit-oriented development supporting housing and employment growth around the station area.

POLICIES

Policy LU 9.1 Zoning and development regulations will be evaluated and amended to support transit-oriented development with consideration for long-term vision, compatibility, and equity.

Policy LU 9.2 Prioritize non-motorized connections from nearby job centers and residential uses to the station area.

Policy LU 9.3 Collaborate with King County Metro and Sound Transit to ensure areas that are currently underserved by transit benefit from the new station.

Policy LU 9.4 Engage with neighboring jurisdictions, and regional bodies, to ensure coordination regarding planned infrastructure improvements, including station supportive bike and transit infrastructure.

Policy LU 9.5 Consider changing infrastructure needs in capital improvement planning.

Tukwila South

GOAL 10 Tukwila South becomes a regional destination, developed with high-quality mixed use, office, advanced manufacturing, high-tech, retail and residential uses, while protecting the environment and providing recreational opportunities.

POLICIES

Policy LU 10.1 Ensure the development of Tukwila South results in a cohesive development pattern of compatible uses and neighborhoods.

Policy LU 10.2 Design infrastructure to accommodate increased employment and residential density over time.

Policy LU 10.3 Encourage development in Tukwila South to have internally integrated districts and uses, in addition to external connections to neighboring and regional assets.

Policy LU 10.4 Construct a comprehensive amenity system in Tukwila South that leverages the area's assets.

Tukwila International Boulevard District

GOAL 11 The Tukwila International Boulevard (TIB) District is a thriving, walkable, well-rounded neighborhood and a desirable place to live, work, shop, worship, or play.
At key locations on TIB, there are well-designed, pedestrian-oriented mixed-use centers or "nodes" with distinct character.
Tukwila International Boulevard transitions from an auto dependent former state route toward a pedestrian focused corridor through road diet, enhanced pedestrian, and other traffic calming measures.

POLICIES

Policy LU 11.1 Continue to focus redevelopment efforts on carefully chosen "nodes" of more intensive development along TIB to maximize the impact of the City's investments, create momentum, and foster faith in the vision for the TIB district.

Tukwila Village and Transit Oriented Development Nodes

Policy LU 11.2 Ensure that the master plans for the Tukwila Village and TOD nodes encourage and incentivize the redevelopment of large parcels, promote assembly of smaller parcels, and identify opportunities for shared parking, pedestrian linkages, and subregional infrastructure needs, such as surface water and recreation.

Policy LU 11.3 Focus master planning for the nodes on non-auto-oriented uses. Emphasize good pedestrian experiences and connections to nearby residential areas, businesses, and amenities.

Policy LU 11.4 Ensure that the Zoning Code and design guidelines support the types of development envisioned in the nodes.

Tukwila Village Node: South 144th and TIB

Policy LU 11.5 Designate this area for an attractive, walkable, locally oriented mix of uses, including multifamily residential, neighborhood-serving retail and services, restaurants, civic and social gathering spaces, and other people-intensive and customer-oriented activities that build on the Tukwila Village project.

Policy LU 11.6 Generate high levels of foot traffic vital to the success of the node by attracting an "anchor" that draws customers and allows them to park once and walk to adjacent retail.

Tukwila Village Node: Transit-Oriented Development (TOD) Node at Tukwila International Boulevard Station

Policy LU 11.7 Prioritize this area for a more intensive, transit-oriented mix of mid- to high-rise office, multifamily residential and hospitality uses and services, with structured parking that builds on the momentum of the Tukwila International Boulevard Station's proximity to SeaTac Airport and generates jobs for the community.

Policy LU 11.8 Identify and promote an "identity" for the area around the Tukwila International Boulevard Station that is distinct from other stations along the LINK light rail alignment.

Policy LU 11.9 Optimize opportunities for transit-supportive redevelopment in and around the station by partnering with the City of SeaTac and Sound Transit to shape TOD policies and practices in the master plan.

Outside the Nodes: Land Use in Commercial and Multifamily Areas

Policy LU 11.10 On commercial properties along or near TIB, allow a diverse mix of uses, including residential, commercial services, retail, office, recreational and community facilities that are not in conflict with the TIB District vision of a walkable, pedestrian oriented neighborhood.

Policy LU 11.11 Allow stand-alone multifamily residential buildings outside of the nodes.

Policy LU 11.12 Encourage the redevelopment of commercial properties fronting TIB by allowing the aggregation of residentially zoned parcels with commercially zoned parcels fronting TIB, where such action:

a. expands small and/or irregularly shaped commercial districts that can't be redeveloped per the overall goals for the area,
b. encourages redevelopment of non-conforming use sites; and
c. fronts and orients any commercial uses toward TIB.

Policy LU 11.13 Encourage the aggregation of commercially zoned properties fronting TIB with adjacent commercially zoned properties to enhance the opportunities for redevelopment.

TIB as a Main Street: Street Design

GOAL 12 The TIB District is a unique destination whose urban design and built form encourages people to prioritize pedestrian safety and comfort, explore the neighborhood, and enhance their quality of life.

POLICIES

Policy LU 12.1 Traffic calming improvements prioritize comfortable and safe pedestrian movement.

Policy LU 12.2 Combine standards for parking placement with building site layout to achieve the compactness of a consistent building wall and pedestrian orientation along streets within the TIB District, where appropriate.

Policy LU 12.3 Use incentives to encourage commercial businesses and residential buildings to create a continuous building wall along the street edge and locate a primary entrance from the front sidewalk, as well as from off-street parking areas, in the TIB District where buildings are not required to locate at the back of sidewalk. Where buildings are required to locate at the back of sidewalk, require a primary entrance on or adjacent to the front sidewalk.

GOAL 13 TIB parking requirements are based on urban, rather than suburban, densities and needs and balance the need for parking with TIB urban design goals and policies that encourage transit use and walking.

POLICIES

Policy LU 13.1 Parking requirements encourage dense development supported by major transit facilities and reflect the availability of transit service while accommodating the needs of residents, workers and visitors frequenting the area.

Policy LU 13.2 Explore the potential for shared parking facilities for transit riders in developments within one-half mile walking distance of the Tukwila International Boulevard Station.

Walkability and Connectivity

GOAL 14 A larger network of streets, sidewalks, trails, and other public spaces throughout the TIB District supports community interaction; connects neighborhoods, commercial areas, civic areas, and destinations; and improves community health. The TIB District's circulation network makes the neighborhood a great place to walk, provides mobility and safety for all users, encourages walking, bicycling, and use of public transit, and supports the envisioned land uses.

POLICIES

Policy LU 14.1 Establish a more walkable and connected street network throughout the TIB District by investing in public sidewalks and requiring private redevelopment projects to organize site plan elements to allow for through connections.

Policy LU 14.2 Consider supplemental and TIB District-specific micro-mobility transportation systems, such e-scooters and bike share.

Policy LU 14.3 Work with transit agencies to expand transit service throughout the TIB District.

Policy LU 14.4 Public transportation facilities in Tukwila are maintained to be safe, clean, and inviting.

Community Texture and Diversity

GOAL 15 The TIB District takes pride in the ethnic and economic diversity of the community. TIB has an authentic main street character that promotes the District's many positive attributes and draws local and regional visitors.

POLICIES

Policy LU 15.1 Strive to attract and retain locally owned and operated stores, especially specialty food stores, ethnic restaurants, service providers, and neighborhood-serving shops such as hardware stores.

Policy LU 15.2 Activate public and private community gathering spaces with temporary events including food, art, music, pop-ups, and activities that leverage nearby assets, such as schools and cultural facilities, and reflect the international, multicultural character of the TIB area.

Policy LU 15.3 Create a central space for permitted food trucks, pop-ups, and farmers' markets where residents and visitors will gather and sample the multicultural flavor of the TIB area.

GOAL 16 The TIB District has stable neighborhoods, and residents and businesses that are actively engaged in improving the quality of life in the area.

POLICIES

Policy LU 16.1 Encourage private landowners to maintain and upgrade their property to protect the neighborhood from adverse impacts of vacant and underutilized sites and blighted buildings and structures.

Policy LU 16.2 Identify and support "champions" or leaders in the business community who will carry the vision for the TIB area and build community interest and commitment among diverse stakeholders.

Policy LU 16.3 Strengthen the City's engagement with the area's business community and cultivate the success of the entrepreneurs and small businesses, including businesses owned by refugees, immigrants and non-fluent English speakers.

GOAL 17 The TIB District is one of the safest places in South King County.

POLICIES

Policy LU 17.1 Continue working with Sound Transit to reduce crime at the Tukwila International Boulevard Station.

Policy LU 17.2 Work with community to identify and address safety concerns in TIB District.

Policy LU 17.3 Consider safety in design of streets, sidewalks and public infrastructure to enhance safety for pedestrians, cyclists and other active transportation users.

Public and Private Investment

GOAL 18 Public and private investment has catalyzed greater private investment in the TIB District which has created additional development and business success and increased the overall pace of redevelopment.

POLICIES

Policy LU 18.1 Invest public funds in the infrastructure and public amenities necessary to catalyze private investment, stimulate the location of businesses and housing, and create an attractive neighborhood.

Policy LU 18.2 Invest public funds strategically to acquire and assemble substandard parcels, to remove blighted uses, or make current land holdings more developable.

Policy LU 18.3 Continue to form public/private partnerships and leverage private investment through incentives, and limited large-scale development agreements where appropriate

Policy LU 18.4 Consider using City funding and City-owned property to offset development costs of market rate housing in "pioneering" residential or mixed-use projects.

Policy LU 18.5 Utilize developer incentives and funding strategies that would attract uses desired by the community, improve a project's performance, and make redevelopment financially attractive to developers.

Policy LU 18.6 Identify barriers to development in TIB and use available tools, including MFTE, zoning reform, parking reform, etc., to eliminate barriers and encourage new development supporting community needs.

Policy LU 18.7 Encourage coordinated stormwater detention and treatment for several properties as opposed to multiple individual systems, when possible, to provide more effective stormwater management, greater environmental benefit, and cost efficiency.

Policy LU 18.8 Emphasize self-sustaining, living wage employment opportunities within the District.

Policy LU 18.9 Encourage broad-scale marketing of the TIB area, and Tukwila as a whole, in order to draw from a broader array of potential employers.

Regional Centers

WHAT YOU WILL FIND IN THIS CHAPTER:

- A vision and description for the City's two designated centers, the Southcenter area and Manufacturing and Industrial Center;
- A discussion of regional planning policies for urban centers;
- A discussion of relevant issues and opportunities to be addressed to ensure that Tukwila's regional centers achieve the City's Vision for them; and
- Goals and Policies to guide future development in Tukwila's regional centers

PURPOSE

The purpose of this element is to discuss the City's two Regional Centers and the priorities identified for each.

Regional Centers in the Puget Sound

By the year 2050, the central Puget Sound region will add another million and a half people, reaching a population of 5.8 million. In order to ensure that all residents benefit from the region's growth, cities in the King, Snohomish, Pierce, and Kitsap counties, plus Tribes and other partners have worked together with PSRC to develop VISION 2050.

VISION 2050 established the region's plan for how we can collectively provide an exceptional quality of life, opportunity for all, connected communities, a spectacular natural environment, and an innovative, thriving economy. To achieve that goal, the plan includes a Regional Growth Strategy that focuses growth in centers and near transit, with the goal of sustaining and creating different types of urban communities, while preserving the region's working resource lands and open spaces.

The Regional Growth Strategy assumes 65% of the region's population growth and 75% of the region's job growth will locate in the regional growth centers and near high-capacity transit. Two of the 30 designated Centers are located in Tukwila – the Southcenter Urban Center and the Tukwila Manufacturing and Industrial Center along the Duwamish River. These centers are discussed in the following two sections.

SOUTHCENTER TUKWILA URBAN CENTER

Tukwila's Southcenter area is intended to develop as a high-density, regionally oriented, mixed- use center. In 1995, the Southcenter area was designated as a regional growth center by the Puget Sound Regional Council's (PSRC) Vision 2050, and as an urban center under the King County Countywide Planning Policies. The vision for Southcenter has remained consistent since that time.

Housing and employment growth targets, capacity and land use assumptions for Centers and the City as a whole can be found in the table below.

	Adopted Growth Target	Land Use Assumptions for Travel Demand Modeling	Zoned Development Capacity
County or citywide			
Population	Approximately 13,070 additional (from 2024 baseline of 22,930)	17,379	21,228
Employment	15,890 new jobs (2019-2044)	16,155	30,675
Housing	6,500 new net units (2019-2044)	6,729	8,219
Centers			
Tukwila Urban Center (TUC)	45 activity units per acre, currently 22		
Population		3,011	7,132
Employment		1,185	5,902
Housing		1,166	2,714
Manufacturing/Industrial Center (MIC)			
Population	0	-	-
Employment	20,000 total jobs	1,905	1,604
Housing	0	-	-

Urban centers are described in the Countywide Planning Policies as areas of concentrated employment and housing, with direct service by high-capacity transit. They encompass a wide range of land uses, including retail, recreation, public facilities, parks, residential, and open space. They encourage the growth of each urban center as a unique, vibrant community that is attractive to live and work. Centers should support efficient public services including transit and respond to local needs and markets for jobs and housing.

In Vision 2050, growth centers are intended to be compact areas of high-intensity residential and employment development, with a mix of land uses including housing, jobs, recreation, and shopping. The designation of regional growth centers is a key element of the regional strategy to preserve resource lands and protect rural lands from urban-type development by promoting infill and redevelopment within urban areas to create more compact, walkable, sustainable and transit- friendly communities. These strategies direct the majority of the region's employment and housing growth to urban centers in the form of compact, sustainable communities where housing and jobs are located in a manner that provides for easy mobility and accessibility.

Urban centers are also given priority by transit providers for fixed-rail transit service and other transit service and facility improvements. The idea is to help ensure the long-term economic viability and competitiveness of urban centers in the region as energy costs escalate, congestion increases and consumer preferences shift.

Tukwila is also designated as a Core City under Vision 2050. Core cities are major cities with regionally designated growth centers. They are intended to accommodate a significant share of future growth, contain key hubs for the region's long-range multimodal transportation system, and are major civic, cultural and employment centers within their counties.

In 2002, Tukwila began creating an urban center plan for the Southcenter area. The Plan focused on retaining the urban center's competitive edge and economic strength as retail development grows within the region. At that time, the City recognized that an urban center of regional significance creates benefits for all of Tukwila. Participants in the six public workshops supported the following ideas:

1. Making the Southcenter area a more attractive destination for shopping and leisure activities;
2. Relieving critical congestion points, improving circulation, and making alternative modes of transportation available;
3. Supporting existing businesses and attracting new; and
4. Creating opportunities for residential development in appropriate areas.

Public investment in key areas will support progress towards the community's vision of enhanced and diversified economic vitality.

Southcenter policies support and expand the qualities of the Center that have generated its economic success:

- Land use polices are flexible to support diverse uses.
- Urban design policies implement the community's vision, to be achieved through public and private sector initiative and cooperation.
- Site and streetscape policies emphasize accessibility as a key factor, as well as choice in transportation modes.

These policies will reinforce future competitiveness and will create an urban center that gives identity to the City.

ISSUES

Southcenter currently provides regional comparison shopping, major discount shopping, major facilities for incubator businesses, entertainment, and a full range of professional services. It includes intensely developed areas such as Westfield Southcenter Mall and Andover Industrial Park, transportation facilities such as the Sounder commuter rail/Amtrak station, and natural features and amenities such as Tukwila Pond, Minkler Pond, and the GreenRiver.

Retail uses dominate Southcenter; Westfield Southcenter Mall, in the northwest corner of the center, is the largest regional shopping mall in the Seattle area. Warehouse uses are more prominent in the area to the south.

A goal of growth management is to integrate housing, job growth, and services in order to reduce the need for long commutes, and to keep living and working communities easily accessible to each other. As a significant employment center, Southcenter already provides jobs to residents and nearby communities. However, considerable residential development is needed in the urban center to meet the City's housing targets. The vision for Southcenter includes expanded opportunities for housing, accommodating a significant portion of the City's projected housing needs, and addressing the types of amenities and infrastructure needed to attract quality housing and create a connected, dynamic urban environment.

Southcenter's future of higher-density growth will take place during and beyond the 20-year horizon of the Countywide policies. While urban centers play an integral role in the regional vision, the Countywide policies require the form and function of these centers to be determined at the local level.

Vision Statement

The vision for Southcenter's next 20—40 years foresees:

- a high-density area with housing and regional employment;
- walkable —as well as auto-oriented —shopping and entertainment districts;
- areas of high-quality housing near water amenities and within walking distance of the Sounder commuter rail/Amtrak station and the new bus transit center; and
- recreational opportunities for businesspeople, residents, and visitors.

Support for interlinked transit and a pedestrian system to supplement an improved road network are included in the future, as well as sensitively enhancing the accessibility to the

City's natural amenities, such as Tukwila Pond, Minkler Pond and the Green River.

The land use, design, and transportation policies of the Southcenter Plan focus on keeping the area's successful economic engine running. To make Southcenter more competitive and attractive over the long term, the Plan aims to transition Southcenter into a great place for working, shopping, doing business, living, and playing. Great places contribute to the well-being of people and communities.

An area made up of great places will continue to attract people and maintain economic vitality. Economic success, in turn, provides the City of Tukwila the fiscal means to continue providing our community with excellent public services and improvements.

Southcenter, Tukwila's urban center, is currently an economically vibrant, motor vehicle-oriented area. It owes much of its success to a high level of regional accessibility and —in the past —a lack of competition within the region, as well as the 30+ year vision and vigor of its development community.

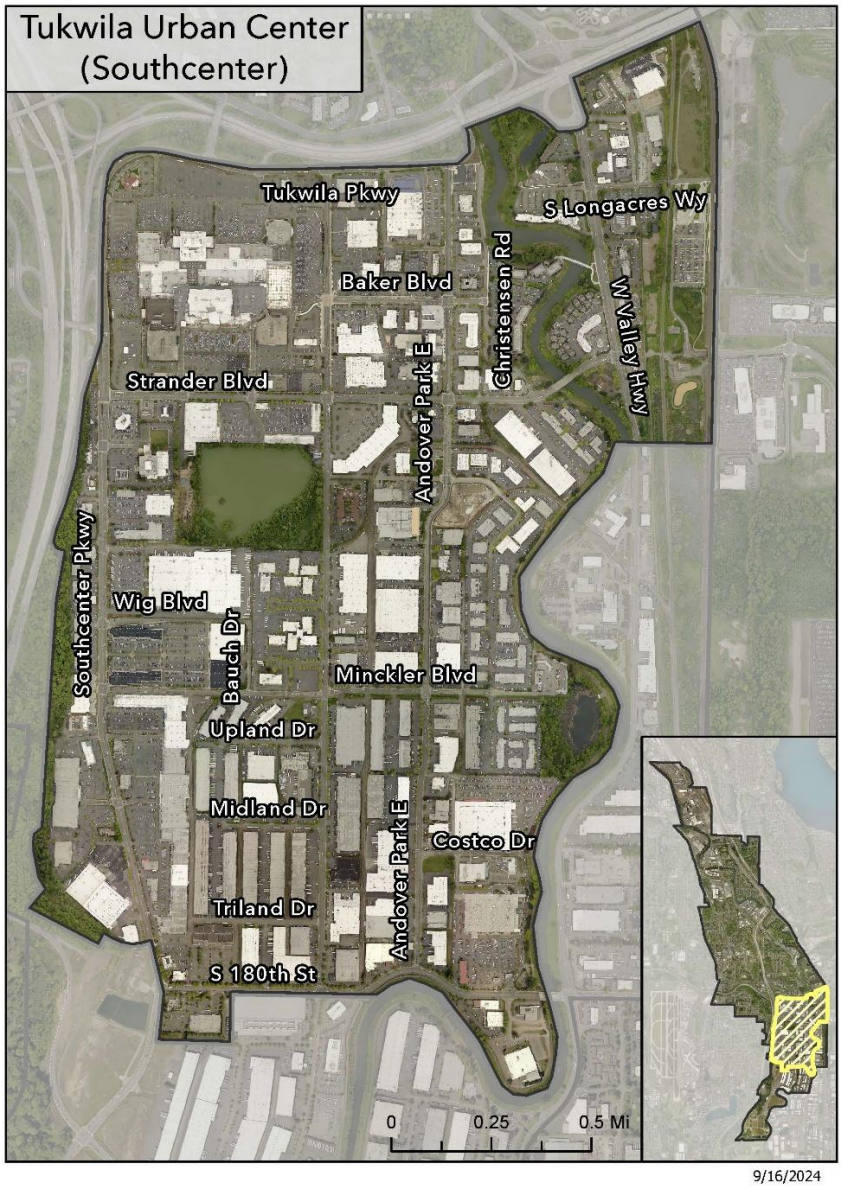
Achieving the long-range vision of an economically and environmentally sustainable community is anticipated to be a gradual process. It should be pursued by reinforcing Southcenter's strengths and increasing its overall attractiveness through a combination of public and private investment. This would support both new and existing businesses and the continuation of market-sensitive transitions.

Notable future features of the Southcenter Subarea Plan that will implement the Vision include:

- Improved connection between Westfield Southcenter Mall and Tukwila Pond Park.
- A core area of high-quality walkable retail, entertainment, housing, public spaces, and employment creating a memorable destination within the region.
- Anchor areas linked by frequent transit service (5-to-10-minute buses or shuttles), enhanced with public and private pedestrian facilities, and development standards supporting this type of built environment.
- High-quality transit and pedestrian facilities, focusing on creating strong connections between the Mall and the Sounder commuter rail/Amtrak station.
- Overall improvements to the network of streets, trails, sidewalks, and other infrastructure.
- Encouragement of a pedestrian-oriented environment through building and streetscape design standards and guidelines.
- Sub-districts differentiated through uses and development standards.

Southcenter's Boundaries

Northern —	Properties south of Interstate 405
Southern —	180th Street, with some properties on south side of the street
Eastern —	The center of the Green River between 180th Street and the southern boundary of properties that abut the south side of the Strander Boulevard alignment, thence eastward to the City limits
Western —	Toe of west valley wall



MANUFACTURING/INDUSTRIAL CENTER

Tukwila's Manufacturing/Industrial Center (MIC) is one of ten such employment centers in King County, established through a designation process outlined by the Growth Management Planning Council (Figure I). It comprises an area of 998 acres along the Duwamish River, bounded generally by the City of Seattle on the north, South 125th Street on the south, the Burlington Northern railway right-of- way on the east, and the Duwamish River on the west (Figure 2).

The area is already economically healthy, but opportunities exist to improve its usefulness and competitive position. This element of the Comprehensive Plan addresses these opportunities and recommends policies for realizing them.

ISSUES

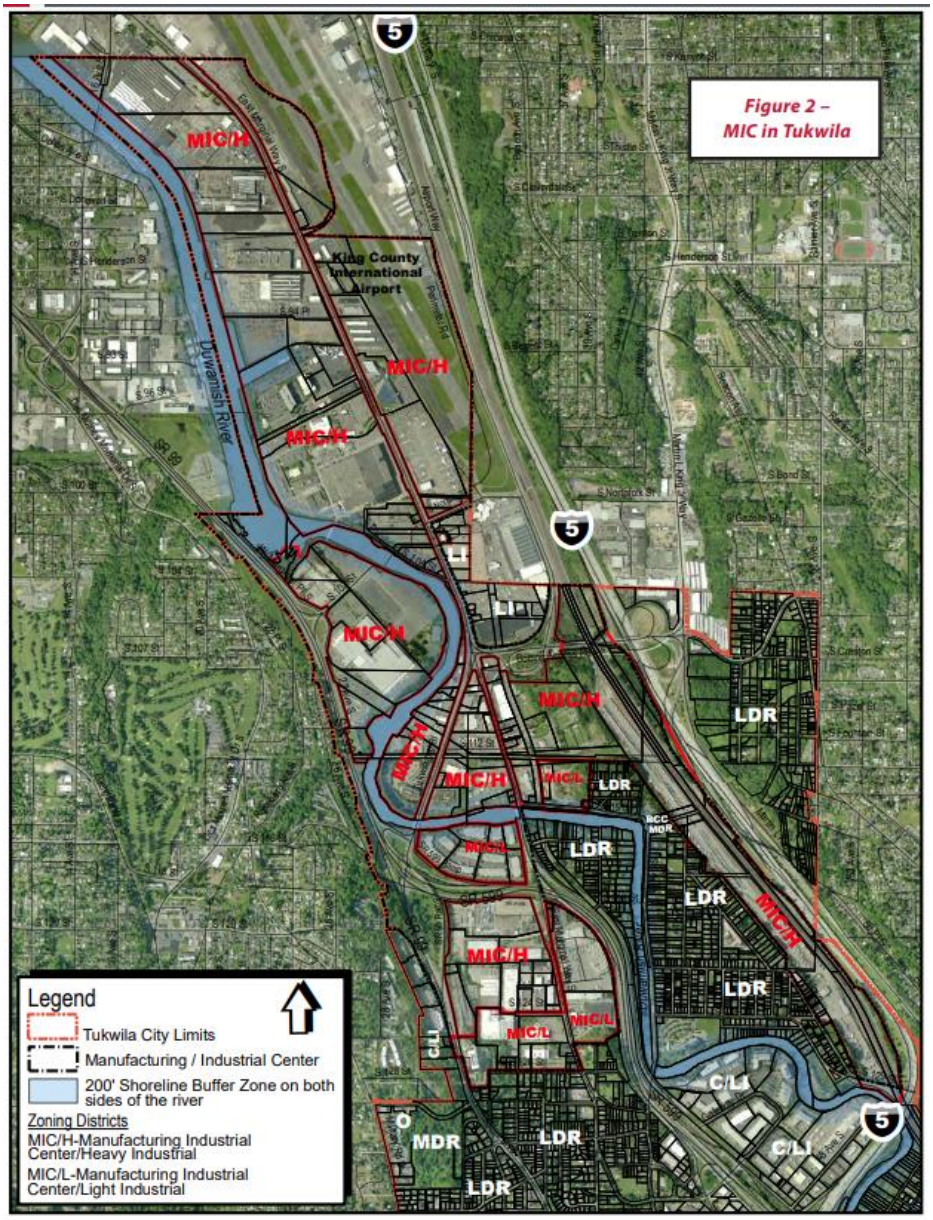
Figure I —
King County MIC Designated Areas

There are more than 100 businesses located in the Manufacturing/Industrial Center, with a large employment base, much of it in manufacturing. The Center is an integral source of direct (property tax) and indirect (sales tax) revenues received by Tukwila.

The Center is characterized by light to heavy manufacturing uses, storage facilities, office development, small areas of commercial development along arterials, and a few older residences. The southern third of King County International Airport occupies 175 acres of the Center, and there are County plans to redevelop this portion of the airfield as leases lapse. (Figure 4)

The Boeing Company and the King County International Airport collectively control the largest proportion of the North Tukwila MIC. While business needs may change in the future, the Boeing Company's current use of this area comprises a mix of warehouse, manufacturing, engineering, laboratory, office, research, and development. This mix of use produces a stable employment environment within the area, with a focus on manufacturing, engineering, research, and development.

Figure 3 — Tukwila MIC: Jobs by Sector



Because the Center is an established industrial area, an adequate infrastructure has been in place and maintained for many years.

The Center is a major distribution hub well- served by automobile, truck, air, rail, and water transportation facilities. Congestion represents a problem, however, partly owing to the high number of single-occupancy vehicles. A number of street and intersection improvements will be necessary to maintain acceptable levels of service. Regional proposals for commuter rail and local rapid rail systems that include service to and through Tukwila could also provide travel alternatives for area employees and regional travelers.

Figure 4 — Tukwila MIC: Current land use

Tukwila's Manufacturing/Industrial Center is a major area of employment, providing significant property and sales tax for the City, while much of the center is occupied by the Boeing Company, the center is also characterized by other manufacturing, storage, office uses, and limited older residential development. In addition, many smaller production companies located in the MIC due to its central location.

A portion of King County International Airport (Boeing Field) is located inside the North Tukwila MIC, at the far north end of the City. The center joins with Seattle's Duwamish MIC, extending the industrial corridor south along the Duwamish. The center is a major regional distribution hub, well served by auto, truck, air, rail, and water transportation.

The deferred Boeing Access Road Link Light Rail Station is moving forward as part of the Sound Transit 3 (ST3) package. It will add a new elevated station in the vicinity of S Boeing Access Rd, E Marginal Way, and I-5 along existing Link 1 Line, bridging the 5.5-mile gap between Rainier Beach and Tukwila International Boulevard stations. This project has been a Tukwila priority for many years, as it will provide connections to the Duwamish Manufacturing/Industrial Center and increase light rail access in southern Seattle and northern Tukwila neighborhoods. A consultant has been hired to complete alternatives analysis and the Sound Transit Board is scheduled to pick a preferred alternative in Q3 2024, with the station expected to open in 2031.

GOALS, POLICIES AND STRATEGIES

Southcenter Urban Center

The following goals, policies and strategies reflect the established vision for Southcenter. These policies will help achieve the desired form and function of Tukwila's urban center over the 30- to 50-year planning period.

These goals and policies cover the issues of land use, urban development, and transportation and circulation. They support development and protection of the long-term economic and environmental sustainability of Southcenter by fostering an attractive and functional environment to live and recreate, as well as retain its reputation as a good place to work, shop, and do business.

Goal RC-S-I **Land Use: Southcenter will contain an intense, diverse mix of uses, which will evolve over time. The character and pace of this change will be set by a combination of guidelines, regulations, incentives, market conditions, and proactive private/public actions, which will reinforce existing strengths**

and open new opportunities. The desire for a high-quality environment for workers, visitors and residents will also drive this character transition.

➢ *LAND USE POLICIES*

Policy RC-S-1.1 **Southcenter Character**. Raise awareness of Southcenter as a regional commercial/industrial area, with opportunities for high-quality, mixed-use transit-oriented development including housing, served by a balance of auto, pedestrian, bicycle, and transit facilities *(Figures 10-2 and 10-3)*.

Policy RC-S-1.2 **Private and Public Investment**. Private and public investment will be aimed at facilitating and encouraging overall growth and redevelopment in Southcenter.

Policy RC-S-1.3 **Tukwila Urban Center (Southcenter) "Districts."** Southcenter encompasses a relatively large area containing a wide variety of uses. To create a more coherent urban form and enhance the Center's long-term competitive edge within the region, guide development and change to create distinct areas, or districts, where the character, forms, types of uses and activities benefit, complement and support each other.

Figure10-2: Envisioned High-Density Development in Tukwila

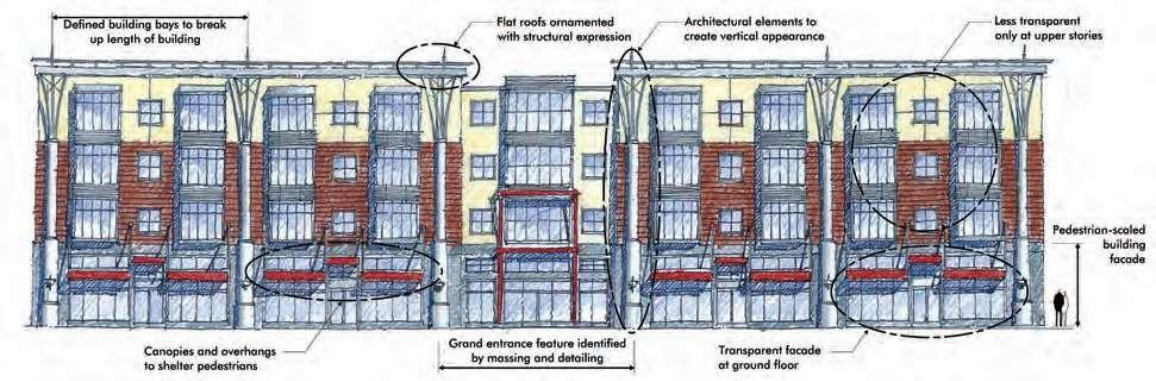


Figure 10-3: Envisioned Medium-Density Development in Tukwila

Policy RC-S-1.4 **Tukwila Urban Center (Southcenter) Residential Uses.** To provide a diverse set of housing alternatives and locations, a large percentage of the City's future housing needs will be accommodated in the urban center. Residential development is especially encouraged in proximity to water amenities or within walking distance of the Sounder commuter

rail/Amtrak station or the bus transit center, subject to design standards and incentives.

GOAL RC-S-2 **Urban Development: The northern portion of the Southcenter area will contain a central focus area. Throughout Southcenter, the natural and built environments are attractive, functional, environmentally sustainable, and distinctive, and support a range of mixed uses promoting business, shopping, recreation, entertainment, and residential opportunities.**

➢ *URBAN DEVELOPMENT POLICIES*

Policy RC-S-2.1 **Natural Environment:** Recognize, protect, and enhance the open space network by: augmenting existing parks; enhancing access to passive and active recreation areas such as Tukwila Pond, Minkler Pond, and the Green River; and by improving air and water quality and preserving natural resources, thereby effectively integrating the natural and built environments in Southcenter. In addition, recognize that open space amenities are attractors for a wide range of uses, including housing and office *(Figure X)*.

Policy RC-S-2.2 **Streets, Streetscape, and Pedestrian Environment.** Create a "complete street" network that establishes a finer-grained street grid; reflects the demand and need for motor vehicles, transit, pedestrians, and bicyclists; and provides a safe, convenient, attractive, and comfortable pedestrian and bicycling environment. Ensure that street design eliminates potential conflicts, promotes safety for all modes of travel, and maintains emergency services response capabilities. Reinforce the different functions of streets by creating distinct identities for major rights-of-way (Figure 10-5).

Policy RC-S-2.3 **Site Development.** Create regulations and design guidelines that result in high-quality site design and enjoyable and safe pedestrian environments, using site design techniques that include but are not limited to:

- integrating architectural, site design and landscape elements.
- supporting motor vehicle, transit service, and pedestrian traffic by ensuring that new development and infrastructure are designed and constructed consistent with adopted standards and subarea plans.
- using physical and natural elements that enhance an area's overall aesthetic, including orienting a building to the street (Figure 10-6).
- extending the street grid system

Policy RC-S-2.4 **Pedestrian Accessibility.** Ensure that pedestrians have safe, convenient, and comfortable paths from adjacent public ways to key building entrances. This could include utilizing driveways or internal streets with sidewalks for access to primary entrances, or by providing clearly marked pathways through large parking lots from the public sidewalks and from parked cars to key building entrances. There should be minimum interruption to the pedestrian pathway by driveways and other vehicular conflicts *(Figure 10-7)*.

Policy RC-S-2.5 Siting and orientation of buildings and parking lots should create an environment that is conducive to walking in the northern part of the Southcenter area, particularly in the area between the Mall, the bus transit center, Tukwila Pond, and the Sounder commuter rail/Amtrak station.

Policy RC-S-2.6 Require interior vehicular connection between adjacent parking areas wherever possible.

Policy RC-S-2.7 Development standards will consider the needs of landowners, developers, businesses, and the community**.**

Policy RC-S-2.8 **Parking.** Ensure an adequate supply of parking for visitors, employees, residents, and customers. Provide a variety of flexible regulations, strategies, and programs to meet, and over the longer term reduce, parking demands. Ongoing needs will also be assessed to ensure appropriate parking requirements and to encourage efficient and effective use of land in parking design.

Policy RC-S-2.9 **Building Design.** Promote high quality architecture in Southcenter, with attention to standards and guidelines that:

- Promote an appropriate display of scale and proportion.
- Give special attention to developing pedestrian-oriented features and streetfront activity areas such as ground floor windows, modulated building facades, and rich details in material and signage.
- Provide quality landscape treatment that emphasizes shade trees.
- Provide an appropriate relationship to adjacent sites and features.
- Encourage overall building quality, and sensitivity to — and respect for — the area's important natural amenities such as the Green River and Tukwila Pond.
- Include property owners in developing urban design guidelines to ensure that the intent of this policy is met.

Policy RC-S-2.10 **Signage.** Develop a directional sign program to aid pedestrians, bicyclists, and motorists in wayfinding through Southcenter.

Policy RC-S-2.11 Work collaboratively with Southcenter property owners, businesses, and community members to implement the vision for Southcenter, assess the potential to catalyze development in the Southcenter area, and form an economic redevelopment strategy.

Manufacturing Industrial Center

GOAL RC-MIC-1 Support for existing industrial activities in the Manufacturing/ Industrial Center and development of new industrial activity, in order to maximize the employment and economic benefits to the people of Tukwila and the region, while minimizing impacts on residential neighborhoods.

POLICIES

Policies are designed to take advantage of the development and improvement opportunities offered by the MIC and to realize its full revenue and employment potential.

Support New Development

Policy RC-MIC-1.1 Support the efforts of existing industries to expand and new industrial businesses to develop in the Manufacturing/Industrial Center by providing them with economic data, information on available development sites, help in understanding and getting through the permit processes, and other appropriate assistance.

Policy RC-MIC-1.2 Assist landowners in remediating site problems caused by contaminated soil.

Simplify Permit Processing

These policies aim at reducing unpredictable permit conditions and permit review time.

Policy RC-MIC-1.3 Develop appropriate permit processes that minimize lengthy public review and simplify the development permit process, while providing meaningful opportunities for citizen input and protecting the environment.

Policy RC-MIC-1.4 Tailor Manufacturing/Industrial Center shoreline requirements to achieve consistency between Shoreline and MIC element goals and policies.

Protect the Land Resource

The land in the Manufacturing/Industrial Center must be used effectively to allow it to generate its potential of high-wage jobs and public revenue.

Policy RC-MIC-1.5 Allow uses that are commonly associated with manufacturing and industry, including those directly supporting such activity, such as offices and laboratories, while limiting unrelated uses.

Policy RC-MIC-1.6 Develop and designate appropriate zoning, buffers, mitigation, and access opportunities where manufacturing zoning directly abuts or impacts residential zoning so that MIC uses may operate without significant degradation of the residential environment.

Protect Adjacent Non-Industrial Land Uses from Negative Health Impacts

Policy RC-MIC-1.7 Minimize or mitigate potential health impacts of the activities in manufacturing/ industrial center on residential communities, schools, open space, and other public facilities.

Improve Duwamish River Access

The Duwamish River as a natural amenity can be an asset to the industrial community.

Policy RC-MIC-1.8 Support the Duwamish River becoming a natural feature amenity in the MIC

Policy RC-MIC-1.9 Improve public access and use of the west side of the river, protecting owner's rights to reasonable use and enjoyment, improve employee access to the east side of the river, and emphasize restoration on both sides of the river.

Improve Transportation Flow

Work with other governmental agencies to address transportation problems.

Policy RC-MIC-1.10 Reduce reliance on the single- occupancy vehicle for transportation of employees in and out of the MIC.

Continue Intergovernmental Coordination

Work with other jurisdictions as required to ensure that the economic purpose of the MIC is fulfilled.

Policy RC-MIC-1.11 Make appropriate adjustments to the boundaries between Tukwila, King County and Seattle.

Policy RC-MIC-1.11 Work with other jurisdictions to bring about necessary changes in laws and regulations and to develop other approaches to solving common problems.

RELATED INFORMATION

Southcenter

- Vision 2050, Puget Sound Regional Council, 2020
- King County Countywide Planning Policies, November 2023
- Growth Transportation Efficiency Center (GTEC) Program, 2007

Manufacturing/Industrial Center

Two MIC Reports (and their supporting documents) were prepared in 2010 and 2011 – these were not updated for this Comprehensive Plan Update. They will be revisited at a future date for compliance with Puget Sound Regional Council requirements:

- MIC Background Report, 2010
- MIC Issues and Opportunities Report, 2011
  - Attachment A: Business Stakeholder Survey Summary, 2011
  - Attachment B: MIC Business Survey Tabulation, 2011

In 1997, the City developed a Draft Environmental Impact Statement for the Manufacturing Industrial Center Implementation Plan. That document included three elements: a revised shoreline plan for the area; a subarea plan; and proposed regulatory changes, including a SEPA Planned Action (where project level environmental review is completed during the subarea plan phase and development standards review).

In the intervening 25+ years, the City has determined that this work should be updated again before its original intended purposes are continued. A recommendation to update this analysis may emerge following the work to update the City's Centers plans required by the Puget Sound Regional Council. The original document is linked below:

- MIC Integrated GMA Implementation Plan ("Planned Action"), 1997

Housing Element

WHAT YOU WILL FIND IN THIS CHAPTER:

- Estimates of current and future housing needs; and
- Policies to preserve and improve the existing housing stock; encourage new housing that meets the full spectrum of the community's needs; and develop thriving, equitable neighborhoods.

Purpose

This Housing element describes how Tukwila's housing needs will be satisfied through 2044. This element is based on a detailed analysis of Tukwila's housing needs contained in the Housing Background Report; housing projections determined by a joint committee including King County and its cities; and community engagement input.

The goals and policies seek to guide City actions related to housing, including decisions related to development regulations, affordable housing, and other programs. In the coming years, the City will need to plan for growth while ensuring the existing and future housing stock serves the changing needs of Tukwila's population, reducing barriers that prevent low- and moderate-income households from living near their work or transit, and preserving housing that is affordably priced. Tukwila's future must include thriving, equitable neighborhoods where everyone has the opportunity to live in a safe, healthy, and affordable home in the "City of opportunity and the community of choice".

Tukwila Neighborhoods

Tukwila's residential neighborhoods are geographic areas, some with distinct boundaries such as waterways and freeways, and others with less obvious boundaries based on time of annexation. These neighborhoods are a mix of smaller-lot, built-out residential areas predominately built before World War II, large multi-family apartment complexes built in the 1960s, 70s, and 80s, and newer areas characterized by larger houses.

From the Comprehensive Plan's adoption in 1994 to the present, Tukwila residents have described the City as having a distinct character focused on community and livability. The ten residential neighborhoods identified in previous Plan updates are shown in Figure 1.

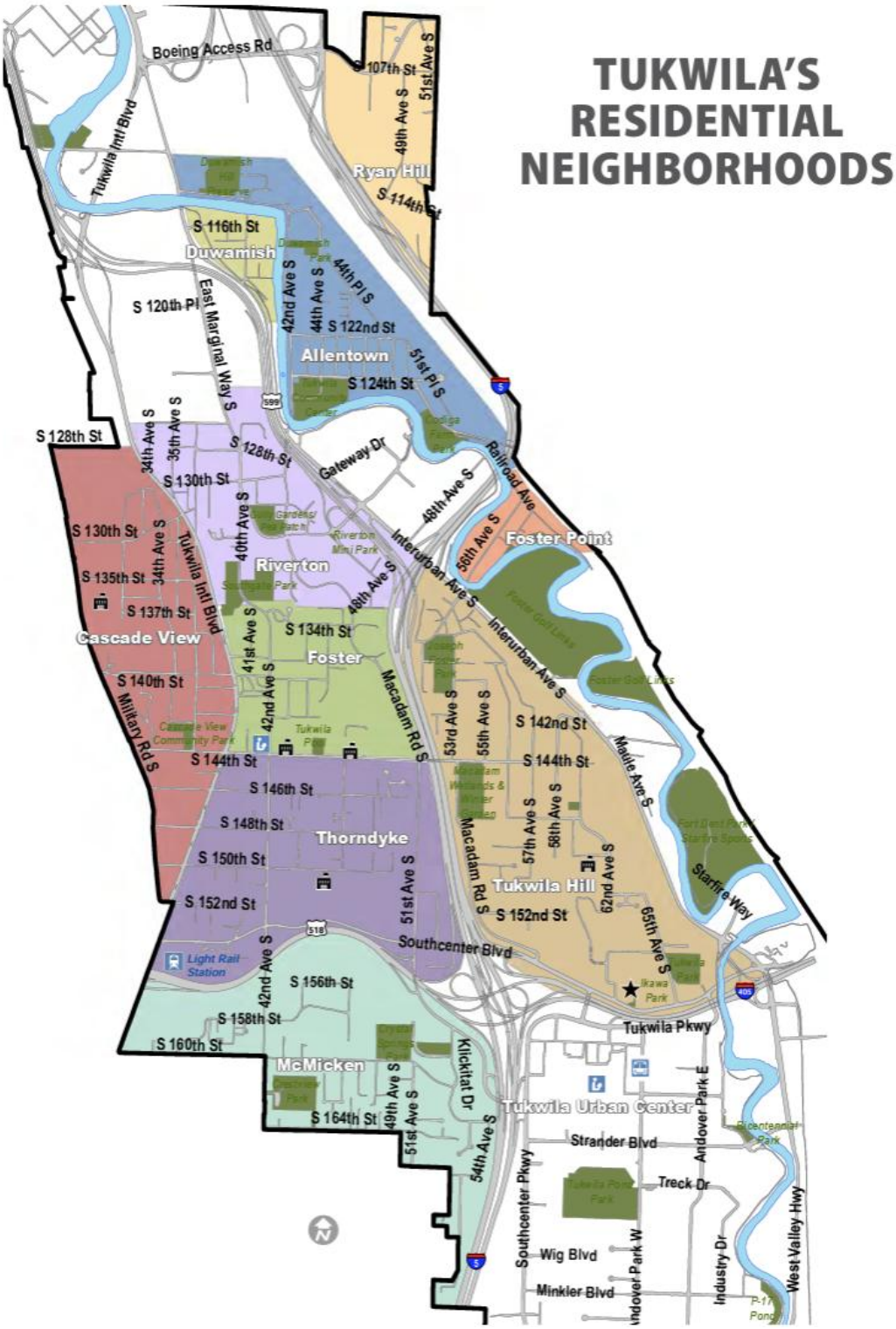


Figure 1: Residential Neighborhoods

Issues

In developing the goals and policies for Tukwila's Housing Element, the following issues were identified.

Housing Stock

- **Building age:** Almost half of Tukwila housing units are more than fifty years old, and most units were constructed between 1960 and 1980. As of 2023, only a tenth of the existing units were constructed since 2000. Older buildings can be more expensive to maintain, especially for cost-burdened residents. If well-maintained and protected from displacement, however, these units can offer a naturally occurring affordable housing (NOAH) reservoir.
- **Housing size:** Housing units available for rent tend to consist of studios and 1- and 2-bedroom units, while ownership units tend to have 3 or 4 bedrooms. However, renter households tend to be larger than homeowner households, creating a mismatch between need and availability.
- **Vacancy rates:** Tukwila has very low vacancy rates. In 2021, the rental vacancy rate was 1.3% and the ownership vacancy rate was 1.4%. Low vacancy rates indicate a lack of housing supply, which makes it more difficult for existing residents and prospective renters and buyers to identify housing that might best suit them.



Figure 2. Housing of different designs, ownership arrangements, and prices help meet the diverse needs of Tukwila residents.

Home Ownership Options and Middle Housing

Having a range of housing types to choose from facilitates a wider range of households being able to purchase a home. Homeownership can offer greater stability (vs. renting), as well as can provide the opportunity to build wealth and strengthen a household's resilience against the risk of displacement.

Currently, most of Tukwila's housing stock consists of older single-family homes, and apartments in large multi-family developments. These limited options do not accommodate residents in all stages of life, including young adults, multigenerational families, older adults hoping to "age in place," and older adults looking to downsize. Single family houses, the only housing type allowed on most residential lots in Tukwila, are also generally the most expensive type of housing to purchase and develop per unit, meaning new units are financially out of reach for many households.

"Middle housing" includes duplexes, townhouses, cottages, courtyard apartments, and other building types that fall between single family detached houses and high-density apartments. Middle housing tends to be more affordable to build and offers a greater variety of layouts and sizes that are better suited to the range of household types in Tukwila. Expanding the areas in which middle housing is allowed could help create new "starter homes" and offer the advantages of homeownership to a new generation.



Figure 3. Middle housing illustrations.

Housing Projections

The Puget Sound Regional Council – the regional planning organization that develops growth projections – estimates that Tukwila will need a total of 14,454 housing units by 2044, or 5,223 more than the City's most recent 2024 estimate of (9,231 units), as shown in Table 1. To achieve this growth, roughly 240 new units will need to be developed every year. Achieving this target would increase the City's population to approximately 36,000 residents in 2044.

Historically, there has been a large gap between the City's growth target and number of housing units actually constructed in the target period, although housing production increased since 2018, partly due to modified development regulations in the Southcenter urban center, and new development along Tukwila International Boulevard. Due to the slow growth, the King County Urban Growth Capacity recommends that the City adopt "reasonable measures" to accelerate housing production, potentially including changes to zoning, permitting procedures, or other measures.

Table 1. Tukwila Housing Capacity and 2044 Targets

	2018 Baseline	Additional Unit/ Job Target	2044 Total Target
Housing (Units)	7,954	6,500	14,454

Source: King County Urban Growth Capacity Report, 2021, and the City of Tukwila

Analysis of Tukwila's current zoning shows that the City has a total capacity for 7,475 new housing units within its zones that allow residential development, including anticipated housing units from projects in the development pipeline. Antiquated development regulations and extended permitting timelines, however, continue to inhibit and create barriers to new construction.

Affordable Housing Targets and Anti-Displacement Concerns

Under the Growth Management Act, cities and counties work together to plan for a sufficient supply of housing affordable to all income levels.[1] Since 2021, cities and counties have coordinated to identify equitable individual housing targets that will meet regional housing needs. Tukwila's targets are shown in 2 below.

Table 2. Tukwila Housing Supply and Need by Income

Income band	Share of Existing Units	Share of Existing Households	Share of New Unit Target	Needed Housing Units
Extremely low (0-30% AMI)	4%	23%	21%	1367*
Very low (30-50% AMI)	26%	19%	4%	274
Low (50-80% AMI)	35%	16%	3%	214
Moderate (80-100% AMI)	18%	12%	19%	610
Higher (100-120% AMI)	10%	30%	11%	692
High (>120% AMI)	7%		51%	3,343

** Includes 471 needed permanent supportive housing units*
Source: King County Countywide Planning Policies

With a significant supply of relatively affordable housing present in Tukwila, the City is already contributing significantly to countywide affordability. It is important to note that newly developed units available at costs lower than 120% AMI can be allocated to the >120% AMI level for target purposes.

As new homes are created, it will be important to act to reduce impacts on vulnerable communities in Tukwila. These impacts may include displacement of naturally occurring affordable housing (NOAHs) and cultural anchors, such as businesses and places of worship. Displacement is most likely to occur in areas where zoning allows higher intensity development relative to other parts of the City (e.g., along Tukwila International Boulevard), and where vulnerable communities such as low-income residents, recent immigrants, or non-White communities are present.

This element includes policies intended to prevent displacement; preserve and maintain older, more affordable housing; and strengthen links with members of vulnerable communities.

[1] For a discussion of the relationship between AMI and housing affordability, see page 1 of the Housing Background Report.

Goals and Policies

The following goals and policies intend to help Tukwila establish vibrant neighborhoods and encourage new housing, while maintaining affordable housing and meeting the needs of low-income and special-needs households. Each goal is followed by a list of related policies.

GOAL 1 – Support housing growth consistent with regional targets.

H1.1 Ensure zoned capacity is sufficient and encourages housing construction sufficient to meet the regional growth target of at least 6,500 additional housing units by 2044.

H1.2 Identify and remove excessive regulatory barriers to housing production.

H1.3 Modify residential zoning designations and development standards to align with City goals, and periodically assess the amount of housing produced under these standards.

H1.4 Encourage housing growth near major transit stops, especially high-capacity transit nodes and in Southcenter/Tukwila Urban Center.

H1.5 Align development regulations to market conditions to reduce reliance on time- and funding-intensive development agreements.

GOAL 2 – Promote safe, healthy, and affordable housing choices for residents of all income levels.

H2.1 Encourage production in all neighborhoods of diverse housing types that are appropriate for residents in all stages of life and all household sizes.

H2.2 Encourage housing development affordable to all income segments sufficient to meet needs consistent with adopted targets.

H2.3 Encourage the creation of housing for different income levels in residential areas throughout the City.

H2.4 Support the development of emergency housing, emergency shelters, and permanent supportive housing sufficient to meet adopted targets, and ensure that City regulations guiding such development are consistent with state and regional guidance.

H2.5 Support siting of transitional housing and permanent supportive housing in any zones in which residential dwelling units or hotels are allowed, and siting of indoor emergency shelters and indoor emergency housing in any zone where hotels are allowed in accordance with state law.

H2.6 Expand capacity for moderate density housing, i.e., "missing middle housing", in residential areas with low-density zoning throughout the City to increase home ownership and rental housing options.

H2.7 Work with the owners and managers of Tukwila's new and existing permanent or long-term low-income housing to maximize housing desirability, protect long-term affordability, and strengthen community connections.

H2.8 Strive to make alternative and affordable housing options available for residents currently living in substandard housing, such as pre-HUD code mobile homes.

H2.9 Encourage housing design that improves resilience in the face of climate-change driven extreme weather events, such as flooding and extreme heat.

GOAL 3 - Support collaborative efforts with other jurisdictions and organizations to assess housing needs, coordinate funding, and preserve and create affordable housing opportunities.

H3.1 Support the equitable distribution of regional funds, such as Community Development Block Grants, interlocal-agreement sales taxes revenue, and other federal, State and County funding, for needed affordable housing.

H3.2 Pursue establishing, or expanding, programs to provide tax incentives for increased housing development.

H3.3 Play an active role in regional efforts to meet the needs of low-income community members, including monitoring of housing needs and updating city policies and regulations to align with regional goals.

H3.4 Continue to work closely with South King Housing and Homelessness Partnership (SKHHP) and other partners to achieve development of subsidized affordable housing for very low-, low- and moderate-income households.

GOAL 4 – Limit displacement impacts to vulnerable and historically underserved populations.

H4.1 Identify and take action to remove City policies, rules, and programs that exacerbate racially disparate impacts.

H4.2 Develop and implement strategies to reduce displacement of low-income households in areas of redevelopment.

H4.3 Evaluate City actions for potential to increase displacement risk for naturally occurring affordable housing and vulnerable communities and mitigate or avoid taking actions that significantly increase this risk.

H4.4 Support the long-term preservation of existing naturally occurring affordable housing developments by acting as a facilitator between affordable housing groups interested in purchasing units and property owners.

H4.5 Continue to improve the condition of rental housing through administration of the Residential Rental Licensing and Inspection Program.

H4.6 Continue to support the maintenance, weatherization, rehabilitation, and long-term preservation or replacement of existing housing for low- and moderate-income residents.

H4.7 Continue to develop relationships with populations that have been historically underserved and are at risk of displacement to better understand needs and risks.

H4.8 Support programs and City actions that increase homeownership opportunities for vulnerable populations.

H4.9 Adopt renter protections to ensure stable housing for Tukwila Renters.

GOAL 5 – Promote housing options that support personal fulfillment and a healthy social life and are appropriate for people in all stages of life.

H5.1 Encourage development of housing that is appropriate for multi-generational families, including the development of accessory dwelling units (ADUs), middle housing, and family-sized apartments.

H5.2 Review and update development code to support production of housing types that provide relatively affordable homeownership options, such as middle housing (including townhouses) and condominiums.

H5.3 Encourage use of universal design principles in new housing development.

H5.4 Assist in providing residents with the human services, economic development, and transportation needed to increase access to housing options.

H5.5 Support community groups that actively work to improve neighborhood quality and strengthen the sense of community.

H5.6 Encourage site and building design that helps reduce social isolation and supports active lifestyles.

H5.7 Support the creation of co-housing, housing cooperatives, co-living buildings, and other types of housing that provide community-oriented housing alternatives for families, seniors, young singles, religious communities, or other groups with specific needs.

Resources

- Housing Background Report
- Tukwila Transit Oriented Development Housing Action Plan 2020
- Puget Sound Regional Council VISION 2050
- King County Countywide Planning Policies 2021
- Regional South King County Housing Action Framework 2020:
    - Housing Strategies Framework
    - Housing Context Assessment Methods
    - Housing Policy Assessment
- Regional Affordable Housing Task Force 2018 Report
- Tukwila 2012 Strategic Plan
- Adequate provisions checklist

Economic Development

WHAT YOU WILL FIND IN THIS CHAPTER:

- A description of Tukwila's economic setting,
- A discussion of issues that affect economic development in the City, and
- Goals, policies, and strategies for enhancing the community's economic well-being.

PURPOSE

The overriding goal of this element is to enhance the community's economic well-being. The Economic Development element recognizes the City's economy is strongly and directly influenced by the regional economy, while it still identifies policies and strategies the City can use to guide our local economy. The Economic Development element is a key component integrating all elements of the Comprehensive Plan, suggesting ways in which the City and its partners can use effective economic strategies in order to achieve the goals of the Plan.

There are four primary ways in which the City can affect local economic activity:

- Land use, transportation, and utility planning that determine, within the local regulation and infrastructure capacity, the space available for residential and nonresidential development;
- Providing quality public services such as public safety, transportation, infrastructure, and recreation;
- Directly or indirectly influencing private sector decisions as to location, operation, and development of business real estate, and
- Helping coordinate public and private sector efforts to enhance the employability and job advancement potential of the residential population.

The City's general approach to enhancing the community's economic well-being can be summarized as follows:

- Sustain moderate growth in the sectors of retail and entertainment, advanced manufacturing, aerospace, clean technology, information technology, life-sciences, and tourism
- Attract and retain businesses generating positive financial benefits for the City
- Target family wage and higher salary industries
- Improve and support the opportunities for education, skills training, and job acquisition for all Tukwila residents

- Provide capacity to meet Tukwila's employment targets as set by the Countywide Planning Policies
- Encourage growth into certain areas through the use of zoning and developmental regulations
- Encourage the retention and growth of existing local businesses, particularly for Black, Indigenous, and other People of Color, immigrant, refugee, LGBTQIA+, disabled, and women owned businesses
- Encourage entrepreneurs, local startups and businesses to establish in Tukwila
- Provide efficient and timely administration of City services
- Respond to specific requests for assistance from local firms
- Provide quality public services and infrastructure including public safety, transportation, utilities, and recreation to existing and future needs of the economic sector
- Support job enhancement programs to increase residents' employability through coordination of private and public sector activities.

The following are potential tools available to the City to enhance economic development in the City:

- Business Improvement Areas (BIAs)
- Local Improvement Districts (LIDs)
- Transportation Benefit Districts
- Tax Increment Financing (TIF)
- Multi-family property tax exemption (MFTE)
- Lodging tax and tourism promotion area (TPA) fees for tourism
- Local, state, and federal government funding and private resources
- Strategic sales of City property
- Use of infrastructure investment
- Funded, staffed, and administered economic development work group.

Economic Setting

The following statistics help set the background for economic development policies. The Economic Development Background Memo contains additional supporting information, including employment and housing growth targets per the Countywide Planning Policies.

Population, Income and Revenue

The population of Tukwila in 2023 was 22,780, an increase of approximately 3,264 from 2015 (OFM). The City's daytime population is estimated to be between 150,000 and 170,000. Taxes collected in 2015 were $45.2 million, which are projected to increase to $51.4 million in 2023.

During the same period (2015 to 2023), the assessed valuation of the City grew from $5.00 billion to $8.98 billion. In 2015, there were 7,832 housing units; by 2023, this number had increased to 9,194 units.

In 2021, the median age of Tukwila residents was 36.1 years; over 11% of all citizens were 65 or older; and 22.1% of the residents were under 20. In 2021, residents of color were 67.4% of the population. Foreign-born residents account for 39.2% of the population, and more than 70 languages are spoken in the Tukwila School District.

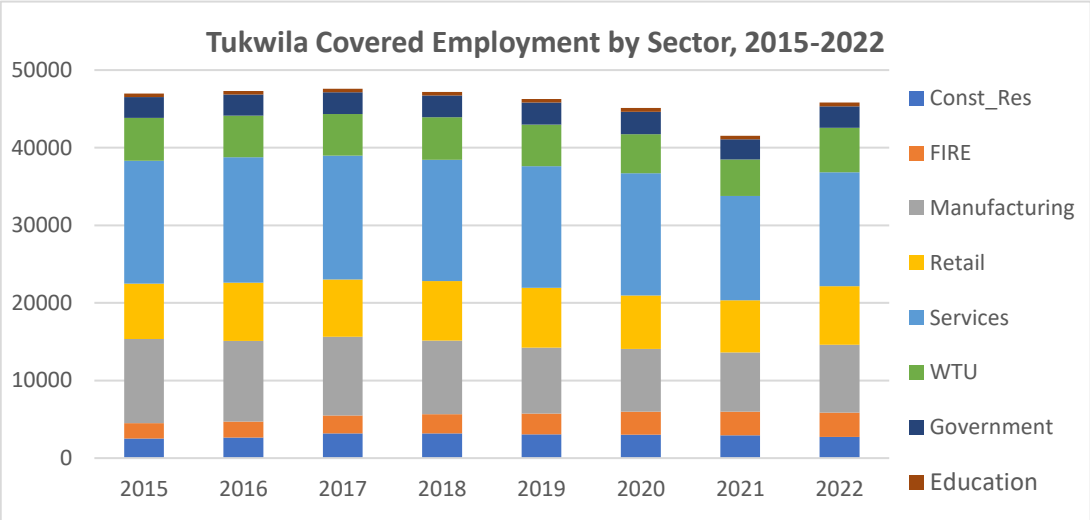
The median household income in the City in 2021 was $71,688, up from $45,923 in 2015. While Tukwila's median household income is still far below King County's median income of $106,326, this represents a substantial increase, consistent with regional trends.

Employment

In 2015, Tukwila had 2.41 jobs per resident, this number decreased to 2.01 in 2022 with a slight decrease in total jobs and slight increase in population. This ratio of jobs to residents is extremely high compared to other King County cities and regionally. There were at least 2,291 licensed businesses of all types in Tukwila in 2022. The total number of jobs in Tukwila has fluctuated since 2015, with impacts from COVID-19 seen across almost all sectors. In 2015, the City had approximately 47,000 jobs, whereas, by 2022 the total number of jobs in the City had fallen 2.4% to just under 46,000, with some rebounding trend from pandemic impacts. The Service sector composes the largest sector of jobs, with 32% of all jobs.

Manufacturing is next with 19.1% of jobs in the City. The number of manufacturing jobs has been decreasing within Tukwila prior to this planning period, reflecting regional trends. Between 2015 and 2022 Tukwila lost almost 2,100 manufacturing sector jobs. This trend likely reflects the diminished presence of jobs with Boeing and other manufacturing firms in the City's industrial areas.

In 2022, retail accounted for 16.4% of jobs in Tukwila. Warehousing, transportation, and utilities made up 12.5%.



Services composed the largest percentage of jobs in 2022, with 32% of all jobs. Manufacturing (19.1%); Retail (16.4%); and Warehousing, Transportation and Utilities (12.5%) also make up sizable shares of Tukwila's employment.

The shares of each sector, relative to each other, did not change significantly between 2015 and 2022. While the number of total jobs within Tukwila fluctuated between 2015 and 2022, most sectors remained fairly consistent in their share of total jobs. The Manufacturing and Service sectors displayed the largest decreases, at 4.0% and 1.7% respectively, while other sectors saw slight increases in share, with the FIRE (finance, insurance, and real estate) sector having the large proportional increase at 2.5%.

SMALL BUSINESS DEVELOPMENT CENTER (SBDC)

The SBDC at Highline specializes in providing business and training services to entrepreneurs and existing businesses, in order to be successful in today's economy. The center provides:

- Knowledgeable, trusted, and confidential one-on-one advice on all aspects of a business.
- A link to 23 other SBDC centers in the Statewide network for additional advice.
- Guidance on the purchase of an existing business or a franchise.
- Assistance in finding sources of capital to grow a business.
- Ideas about how an established business can move to the next level.
- Benchmarking a company's performance with others to identify improvement opportunities.
- Matching a businessperson with resources to accelerate the success trajectory of a business.
- Developing prospect lists through targeted database searches.
- Information about training and funding that can assist in growing a business.

ISSUES

There are a number of issues and trends affecting economic development in the City of Tukwila:

Financial Challenges

- **Retail Sales Tax:** While Tukwila continues to enjoy the dominant role in attracting retail, dining, and entertainment spending in South King County, sales tax has not grown as fast as inflation. Retail sales tax in 2022 was only 1.5% above 2019's pre-covid level. Retail and entertainment are still very strong in Tukwila, but sales tax growth has gone elsewhere due to competition from other retail centers, the State's change to destination-based sales tax, and consumer demand for online shopping.

- **Property Tax**: In 2001 Washington State voters passed an initiative that restricts cities' ability to levy their annual property tax to only 1% above their prior highest lawful levy. New construction is added to the tax rolls above the 1% limit, but then becomes part of the taxing district's levy and grows at a maximum of 1%. This law limits Tukwila's property tax growth and poses challenges for funding City services when the inflation rate is greater than 1%.

Public Safety and Public Image

- Tukwila has an excellent police department but still faces public safety challenges. Because Tukwila has millions of square feet of retail and is located at one of the busiest interchanges in the Pacific Northwest, it is a convenient location for shoplifting, car prowls, and other property crimes. The public perception of crime is often magnified because security businesses publish crime statistics on a per capita basis. Tukwila has a much higher crime rate per capita due to the large business sector and daytime population, compared to its small number of residents. In addition, the region's opioid and fentanyl crises have further blemished the public's perception of safety in the City.

Other Challenges

- Compared to King County as a whole, Tukwila's population has a significantly lower per capita income, $36,673 compared to $59,843, and higher poverty rate (12.4% compared to 9.4%) for 2021. Household median income is also lower than the county median at $71,688 compared to $106,326. Low per capita and household median incomes relative to the region limit funds available for Tukwila residents to support basic needs, save for larger purchases, and leaves them more susceptible to increasing or unexpected costs.

- Nearly all of the portion of Tukwila that lies on the valley floor south of I-405 and east of I-5 is protected by the Green River flooding by levees and embankments. The protection system is working, but maintenance, repairs, and improvements are becoming more complex and expensive, especially given the challenges of protecting the environment and endangered species in the river system.

- Regional housing values and housing costs in the Puget Sound and Seattle region have increased significantly. This has led to development of some new single family and multi-family housing investments in Tukwila, however, as property values and housing prices increase, the risk of local residents being displaced increases.

- Tukwila would like to receive additional office development since it can further support the retail sector, but the market demand for new office development is very limited. This is, in part, because office businesses preferred to be in downtown Seattle, Bellevue, or Redmond. Due to the significant increase in remote work, those office concentrations now have excess capacity. Boeing has been downsizing some of their facilities in Tukwila, but there is strong demand for manufacturing, warehouse, and distribution facilities. ProLogis and Amazon recently opened large, new facilities in Tukwila's manufacturing and industrial center (MIC).

- The Tukwila International Boulevard neighborhood has an active and entrepreneurial business community but many of the businesses generate income insufficient to afford to make significant investments in physical improvements or growth.

GOALS AND POLICIES

The following goals and policies provide the pathway how the City can realize its economic development vision that as a vibrant community with a strong and sustainable economy that celebrates and empowers its diversity, supports economic prosperity for all residents, and sustains a foundation for businesses of all sizes.

GOAL ED-1 A Vibrant, Diverse, and Resilient Economy

Policy ED-1.1 Continue to strengthen and balance economic and workforce development with strategic housing growth in Tukwila to ensure an adaptable and diverse economic base that leverages Tukwila's many assets and ensures the City's financial stability.

Policy ED-1.2 Attract and retain office, research, and development, advanced technology and manufacturing, aerospace, food manufacturing, and life sciences businesses, including those that provide services for export.

Policy ED-1.3 Encourage commercial and mixed-use development that provides a range of job opportunities throughout the city and county to create a closer balance between the locations of jobs and housing.

Policy ED-1.4 Maintain support for and strengthen Tukwila's robust retail, hospitality, and experiential sectors.

Policy ED-1.5 Evaluate the performance of economic development policies and strategies in developing businesses and creating middle-wage jobs.

Policy ED-1.6 Make local investments to maintain and expand infrastructure and services that support local and regional economic development strategies. Focus investment where it encourages growth in designated centers and helps achieve employment targets.

Policy ED-1.7 Promote the local workforce through priority hire programs that create middle-wage employment opportunities, encouraging workforce development partnerships, and identifying pipeline education or training opportunities.

Regional Economy

Policy ED-1.8 Coordinate local and countywide economic policies and strategies with VISION 2050 and the Regional Economic Strategy. Emphasize support for those industry clusters that are integral to that strategy.

Policy ED-1.9 Prioritize growth of a diversity of middle-wage jobs and prevent the loss of such jobs from the region.

Regional Centers

Policy ED-1.10 Concentrate economic and employment growth in designated regional, countywide, and local centers through local investments, planning, and financial policies.

Policy ED-1.11 Support economic growth that, along with land use planning and infrastructure development, facilitates Tukwila meeting its designated regional growth targets.

Policy ED-1.12 Work to reduce the risk of industrial displacement through a variety of anti-displacement strategies.

Partnerships

Policy ED-1.13 Collaborate with the private sector to leverage catalytic development sites.

Policy ED-1.14 Build and maintain relationships with property owners and businesses.

Site Selection and Development

Policy ED-1.15 Facilitate redevelopment of contaminated sites through local, county, and state financing and other strategies that assist with planning, site design, and funding for environmental remediation.

Policy ED-1.16 Continue working to achieve the vision in the Tukwila International Boulevard District and Southcenter District, emphasizing walkability, placemaking, and community gathering opportunities.

GOAL ED-2 A Safe, Desirable, and Healthy Community with a Positive Identity

Policy ED-2.1 Enhance Tukwila's public safety perceptions and sense of place and support a positive identity as a city in which to "Live, Work, Stay and Play" – a community of choice for businesses, residents and visitors with outstanding transportation, quality housing, fun experiences, amenities, and supportive services.

Policy ED-2.2 Improve perceptions of public safety through crime reduction, visible enforcement, improved communications, and messaging.

Policy ED-2.3 Invest in placemaking efforts that stimulate and instill community pride, improve quality of life, and welcome visitors.

Policy ED-2.4 Promote positive aspects of the Tukwila community to the region.

Policy ED-2.5 Add to the vibrancy and sustainability of our communities and community health and well-being by ensuring the provision of safe and convenient access to local services, neighborhood-oriented retail, purveyors of healthy food (e.g., grocery stores and farmers markets), and sufficient transportation choices.

Policy ED-2.6 Promote Tukwila's natural environment as a key economic asset and work to improve access to it as an economic driver. Work cooperatively with local businesses to protect and restore the natural environment in a manner that is equitable, efficient, predictable, and complements economic prosperity.

GOAL ED-3 Prosperity and Opportunity for Businesses, Workers, and Residents

Policy ED-3.1 Expand avenues of durable economic success for workers, entrepreneurs, business owners, and residents in Tukwila, including workforce development, with a focus on shared prosperity, opportunity, and social responsibility for local communities.

Policy ED-3.2 Promote the local workforce through priority hire programs that create middle-wage employment opportunities in historically disadvantaged communities.

Policy ED-3.3 Direct investments to community and economic development initiatives that elevate equitable economic opportunity for those communities most marginalized and impacted by disinvestment and economic disruptions.

Workforce Development and Partnerships

Policy ED-3.4 Improve awareness of, and access to, education and workforce development resources.

Policy ED-3.5 Facilitate connections between employers and education and workforce development institutions, seeking to increase graduation rates and develop a highly educated and skilled local workforce. Align and prioritize workforce development efforts with Black, Indigenous, and other People of Color communities; immigrant and refugees; and other marginalized communities.

Policy ED-3.6 Act as a resource to residents and workers connecting them to workforce development organizations.

Policy ED-3.7 Encourage private, public, and non-profit sectors to incorporate environmental stewardship and social responsibility into their practices. Encourage development of established and emerging industries, technologies and services that promote environmental sustainability, especially those addressing climate change and resilience.

GOAL ED-4 A Supportive Environment for Business and Entrepreneurs

Policy ED-4.1 Maintain a strong, supportive environment for local, independent, small, and micro-businesses and the entrepreneurial ecosystem to ensure they continue to flourish in Tukwila while attracting new business activities to the City.

Policy ED-4.2 Where possible, ease regulations that challenge small businesses.

Policy ED-4.3 Ensure that business and entrepreneurial resources are available to those with least access, including people of color, immigrants, and refugees.

Policy ED-4.4 Ensure that Tukwila projects an 'open for business' culture, and help businesses thrive through:

- Transparency, efficiency, and predictability of local regulations and policies;
- Communication and partnerships between business, government, schools, civic and community organizations, and research institutions; and
- Government contracts with local businesses.

Policy ED-4.5 Foster a broad range of public-private partnerships to implement economic development policies, programs, and projects, including partnerships with community groups. Ensure such partnerships share decision-making power with and spread benefits to community groups.

Policy ED-4.6 Use partnerships to foster connections between employers, local vocational and educational programs, and community needs.

Policy ED-4.7 Identify, support, and leverage key regional and local assets to the economy, including assets that are unique to our region's position as an international gateway, such as major airports, seaports, educational facilities, research institutions, health care facilities, long-haul trucking facilities, and manufacturing facilities.

Policy ED-4.8 Support the regional food economy including the production, processing, wholesaling, and distribution of the region's agricultural food and food products to all King County communities. Emphasize improving access for communities with limited healthy, affordable, and culturally relevant food options.

Policy ED-4.9 Develop and implement systems that provide a financial safety net during economic downturns and recovery. Direct resources in ways that reduce inequities and build economic resiliency for those communities most negatively impacted by asset poverty.

GOAL ED-5 A Community that Values Diversity and Access to Opportunity

Policy ED-5.1 Foster a business community in Tukwila that welcomes and empowers residential and business diversity in all its forms while capturing increased market share and building resilience to economic shocks.

Policy ED-5.2 Seek to understand the dynamics, needs, and relationships within communities, and where possible, provide crucial technical support and regulatory relief where feasible for small businesses owned by those with least access, including people of color, immigrants, and refugees.

Policy ED-5.3 Highlight the dynamic diversity of local communities as a means to enhance social capital, neighborhood cohesion, the county's global relationships, and support for cultural and arts institutions.

Policy ED-5.4 Promote business diversity by signaling public sector support and ensure public investment decisions protect culturally significant economic assets and advance the business interests of Black, Indigenous, and other People of Color communities; immigrant and refugees; and other marginalized communities.

Policy ED-5.5 Eliminate and correct for historical and ongoing disparities in income, employment, and wealth by building opportunities for Black, Indigenous, and other People of Color; women; and other intersecting marginalized identities.

Policy ED-5.6 Promote an economic climate that is supportive of business formation, expansion, and retention, and that emphasizes the importance of small businesses, locally owned businesses, women-owned businesses, and businesses with Black, Indigenous, and other People of Color; immigrant and refugee; LGBTQIA+; disabled; and women-owned or -led businesses, in creating jobs.

Policy ED-5.7 Stabilize and prevent the economic displacement of small, culturally relevant businesses and business clusters during periods of growth, contraction, and redevelopment. Mitigate displacement risks through monitoring and adaptive responses.

RELATED INFORMATION

King County Countywide Planning Policies (2022)
Vision 2050 (2021)
Economic Development Element strategy

Natural Environment

WHAT YOU WILL FIND IN THIS CHAPTER

- A description of the natural resources and environmentally critical areas present in the City of Tukwila;
- A discussion of local City efforts to protect Tukwila's natural resources; and
- Goals and Policies for protecting sensitive natural resources, including the urban forest.

PURPOSE

This element of the Comprehensive Plan addresses the City's natural environment – air, land, and water resources – by guiding future development in a manner that protects the community's environment and resilience in the face of change, improves the quality of life in the City, and provides protection of community residents from natural hazards.

To be healthy and sustainable, a community must integrate the natural environment into urban development design. The natural environment and its associated ecological processes provide many benefits to Tukwila, including:

- Visual relief from the hard, constructed surfaces of urban development;
- Fish and wildlife habitat;
- Air and water quality;
- Surface water runoff management;
- Recreational opportunities for interaction with nature;
- Human health; and
- Aesthetic and economic benefits.

Trees and vegetation also provide critical environmental services which, in turn, affect the quality of life of residents, visitors, daytime workers and neighboring communities. Some of the benefits of trees are shown as follows.

Benefits of Trees

ENVIRONMENTAL
- Fish and wildlife habitat
- Improved air quality
- Storm water mitigation
- Reduced energy consumption
- Sequestration of carbon
- Stabilization of slopes

SOCIAL
- Lower crime rates
- Mental health benefits
- Improved physical health
- Aesthetics and quality of life

ECONOMIC
- Consumer satisfaction/ increased spending
- Increased property values
- Reduced maintenance of road surfaces (shade)
- Green infrastructure – reduced cost over installing and maintaining surface water infrastructure

The City conducted a required periodic update of its critical areas regulations in 2018 and 2019. This included a Public Outreach Plan that used a variety of methods to notify the general public and property owners including an open house, mailings, notice in a stormwater bill, postings on the City's website, creation of a broadcast email group that received updates of the process, and articles in the City's Hazelnut newsletter.

The Natural Environment Element sets forth goals and policies to guide the protection and management of wetlands, watercourses, springs, fish and wildlife habitat areas, and geologically hazardous areas – collectively called "environmentally critical areas". It also includes goals and policies related to flood management, surface water management, water quality, and the urban forest (the combination of trees, shrubs and other plants that make up the formal landscaped areas of the City and the natural areas in our parks and on private property). The policies and development regulations in Tukwila are guided by the Washington State Growth Management Act (RCW 36.70A.050; WAC 365-190). Through the application of best available science (BAS) that protects the functions and values of critical areas, including providing "special consideration" for measures that preserve or enhance anadromous fisheries, the City manages its land uses to ensure the protection of the community's important natural areas,[1]

Tukwila Pond serves as both wetland habitat and temporary stormwater storage. [Image]
Southgate Creek is an example of a watercourse with little riparian protection from urban impacts. [Image]

[1] RCW 36.70A.030(6), RCW 36.70A.172, WAC 365-190-080; Best Available Science - see WAC 365-195-900 through -925.

THE STATE OF TUKWILA'S URBAN ENVIRONMENT

Tukwila encompasses about nine square miles, and much of the city lies within an extensive valley centered on the Lower Green/Duwamish River watershed. The valley is virtually flat and almost entirely built out except for the currently undeveloped Tukwila South area. The upland areas of the City have rolling topography and numerous areas with steep and potentially unstable slopes. Many of the steep hillsides are forested with second- or third-growth trees and understories with a mix of native and invasive vegetation. These areas – together with the City's numerous streams, wetlands, springs, and the River – provide important fish and wildlife habitat that coexist with the built environment. The following is a summary of conditions in the constituent elements of Tukwila's environment.

The City conducted a required periodic update of its critical areas regulations in 2018 and 2019. This included a Public Outreach Plan that used a variety of methods to notify the general public and property owners including an open house, mailings, notice in a stormwater bill, postings on the City's website, creation of a broadcast email group that received updates of the process, and articles in the City's Hazelnut newsletter. In 2025, the City will revisit its Critical Area regulations to ensure that they reflect current best practices and recent legislative requirements.

WETLANDS AND WATERCOURSES

As urban development has occurred, natural drainage corridors have been altered or placed in culverts, and wetlands have been filled. Remnant wetlands remain in some of the City's parks, on undeveloped slopes (formed by springs and groundwater seeps), in freeway interchanges, and in other areas of the City. Wetlands and watercourses have been provisionally identified and mapped on the City's Environmentally Critical Areas Map. The City has purchased Tukwila Pond and Macadam wetland for preservation. Tukwila Pond serves as both a wetland and temporary storm water storage pond for commercial development on its north side. Macadam wetland collects mostly natural surface water from the steep slopes located on its east side.

FISH SPECIES IN TUKWILA

Fish species found in the Green/Duwamish River include the following:

- Cutthroat trout
- Puget Sound Chinook salmon (threatened)
- Puget Sound Steelhead (threatened)
- Chum salmon
- Coho salmon
- Pink salmon
- Sockeye salmon
- Bull trout (threatened)

Resident Cutthroat trout are found in Tukwila's streams, as well as other fish and aquatic species.
(Cutthroat trout photo courtesy of Washington Department of Fish & Wildlife.)

Stream alterations have affected wildlife and fish habitat. There are a few remaining open channels in the four main streams in Tukwila (Johnson Creek, Gilliam Creek, Southgate Creek and Riverton Creek), which have been channelized, relocated and piped for much of their length. Construction of urban streets and highway systems and driveways required watercourses to be placed in culverts, which have blocked or made fish passage difficult. All the streams discharge into the Green/Duwamish River.

Stormwater Runoff – coupled with steep slopes in the upper reaches of Gilliam, Southgate and Riverton Creeks – has caused scouring and erosion in the stream channels, resulting in deepened ravines with steep banks, instability, bank erosion and downstream sedimentation. The lower reaches of Tukwila's streams are generally lacking in pools and woody debris, which are important for good fish habitat. Thus, the open reaches of Tukwila's streams are generally in deteriorated conditions with poor riparian habitat and narrow buffers. In fact, many tributaries of the urban watercourses flow in roadside ditches with little protection from urban impacts. Recent City-led projects to remove flap-gates are working at enriching stream habitat at River outlets by removing barriers, increasing complexity, replanting, and increasing hydrologic connectivity.

FISH AND WILDLIFE

The Washington Department of Fish and Wildlife (WDFW) has mapped and identified priority habitats and species in Tukwila to ensure their protection and management. They include: the Green/Duwamish River; reaches of Gilliam Creek, Southgate Creek and Riverton Creek; riparian areas (areas adjacent to streams and rivers) and freshwater wetlands. Also mapped are wetland complexes and Johnson Creek in Tukwila South.

WDFW has also inventoried and mapped barriers to fish passage in Tukwila as part of a larger Statewide effort. A federal court injunction ordered Washington State agencies to repair culverts that block fish passage in violation of the Stevens Treaties that ensured tribal right to fish "at usual and accustomed" places. While the federal injunction does not apply to local jurisdictions such as Tukwila, there are county, state and federal programs supporting the repair of barriers to fish passage within local jurisdictions. The City's Surface Water Comprehensive Plan includes the inventoried list and additional information on barriers to fish passage within Tukwila. The City of Tukwila advocates for barrier removal through multi-benefit approach capital improvement projects in conjunction with other surface water priorities including drainage and water quality improvements, flood protection, and salmon habitat restoration when funding opportunities present.

The Shoreline Master Program provides more detail on the City's involvement with the Water Resource Inventory Area 9 (WRIA 9) and the Green/Duwamish River Salmon Habitat Plan, which guides local sponsor restoration planning and implementation for Chinook salmon habitat.

Volunteers removing invasive blackberry - Duwamish River Shoreline Restoration Project [Image]

Community volunteers stocking Coho salmon in Southgate Creek. [Image]

Pacific tree frog at wetland restoration site.
[Image]

Tukwila residents and businesses are actively involved in stewardship, wildlife protection, and enhancement through City-sponsored activities such as Green Tukwila, as well as in private initiatives to restore shorelines and open spaces and annually stock and incubate Coho salmon eggs in local creeks. In addition, the City's NPDES program works to educate citizens, businesses, and school age children on ways to improve water quality and directly benefit salmon habitat.

Waterfowl areas in Tukwila include Tukwila Pond and the wetlands in Tukwila South, both of which provide important winter habitat for migrating waterfowl and permanent habitat for other waterfowl. More than 50 species of birds have been recorded at Tukwila Pond. Other bird species found in Tukwila include osprey, which regularly nest near the Green/ Duwamish River; hawks; and passerine birds. Other wildlife species found in Tukwila include harbor seals, coyotes, deer, Eastern Grey squirrels, beaver, otter, nutria, turtles (mostly non-native red-eared sliders), garter snakes, snails, amphibians (non-native bullfrogs, native Pacific tree frogs and salamanders), opossum, and raccoons.

FLOOD MANAGEMENT

Tukwila's urban center, the light industrial and manufacturing area south of South 180th Street, part of Tukwila South, and Fort Dent Park are protected from flooding of the Green River by levee systems. The City participates in the National Flood Insurance Program administered by the Federal Emergency Management Agency (FEMA), which has mapped regulated floodplains in Tukwila. Mapped floodplains and the levee systems are explained in more detail in the Shoreline Element of the Comprehensive Plan.

Impervious surfaces and the reduction of natural wetland functions have caused localized flooding from streams periodically, at varying levels of severity on some areas of public right-of-way, as well as private properties where inadequate or no surface water infrastructure exists. The City has resolved many of the flooding problems through improvements to surface water infrastructure. The surface water management system (surface water utility) is described in more detail in the Utilities Element of the Comprehensive Plan. More detailed information on localized flooding problems is provided in the City's Comprehensive Surface Water Management Plan.

EARTH RESOURCES AND GEOLOGIC HAZARDS

The City has mapped areas with steep and unstable slopes, including active landslide areas, to ensure that there is adequate review of slope stability if development is proposed in these areas. In addition, there are coal formations on the southwest side of Interurban Avenue South, some of which have been mined and are defined as environmentally critical areas based on the City of Tukwila Abandoned Underground Coal Mine Hazard Assessment, May 1990.

WATER QUALITY

The City has conducted periodic water quality studies that have indicated Tukwila's streams and the Green/Duwamish River suffer from poor water quality due to stormwater runoff, small buffers, and suboptimal vegetation. Rain events wash contaminants off rooftops, driveways, sidewalks, parking lots and roads into the watercourses. Runoff from these areas can contribute to high temperatures in urban streams and carry contaminants into streams and wetlands.

New developments are required to implement Green Stormwater Infrastructure[2] and comply with flow control and water quality treatment requirements intended to moderate and treat discharges that flow towards streams. There are, however, still areas of Tukwila where runoff from impervious surfaces discharges directly to streams and the river with no treatment. (See Natural Environment Element Regulatory Background Report for more information on water quality.)

Riparian habitat plays a valuable role in protecting stream water quality. Adequately sized and healthy riparian buffers help to mitigate a variety of pollutant impacts. Shade streams reduce the high water temperatures that contribute to anaerobic stream conditions, which have lethal effects on fish and other aquatic species. Unfortunately, most of Tukwila's streams have poor quality, narrow, riparian areas.

AIR QUALITY

Tukwila lies in the air quality region made up of King, Kitsap, Pierce and Snohomish counties. Air quality is monitored and managed by the Puget Sound Clean Air Agency. Through the efforts of the Clean Air Agency, King County as a whole generally has good air quality, however, climate conditions have increasingly had an impact on air quality in Tukwila and the region. Wildfires have created air quality concerns as harmful chemicals and tiny particles suspended in the air create health issues for the public. During these periods of smoke exposure, the City follows the guidance of regional, state, and national health, emergency management, and air quality partners in providing public education and community response options.

Tukwila is divided throughout by significant transportation corridors, including Interstates 5 and 405, as well as Washington 599, and Washington 518. These road systems have been found to negatively impact community health. A study completed by the Puget Sound Clean Air Agency (PSCAA) documented that some areas of Tukwila bear among the worst air quality health impacts from road systems within King, Pierce, Snohomish, and Kitsap counties. "Tukwila/Allentown" was identified as the most impacted of the "Highly Impacted Communities", and the "Tukwila/Kent" area experienced the third worst air quality. Much of that impact comes from diesel pollution, as well as industrial source pollution.

[2] "Green" stormwater infrastructure is designed to mimic nature and capture rainwater where it falls. See Glossary.

In addition, the Duwamish Valley south of Seattle suffers from higher particulate pollution levels that are damaging to human health. This corridor provides valuable economic services to the region in terms of transportation corridors, industry, and commerce, which comes at a cost to the area's inhabitants.

CLIMATE CHANGE

The impacts of climate change in Tukwila affect several aspects of the natural environment, as well as the provision of utilities to its residents. Climate modelling indicates that the region will experience warmer temperatures, changing the precipitation pattern towards less snow and more rain during the winter. This poses challenges to flood hazard mitigation within Tukwila and the valley, and also will impact the regional water supply. Climate change causes sea levels to rise, which would affect the tidally influenced portions of the Green/Duwamish River, raising water levels in the river and causing tidal waters to reach further upriver and into streams. This, in turn, could impact flood hazard mitigation measures and fish and wildlife habitat, with particular detriment to salmon. Other possible effects of climate change could include new and increased insect infestations in the City's urban forest; changes in wildlife behavior and diversity; increased demands on City resources; and reduced availability of water supplies for drinking water, irrigation of gardens, landscaped areas, street trees and parks.

Per the GMA (RCW 36.70a.070.9), Tukwila is required to develop a Climate Change and Resiliency element of its Comprehensive Plan. This element, due in 2029, will identify opportunities to reduce overall greenhouse gas emissions and enhance the City's resilience in avoiding the impacts of climate change.

As noted, one such change is the increase in sea level. The potential for sea level rise in Tukwila is addressed in the work of the National Oceanic and Atmospheric Administration (NOAA) and the University of Washington Climate Impacts Group. These future conditions should be considered as land develops or redevelops in the City.

The City's Climate Element will address these issues more fully.

Increases in temperatures could exacerbate existing heat island effects in the highly developed areas of the City where there is a significant amount of impervious surface (buildings, streets, and parking lots). Recently, King County created a heat map[3], showing how Tukwila, with a relatively large, paved footprint, can reach extremely high temperatures and is unable to cool at night during extreme heat events. Tukwila residents and workers are thus being increasingly exposed to heat-related illness, at an inequitable rate as compared to other parts of the region. This underscores the importance of increasing tree canopy in these areas to help reduce temperatures during the summer months, particularly over impervious surfaces such as parking lots. High water temperatures are already a problem for salmon in the Green/Duwamish River, where there is a lack of shade from trees along the shoreline in many areas. Restoration plantings and maintaining large trees on the shoreline will help improve conditions for salmon in the river and in its tributaries and help to reduce even greater water temperatures that could be caused by climate change.

[3] https://kingcounty.gov/en/legacy/elected/executive/constantine/news/release/2021/june/23-heat-mapping-results

TUKWILA'S URBAN FOREST

A tree engulfed by invasive English ivy.
[Image]

The "City of Tukwila Urban Tree Canopy Assessment," was last updated 2012, although work is underway to update the study. The assessment quantifies existing urban tree canopy, as well as impervious surfaces, surface water, grasslands, and bare soils. Assessment information shapes the basis for several new goals and policies relating to the urban forest. (See the assessment report appended to this chapter of the Comprehensive Plan.)

The City is fortunate to have remnant stands of second- or third-growth native forests and good canopy coverage in its low density residential areas -- on undeveloped steep slopes and in some of its parks (for example, Crystal Springs Park and Tukwila Park). However, these forest stands lack active management and suffer from over-crowding, lack of diversity, and infestations of invasive plants like blackberry and ivy, all of which compromise their sustainability. Trees in undeveloped areas are threatened by future development. Aging trees in already-developed residential and commercial areas become hazardous and require removal and are not always replaced with new trees. Many landslide hazard slopes in Tukwila currently enjoy the protection of canopy coverage, however the lack of active management leaves this protective factor vulnerable to threats.

The City has street trees of varying species, sizes, health, and maturity planted on City rights-of-way throughout Tukwila. They range from large canopy trees to small canopy or young trees that do not provide many benefits. Street trees often do not get replaced when they are damaged or removed and do not all get the level of care or the conditions they need to thrive.

Shade trees cover is gradually improving in most of the City's commercial parking lots and other landscaped areas with the implementation of new tree codes and code enforcement. Trees in these areas are often improperly pruned or removed and not replaced. Trees throughout the City are frequently damaged by installation or maintenance of infrastructure and new development.

The Green/Duwamish River and the City's streams generally have narrow riparian buffers, the result of development occurring before protective buffer widths were required. These too-small buffers have been impacted by urbanization, and the increasing amounts of impervious surface, reducing the amount of urban forest in these areas. Some reaches of the river are characterized by large native canopy trees (Foster Golf Course, for example), while in other areas there is little to no tree canopy and large expanses of invasive vegetation instead. Trees have been removed from the Green River levee south of SR 405 to meet Corps of Engineers requirements. New efforts to increase multi-benefit approaches to flood control may take ecology further into account.

Several environmental restoration projects to enhance the urban forest have been completed and also are underway in the City's parks, wetlands, and streams, and along the Duwamish River. Trees have been planted along the river by King County as mitigation for removal of trees elsewhere. The City also plants hundreds of trees in its parks each year; requires trees as part of landscaping for commercial, industrial, office and multi-family developments; and requires tree replacement in environmentally critical areas.

The City does not have, however, a comprehensive written urban forestry plan, street tree, or other program in place to ensure retention, protection, and maintenance of a healthy urban forest across all areas of the City. A program to improve the urban forest should include the following emphasis:

- Preservation of existing trees and forest;
- Preservation and improvement of the "tree-growing" environment (i.e., adequate growing conditions for trees);
- Planting for the long term (i.e., ensuring that the right tree is placed in the right place with sufficient provisions for tree maintenance and care);
- Monitoring for emerging threats to the urban forest; and
- Promotion of the environmental equity goals that should be realized in the urban forest.

REGULATIONS

In addition to the State Growth Management Act, many regulations at the federal, State, and local levels apply to the management of Tukwila's natural environment. More information can be found in the Background Report for this Element.

ISSUES

In the Natural Environment Element, several key issues are addressed that reflect new community priorities and respond to new regulations at the local, regional, State, and federal levels. The goals and policies that follow respond to these identified issues.

ENVIRONMENTAL QUALITY, COMMUNITY EDUCATION AND ENVIRONMENTAL STEWARDSHIP

In order to foster best practices for protecting Tukwila's environmental quality, improve the protection and restoration of the City's environmentally critical areas and fish and wildlife habitat, and improve air and water quality, the City needs to provide information and education to the community in various forms. In addition, the City should continue to expand efforts, in collaboration with other organizations and businesses, to engage the community through hands-on environmental stewardship and restoration activities. Policies regarding the protection of fish and wildlife and climate change are also important to incorporate into the Natural Environment Element.

ENVIRONMENTALLY CRITICAL AREAS

Although Tukwila has enacted significant revisions to its Environmentally Critical Areas regulations over the years, most recently in 2020, new policies are needed to reflect the current best available science information, and new federal and State regulations and guidelines. Tukwila also needs to improve the protection of watercourses and find mechanisms and resources to ensure that compensatory mitigation is successful for the long term.

A great deal of nonconforming development was legally established prior to current regulations and continues to negatively impact the quality of the City's buffers. To ameliorate the impact of these damaging developments, the City should partner with, and provide incentives to, landowners to encourage redevelopment that conforms to current standards.

FISH AND WILDLIFE HABITAT

The listing of Puget Sound Chinook salmon and Bull Trout under the Endangered Species Act has underscored the need for the City to protect and restore habitat for fish and other wildlife. Continued restoration efforts and new sources of funding are needed to carry out habitat restoration on the Green/Duwamish River and its tributaries. The City must continue to be actively involved in shaping programs and helping implement the WRIA 9 Salmon Habitat Enhancement Plan, in collaboration with other local jurisdictions and county, State and federal government agencies.

WATER QUALITY

More efforts are needed to improve and protect water quality in the City's wetlands, watercourses, springs, and the Green/Duwamish River; therefore, the City needs to ensure that adequate resources are available. Programs for monitoring water quality, retrofitting surface water management systems where there are water quality problems, and improving riparian buffers are important actions for the City to carry out.

SURFACE WATER MANAGEMENT

With new State requirements for the management of surface water, the City must modify its surface water regulations and begin implementing and requiring low-impact development techniques for surface water system retrofits and for new development. The City operates its street drain network (MS4) under a State issued NPDES Permit (Permit) and manages the ditches, swales, ponds, pipes, vaults, catch basins and manholes to be consistent with an approved manual of Best Management Practices (BMPs). The MS4 Permit requires the City to use an approved manual. Tukwila adopted the King County Surface Water Design Manual and all its appendices and correlations to control construction permits along with public and private operations and maintenance of all components of the surface water system, including groundwater.

FLOOD MANAGEMENT

Because the City has levees along parts of the Green/Duwamish River to reduce flood potential, it is necessary for the City to coordinate with County and federal officials and

neighboring local jurisdictions, on maintenance and rebuilding of the levees and ensuring that federal certification is continued, where applicable. Also, due to the listing of Chinook salmon and other aquatic species under the Endangered Species Act and Corps of Engineers policies limiting vegetation on levees, the City needs to be involved in efforts to achieve good riparian conditions, while not compromising the integrity of levees or losing federal certification.

The King County Flood Control District prioritizes the design and implementation of a multi-benefit floodplain approach that reduces flood risks, ensures public safety, and restores river ecosystems in an equitable and just manner. The ten multi-benefits include: equity and social justice, environmental justice, habitat protection and salmon recovery, jobs and sustainable livelihoods, open space conservation, productive and viable agriculture, recreational opportunities, resilient communities and ecosystems, sustainable and clean water, and sustainable development.

EARTH RESOURCES
The definition of steep slopes should be clarified, and new policies are needed to require setbacks and better protect trees on steep slopes.

TREES AND THE URBAN FOREST
The City needs to establish policies and programs to protect and enhance the urban forest, including enforcing and continually improving policies for protecting trees, increasing tree canopy, and ensuring sufficient resources to properly maintain trees, improve tree health, and reduce potential hazards to the public.

GOALS AND POLICIES

Environmental Quality and Stewardship

GOAL EN-1 **The City's air, land, and water resources are restored and protected for future generations and are resilient to a changing climate**.

POLICIES

Policy EN-1.1 Anticipate the effects of climate change by incorporating Best Available Science, considering long-term climate change projections, and planning for adaptative management of City regulations and internal procedures, as needed.

Policy EN-1.2 Develop and implement environmental strategies that use integrated and interdisciplinary approaches to environmental assessment and planning, in coordination with local jurisdictions, tribes, and other stakeholders.

Policy EN-1.3 Collaborate with federal, state, and tribal fish and wildlife agencies to identify priority habitats and species, to establish appropriate protections to ensure no net loss of ecological functions and values.

Policy EN-1.4 Provide guidance to assist applicants in understanding and complying with federal and State fish and wildlife regulations for all public and private sector projects.

Policy EN-1.5 Develop and implement programs that encourage and incentivize Tukwila residents and businesses to take active measures to protect, enhance, and plan for changing conditions of Tukwila's natural environment to increase climate resiliency. Such measures could include, but are not limited to, the use of Low Impact Development (LID) techniques, natural streambank restoration, non-toxic lawn care, and composting and recycling.

Policy EN-1.6 Identify and preserve regionally significant open space networks through implementation of the Regional Open Space Conservation Plan. Develop strategies and funding to protect lands that provide the following valuable functions:

a. Ecosystem linkages and migratory corridors crossing jurisdictional boundaries;
b. Physical or visual separation providing buffers between incompatible uses;
c. Active and passive outdoor recreation opportunities;
d. Wildlife habitat and migration corridors that preserve and enhance ecosystem resiliency in the face of urbanization and climate change;
e. Preservation of ecologically sensitive, scenic, or cultural resources; and
f. Urban green space, habitats, and ecosystems.

GOAL EN-2 **An educated public that understands the importance of protecting and enhancing the functions and values of environmentally critical areas, including fish and wildlife habitat conservation areas, wetlands, floodplains, and the Green/Duwamish River, and actively assists in their stewardship**.

POLICIES

Policy EN-2.1 Develop and expand free or low-cost educational programs and materials for the community about the benefits of protecting and enhancing the City's environmentally critical areas, the urban forest and wildlife habitat, and individual responsibilities for their stewardship in a changing climate. The City should continue to develop and support community-oriented wildlife educational programs, such as the Tukwila Backyard Wildlife Program, and communicate the requirements of City

environmental regulations so as to maximize compliance and minimize code enforcement actions and environmental degradation.

Policy EN-2.2 Provide individualized education and technical support to residential property owners and general guidance to businesses regarding environmental stewardship and climate change resiliency strategies.

Policy EN-2.3 Collaborate with environmental organizations and businesses to support recruiting and training of environmental stewards, identify and sponsor restoration projects, incorporate climate change-focused strategies and provide logistical support for their work. Action should be taken to encourage expanding the citizen volunteer base in Tukwila for restoration and enhancement of the City's natural areas to promote the continued health of these systems.

Water Resources

GOAL EN-3 **Water resources that function as a healthy, integrated system; provide a long-term public benefit from enhanced environmental quality; are resilient from a range of climate-related events including increased flood events, changes in water temperature, and drought; and have the potential to reduce public infrastructure costs**.

Wetlands/ Fish and Wildlife Habitat Conservation Areas

GOAL EN-4 **Vital and self-sustaining fish and wildlife habitat areas and habitat corridors are protected and restored and that provide, where appropriate, opportunities for recreational and educational uses**.

POLICIES

Policy EN-4.1 Restore, protect, and enhance watershed functions and values through environmentally critical area restoration projects on public and private land to build resilience to climate change through ecological solutions. Restoration projects should improve habitat corridors and connections, particularly in riparian management zones and floodplain wetlands, wherever feasible.

Policy EN-4.2 Develop best management practices (BMPs) for stormwater management and related maintenance activities to avoid impacts to riparian management zones or other environmentally critical areas. Where riparian vegetation is disturbed through development or maintenance activities, restoration should be required to preserve the functions and values of the habitat.

Policy EN-4.3 Identify staff, financial support, or funding opportunities for restoration projects, wherever feasible, to enhance anadromous fish habitat in riparian management zones, wetlands and the Green/Duwamish River, including projects identified in the Shoreline Master Program (SMP) Habitat Restoration Program, the Water Resource Inventory Area (WRIA) 9 Salmon Habitat Plan, WRIA 9 Duwamish-Green Watershed Restoration and Enhancement Plan, or other regional watershed restoration plans.

Policy EN-4.4 Ensure that new development, open space protection efforts, and mitigation projects support the State's streamflow restoration law. Promote robust, healthy, and sustainable salmon populations and other ecosystem functions, working closely within WRIA 9 and utilizing adopted watershed plans.

Policy EN-4.5 Prohibit piping of watercourses, except where unavoidable for access purposes. Wherever feasible and practical, encourage removal of piped sections of watercourses when permitting any new or redevelopment activities to improve riparian habitat functions and values.

Policy EN-4.6 Prohibit creation of new fish barriers and, where possible, encourage elimination of existing barriers to fish passage through implementation of capital improvement projects, coordination with regional partners and the WRIA 9 Lead Entity to seek funding opportunities, and by providing incentives to private sector development.

GOAL EN-5 **Riparian management zones, floodplains, wetlands, and their buffers are protected from encroachment and degradation and improved through impact avoidance, mitigation, enhancement, and restoration projects to increase resiliency to impacts from climate change**.

POLICIES

Policy EN-5.1 Regulate land use and development, using Best Available Science, to protect and improve natural vegetation and hydrology, habitat corridors, and open spaces, to prevent significant erosion, sedimentation, or degradation of areas of potential geologic instability, wetlands, floodplains, fish and wildlife habitat areas and their associated buffers.

Policy EN-5.2 Ensure mitigation sequencing is applied to avoid or minimize impacts to environmentally critical areas, consistent with federal and State guidelines.

Policy EN-5.3 Require and enforce mitigation in order to ensure no net loss of environmentally critical area functions, as well as mitigation designed to replace environmentally critical area acreage lost due to development.

Policy EN-5.4 Ensure the effectiveness of environmentally critical area mitigation by improving City oversight, tracking, and monitoring of mitigation sites.

Policy EN-5.5 Allow off-site wetland mitigation only when a site-specific study, prepared by a qualified professional, documents that there are no feasible opportunities for on-site mitigation, is greater functional benefit, no significant adverse impact to the drainage sub-basin, and no significant adverse impact to existing wetlands or riparian management zones.

Policy EN-5.6 Consider creating a City in-lieu fee program for future wetland mitigation or collaborate with King County to establish in-lieu fee sites in Tukwila for wetland restoration projects, including projects along the Green/Duwamish River shoreline, when a site-specific study, prepared by a qualified professional, documents that there are no feasible opportunities for on-site mitigation.

Policy EN-5.7 In collaboration with other agencies, develop a program to provide guidance to property owners interested in restoring or enhancing environmentally critical areas, shorelines or associated buffers on their private property that public or private sector projects can utilize to compensate for impacts on project sites that lack opportunities for on-site mitigation.

Water Quality and Quantity

GOAL EN-6 **Protect, enhance and plan for changing conditions of Tukwila's water resources for the benefits of recreation, fish and wildlife resources and habitat, flood protection, and open space to create a more climate resilient city for current and future generations**.

POLICIES

Policy EN-6.1 Retrofit existing City surface water systems and improve surface water management through use of low-impact development (LID) techniques for all new development and redevelopment to improve the water quality of discharges.

Policy EN-6.2 Prevent and reduce pollution and sedimentation of water resources through implementation of surface water, stormwater, and land clearing regulations and inspections.

Policy EN-6.3 Adopt policies, regulations, and processes, related to new or existing fossil fuel facilities, which are designed to protect and preserve natural ecosystems from the construction and operational impacts of fossil fuel facilities, and prepare for and mitigate any impacts of fossil fuel disasters the community.

Policy EN-6.4 Prohibit the application of pesticides (insecticides, herbicides, fungicides, algaecides, rodenticides, etc.) to surface water systems or their buffers, unless warranted to protect ecological functions of the system, and inform applicators about State pesticide licensing regulations.

Policy EN-6.5 Develop public outreach materials and implement management programs to reduce the use of chemicals including fertilizers and pesticides, having negative impacts on surface water systems or their buffers, unless warranted to protect ecological values and functions.

Policy EN-6.6 Prevent, mitigate, and remediate harmful environmental pollutants and hazards, including light, air, noise, soil, and structural hazards, where they have contributed to racialized health or environmental disparities, and increase environmental resiliency in frontline communities.

GOAL EN-7 **Surface water generated by urban development does not exceed pre-development discharge rates.**

POLICIES

Policy EN-7.1 Require that all proposed development applications identify hydrologic features, both on- and off-site, that could be impacted by the project. Evaluate and prevent project impacts on on-site and off-site floodplains, wetlands, drainage features and springs to avoid adverse impacts to existing environmentally critical area hydrology to meet today's climate needs and prepare for future climate needs.

Flood Control

GOAL EN-8 **Protect and enhance the natural flood attenuation functions of wetlands, floodplains and floodways and plan for increased seasonal flooding associated with climate change to reduce and prevent damage to life, property, and public safety.**

POLICIES

Policy EN-8.1 Restrict or prohibit development that could create a danger to health, safety, and property due to potential flood hazards.

Policy EN-8.2 Coordinate and fund holistic flood hazard management efforts through the King County Flood Control District.

Policy EN-8.3 Work cooperatively to meet regulatory standards for floodplain development as these standards are updated for consistency with relevant federal requirements including those related to the Endangered Species Act.

Policy EN-8.4 Wetlands provide services that have the potential to reduce impacts of climate change. As such the City of Tukwila will promote wetland restoration and enhancement throughout the City and ensure that development avoids and minimizes impacts to wetlands and their buffers and provides compensatory mitigation to retain equal or greater wetland functions and values within the same drainage basin or watershed, and results in no net loss of wetland area except in limited circumstances.

Policy EN-8.5 Plan for changes in seasonal flood events associated with climate change and reduce flooding that adversely affects public health, safety, and general welfare, and protect against flood damage through surface water and flood management projects.

Policy EN-8.6 Minimize adverse impacts to water resources by conserving native shoreline vegetation or using bioengineering and natural solutions to enhance stream ~~for~~ banks and shoreline stability and reduce hazards associated with slope failures and erosion. Invasive plant removal and replacement of native trees and shrubs should be prioritized over retention of low functioning vegetation.

Policy EN-8.7 Require mitigation to achieve the goal of no net loss of ecological functions and maintenance of good water quality by requiring setbacks, buffers, and stormwater treatment and detention facilities to adhere to BAS recommendations and guidelines.

Earth Resources

GOAL EN-9 **Protect the ecological integrity of the natural environment, including functions and services, while allowing for compatible growth and development by minimizing development in geologically hazardous areas and protecting surface water features**.

POLICIES

Policy EN-9.1 In geologically hazardous areas, require areas where vegetation must remain undisturbed, land disturbance minimized and cut-and-fill construction limited, to protect slope stability on sites cleared for

development. Require significant replanting and maintenance upon completion of development.

Policy EN-9.2 Require setbacks for buildings and other infrastructure where needed, from the top and/ or toe of steep slopes, to reduce risks of slope failure and risks to public safety.

Policy EN-9.3 Require the use of erosion control measures and, where warranted, written erosion and sediment control plans, to minimize erosion during and after construction activities on steep slopes or other erosion-prone areas.

Policy EN-9.4 Utilize geotechnical reports and other existing resources to update the City's GIS data to incorporate and maintain a geologically hazardous areas layer.[4]

Policy EN-9.5 Ensure that proposed development projects in mapped coal mine hazard areas adequately consider and mitigate for possible risks.

Policy EN-9.6 Actively manage protective forest canopies on geologically hazardous slopes, both public and private, through regulatory requirements, incentives, investment, and partnerships.

Urban Forestry

GOAL EN-10 **Trees are recognized by Tukwila citizens, businesses, City staff and decision-makers for their benefits to the environment, climate adaptation, urban infrastructure, and their aesthetic value.**

POLICIES

Policy EN-10.1 Develop a formal urban forest management plan to promote and guide preservation, restoration and maintenance of a sustainable urban forest that is consistent with tree canopy goals and ecosystem management priorities, using the goals and policies of this chapter as a basis for guidance.

Policy EN-10.2 Ensure that the benefits of trees are factored into site design, zoning and permit decisions, including resistance to drought, retention of large or significant trees, tree canopy considerations, and the preservation of open space, tree, and green space.

[4] Many resources currently available contain geologically hazardous areas information. The Washington Department of Natural Resources has a Geologic Information Portal available to the public at https://www.dnr.wa.gov/geologyportal.

Policy EN-10.3 Continue to fund an urban forester/municipal arborist position within the City, to provide expertise for urban forest management planning, incorporate climate resiliency strategies, provide oversight of tree planting and maintenance, and assistance to all City departments that have responsibilities for tree management.

Policy EN-10.4 Educate the public, elected officials and City staff about the importance of urban forest planning and management and benefits provided by trees in Tukwila.

Policy EN-10.5 Develop tree valuation methods to reflect the value trees provide, including considering the benefits that trees provide in a changing climate for use in assessing fines, determining damages, or estimating loss of tree benefits.

Policy EN-10.6 Identify funding sources to support urban forestry planning and management and establish an urban forestry budget and account to preserve and enhance the urban forest sites on publicly owned property.

Policy EN-10.7 Consider developing an "exceptional" or "heritage" tree program to foster tree appreciation in the community and encourage retention of open and green spaces.

Policy EN-10.8 Enhance the urban tree canopy to provide wildlife habitat, support community resilience, mitigate urban heat, manage stormwater, conserve energy, protect and improve mental and physical health, and strengthen economic prosperity. Prioritize places where Black, Indigenous, and other People of Color communities; low-income populations; and other frontline community members live, work, and play.

Policy EN-10.9 Encourage public and partner organization involvement in urban forest stewardship, through volunteer events, free training workshops, and other related community events.

GOAL EN-11 **Overall City tree canopy increased in diversity and total cover, with an increase in the use of native species, by 2034, and No Net Loss of canopy cover in individual zoning categories, or environmentally critical areas and open spaces**

POLICIES

Policy EN-11.1 The City shall adopt and implement updated tree canopy goals and shall continue to amend policies to support stormwater management and water quality improvement in receiving waters. The City will provide mapping of City-owned or operated properties with tree canopy no later than December 31, 2028, as based on available existing data.

Policy EN-11.2 Promote and support a systematic approach to enhancing the city through carefully planned plantings and ongoing maintenance of street trees, public landscaping, and open spaces to support a sustainable and environmentally just future for residents of Tukwila.

Policy EN-11.3 Promote soil stability using natural drainage systems and retention of existing native vegetation when determined feasible and practical by a qualified geotechnical engineer in a site -specific assessment.

Policy EN-11.4 Conduct forest practices within environmentally critical and shoreline areas in a manner that ensures water quality, maintains, or increases tree canopy cover, and maintains native vegetation buffer strips sufficient to protect fish populations and to avoid erosion of stream banks.

Policy EN-11.5 Ensure that required replacement trees at maturity will provide an equivalent or greater shade cover than the removed tree(s), and replacement trees are suitable species fit for future conditions based on climate change models. This may result in the need to have multiple trees replace a single tree and will allow for the flexibility of avoiding conflict with existing or future infrastructure and/or public or private utilities.

Policy EN-11.6 Promote the utilization of grants and other funding opportunities to develop tree planting and urban forest rehabilitation programs for City parks, open spaces, wildlife habitats and corridors, and other publicly owned lands.

Policy EN-11.7 Collaborate with other agencies, such as Washington's Department of Transportation, to promote planting in highway interchanges and other locations that are underserved or at higher risk to being vulnerable to the effects of climate change.

Policy EN-11.8 Collaborate with other government, non-profit organization, school, and private sector entities, to promote urban forest management and restoration, the use of native plants in the urban landscape, and

removal of impervious surfaces to support the City's tree canopy cover goals and mitigate the urban heat island effect.

Policy EN-11.8 Develop tree planting and urban forest rehabilitation programs for City parks and other publicly owned lands. Collaborate with other government, nonprofit organization, school, and private sector entities, to promote urban forest management and restoration, the use of native plants in the urban landscape, and removal of impervious surfaces to support the City's tree canopy cover goals and mitigate the urban heat island effect.

Policy EN-11.9 Evaluate current development requirements to identify opportunities to increase tree canopy, and opportunities to remove pavement and install appropriate plantings. Priority should be given to areas or zoning designations that are currently underserved or lack proximity to public open spaces and recreational areas.

GOAL EN-12 **Tukwila's streetscapes and landscaped areas are sustainable and attractive, and its urban forest is healthy, diverse, and safe.**

POLICIES

Policy EN-12.1 Conduct periodic tree/urban forest inventories and assess the health of trees and forests in Tukwila's public spaces to determine maintenance needs and restoration opportunities. Any restoration should be done in coordination with Policy EN-11.8.

Policy EN-12.2 Develop maintenance plans and programs for trees on City property or rights-of-way to ensure that maintenance pruning is properly carried out, that diseases and pest infestations are managed, that hazardous trees are identified and managed in a timely manner to reduce risks, invasive vegetation is properly managed, and any replacement trees are sustainably located following the concept of "right tree, right place."

Policy EN-12.3 Consistent with landscape code requirements, educate property owners, property managers, City and public and private utility maintenance staff, and landscape contractors to promote best practices for soil preparation, planting techniques, pruning (including near utility lines), trenching, root protection, and general tree care.

Policy EN-12.4 Enforce landscape regulations including financial guarantees, monitoring, and maintenance to ensure successful plant establishment. The Landscape code should state qualified professional requirements for landscape design, installation and maintenance.

Policy EN-12.5 Ensure landscape code considers wildlife habitat corridors and urban heat island effect in landscape development standards. This includes requiring a diversity of tree species native to the ecoregion in landscape planting plans as site conditions allow.

CLIMATE CHANGE

Goal EN-13: Tukwila infrastructure and investments enable Tukwila residents to make choices that emit lower greenhouse gas emissions.

Policy EN-13.1 Adopt and implement policies and programs that support King County's target of reducing greenhouse gas emissions by 75% by 2040 (compared to a 2007 baseline), including net-zero emissions through carbon sequestration and other strategies, by 2050. Evaluate and update these targets over time to incorporate the latest climate science and statewide targets aimed at limiting the most severe impacts of climate change and keep global warming growth under 1.5 degrees Celsius (2.7 degrees Fahrenheit).

Policy EN-13.2 Plan for development patterns that minimize air pollution and greenhouse gas emissions, through the following actions:

a. Direct growth to Urban Centers and other mixed-use or high-density locations that support mass transit, encourage non-motorized modes of travel, and reduce trip lengths.
b. Through interjurisdictional and local efforts, facilitate modes of travel other than single-occupancy vehicles including transit, walking, bicycling, and carpooling.
c. Encourage the transition to a sustainable energy future by reducing demand through efficiency and conservation, supporting the development of energy management technology, and meeting reduced needs from sustainable sources.
d. Support and provide incentives to increase the percentage of new development and redevelopment– both public and private–to be built at higher-performing energy and environmental standards.
e. Implement infrastructure design manuals that incorporate energy saving strategies and develop regulations that provide extra flexibility or density bonuses to proposals that implement green building standards, such as the Living Building Challenge or LEED certification.

Policy EN-13.3 Reallocate public space dedicated to carbon intensive uses, such as single occupant vehicle lanes and parking, toward transit, pedestrian, and bike facilities.

Policy EN-13.4 Develop minimum standards for rights-of-way and new private streets that require facilities for safe protected bicycle and pedestrian routes to all destinations.

Policy EN-13.5 Ensure all federal and state air quality standards are met and reduce emissions of air toxics and greenhouse gases.

Policy EN-13.6 Recognize that dense development utilizes less resources per person and promote greater densities and mixed uses near Tukwila's urban centers and high-capacity transit. Work with local transit and transportation agencies to provide additional multi-modal access and transit frequency to underserved areas.

Policy EN-13.7 Recognize, protect, restore, and enhance Tukwila's natural resources, by expanding or improving existing parks, wetlands, estuaries, and the urban tree canopy, and enhance access to passive and active recreation areas, improving air and water quality, and improving opportunities for carbon sequestration in Tukwila.

Policy EN-13.8: Prioritize investments in areas in proximity to underserved and historically marginalized populations in order to ensure that all Tukwila residents have equal access to public spaces, natural areas, the urban tree canopy, and the opportunity to make low-emission choices in a low-pollutant environment, regardless of their race, social, or economic status.

Policy EN-13.9 In order to minimize air pollution and greenhouse gas emissions, facilitate modes of travel other than single-occupancy vehicles including transit, walking, bicycling, and carpooling, plus, for trips that must be made via single-occupant vehicle, facilitate electric vehicle adoption by creating requirements for electric vehicle charging installations in residential and commercial developments.

RELATED INFORMATION

Natural Environment Background Report
Tukwila Sensitive Areas Map
Tukwila Shoreline Master Program
WRIA 9 Salmon Habitat Enhancement Plan
Abandoned Underground Coal Mine Hazards Assessment Report
Tukwila Urban Tree Canopy Assessment
Tukwila Municipal Code, Chapter 18.45
Green Tukwila 20-year Stewardship Plan

Shoreline

WHAT YOU WILL FIND IN THIS CHAPTER

- A discussion of shoreline areas in the City of Tukwila;
- An overview of the Shoreline Management Act and how it applies in Tukwila;
- Goals and Policies for managing development in shoreline areas; and
- A map of Tukwila's adopted Shoreline Environment Designations.

PURPOSE

This element of the City's Comprehensive Plan presents goals and policies related to development and restoration along the Green/Duwamish River – a shoreline of Statewide significance subject to the Washington State Shoreline Management Act (SMA) – which flows northerly through the entire length of Tukwila. A small fragment of the Black River flows into the Duwamish River just north of Fort Dent Park and is also subject to the SMA and the goals and policies of this chapter.

The Shoreline Element of the Comprehensive Plan represents the Shoreline Master Program's role in the community-wide planning process. It reflects the relationship between shoreline development and other Comprehensive Plan goals and policies, and the importance of a shoreline vision to a community vision. The Shoreline Element identifies existing local and regional policies, land use and shoreline conditions, and sets forth shoreline goals and the policies for achieving them. These goals and policies reflect Tukwila's priorities in these areas:

- Facilitating redevelopment and prioritizing water-dependent industrial uses in the Manufacturing/Industrial Center (MIC) and encouraging redevelopment in the Tukwila Urban Center (TUC) that recognizes the river as a valuable resource.
- Ensuring the safety of new development from flooding and from destabilized riverbanks by establishing setbacks for new construction. Setbacks will allow for eventual replacement of existing flood control levees and regrading of over-steepened banks.
- Increasing public access to the river.

- Supporting restoration of habitat along the river through a restoration plan in the Shoreline Master Program. Restoration is accomplished, in part, through removing invasive vegetation and replacing it with native species, constructing off-channel habitat, and setting back levees to incorporate a mid-slope bench that can be planted to improve habitat.

Shoreline policies encourage high-quality development and redevelopment along the river. At the same time, they recognize the value of the Green/Duwamish River as an aesthetic resource by encouraging new development in the urban center to "face" the river, providing views and public or private access to the shoreline. The policies also recognize the shoreline as an important natural resource that requires protection and restoration of shoreline ecological functions (such as habitat, surface water and flood attenuation, water quality improvement and others). Policies in the Master Program support restoration of shoreline ecological functions, particularly improved habitat for endangered fish species (Chinook salmon and Pacific Bull Trout).

As a whole, the Tukwila Shoreline Master Program acts as the implementation mechanism for achieving these goals and policies.

WHAT IS THE SHORELINE MANAGEMENT ACT?

The Shoreline Management Act (SMA) was approved by Washington voters in 1972 and is designed to prevent degradation of the State's shorelines from uncoordinated development.

WHERE DOES THE SHORELINE MANAGEMENT ACT APPLY?

Each city and county defines their own shoreline jurisdiction based on the provisions of the SMA and regulations from the Department of Ecology. The SMA applies to the following areas:

- Marine waters,
- Streams and rivers that have an average annual flow of at least 20 cubic feet per second,
- Upland areas within 200 feet of regulated waterbodies, and
- Wetlands and flood-prone areas associated with regulated waterbodies.

Additional information regarding the Shoreline Management Act is available on the Department of Ecology's website at: https://ecology.wa.gov/water-shorelines/shoreline-coastal-management/shoreline-coastal-planning/shoreline-management-act-sma.

ISSUES

Department of Ecology guidelines, along with the City's obligations as a participant in the implementation of the Green/Duwamish Salmon Habitat Plan, dictate that Shoreline Master Program policies and regulations be established to ensure restoration and no net loss of shoreline ecological functions. The major issue facing the City is balancing the existing and planned future urban development along the river with these requirements.

The Shoreline Management Act promotes increased recreational opportunities and public access to the shoreline environment. *(Graphic)*

SHORELINE MANAGEMENT ACT PRIORITIES

The SMA designates the Green/Duwamish River as a shoreline of Statewide significance. "Because these shorelines are major resources from which all people in the State derive benefit, the [development] guidelines and master programs must give preference to uses which favor public and long-range goals." [WAC 173-16-040(5)][1] The SMA states that master programs for shorelines of Statewide significance shall give preference to uses that (in order of preference):

1. Recognize and protect the statewide interest over local interest.
2. Preserve the natural character of the shoreline.
3. Result in long-term over short-term benefit.
4. Protect the resources and ecology of the shoreline.
5. Increase public access to publicly-owned areas of the shoreline.
6. Increase recreational opportunities for the public in the shoreline.
7. Provide for any other element, as defined in RCW 90.58.100, deemed appropriate or necessary (that is, which further the State's shoreline policies).

The Washington State Shoreline Management Act requires that, where alterations in the natural condition of a shoreline are authorized, priority shall be given to the following uses:

[1] This section of the WAC (*cited in DOE adopted SMP*) does not exist; it is unclear what WAC section is being referenced here.

- Single-family residences
- Ports
- Shoreline recreational uses
- Industrial and commercial developments dependent upon a shoreline location
- Other developments that will provide an opportunity for a substantial number of people to enjoy the shoreline.

The policies established in the Tukwila Shoreline Master Program attempt to balance the river's value as a long-term natural resource for the region with the demands of intense urban development. The City's Shoreline Master Program also recognizes that, except for the area north of the Turning Basin, most of the Green River is not navigable by large commercial vessels and therefore opportunities to establish water-dependent uses are limited.

GOALS, POLICIES AND STRATEGIES

In 2020, Tukwila's updated its Shoreline Master Program, incorporated by reference as part of this Plan. The goals and policies of this plan have been revised to be consistent with the revisions made in the 2020 update of the City's SMP. [2]

Tukwila shoreline policies give priority to the economic vitality of the City's two regional growth centers – the Manufacturing Industrial Center (MIC),[3] and focus intense multi-purpose urban uses – such as water-enjoyment commercial activity and public access – in the Tukwila Urban Center. The policies also emphasize the importance of a variety of shoreline public access methods, both physical and visual, linked to other areas of the region. They recognize the value of the river as a natural resource by encouraging restoration – including removal of invasive plants – of wildlife habitat and native riverbank vegetation, including tree planting.

➢ *Shoreline Environment Designations*

The two-hundred-foot shoreline jurisdiction that comprises each shoreline environment is divided lengthwise into a shoreline-adjacent buffer and outside-

[2] The text for this paragraph was updated in 2024. Although Ecology had no comment on the proposed Comprehensive Plan during the 60-day review, this revised text may not be acceptable (although it represents current circumstances and is correct). Original text: *In 2020, Tukwila's updated its Shoreline Master Program, incorporated by reference as part of this Plan. The goals and policies of this plan have been revised to be consistent with the revisions made in the 2020 update of the City's SMP.*

[3] This text was added to better identify the "Manufacturing Industrial Center" vs. "mic" in the 2-15 Plan.

buffer area and specifies allowed uses for each environment.[4] The shoreline environments are intended to facilitate the City's long-range objectives for land and shoreline management, including:

- Ensuring no net loss of ecological shoreline functions;
- Providing for habitat protection enhancement and restoration, to improve shoreline ecological functions degraded over time and protection of already-restored areas;
- Allowing continued and increased urban development in recognition of Tukwila's role as a regionally-significant industrial and commercial center; and
- Providing for improved flood control, in coordination with King County and the U.S. Army Corps of Engineers.

The Shoreline Master Program provides more information on buffer size and function. The adopted buffers for each shoreline environment balance shoreline ecological function, human life and property protection (including future levee repair/reconstruction), existing land use patterns, and State and federal agency policies.

Figure 5-1: Shoreline Management Act Jurisdiction

See image in draft

GOAL S-1 **Shoreline Environment designations that meet Washington State Shoreline Management Act requirements and reflect local conditions and Tukwila's long-term vision for its shoreline. The shoreline zone generally extends for 200 feet on either side of the Ordinary High Water mark, consistent with the Washington State Shoreline Management Act** (as illustrated in Figure 5-1).

[4] This clarification was added to better reflect how Tukwila has interpreted the Shoreline Management Act requirements. *Original Text: The two-hundred-foot shoreline jurisdiction that comprises each shoreline environment is divided lengthwise into a shoreline-adjacent[4] buffer and outside-buffer area and specifies allowed uses for each environment.[4]*

POLICIES

Shoreline Residential[5]

Policy S-1.1 In the Shoreline Residential Environment, priority shall be given to the following:

- Uses that preserve or restore the natural character of the shoreline, or promote preservation of vegetation, open space, flood plain or sensitive area lands;
- Development that is compatible with the natural and biological limitations of the land and water and that will not require extensive alteration of the shoreline or new "hard" structural shoreline stabilization. Where possible, the removal of bulkheads, revetments, levees or other "hard" structural shoreline stabilization is required. Hard structural shoreline stabilization may be replaced with alternative bioengineered bank stabilization;
- On publicly-owned property, water-dependent or water-related recreational activities that are compatible with the character of the shoreline residential areas;
- Maintenance of existing single-family residential development patterns and public open space and recreation uses;
- Residential and recreational development that promotes vegetation conservation and enhancement, sensitive areas protection, and maintenance of water quality to assure no net loss of shoreline ecological functions;
- Residential and recreational development that contributes to the restoration of ecological functions in areas where ecological degradation has occurred over time.

Urban Conservancy Environment

Policy S-1.2 In the Urban Conservancy Environment, priority shall be given to the following:

- Development that promotes vegetation conservation and enhancement, sensitive areas protection, and preservation of water quality to assure no net loss of shoreline ecological functions;
- Water enjoyment uses;

[5] Headers were modified to make this element more consistent with format in other Comprehensive Plan elements.

- Uses that remove shoreline armoring unless required for a shoreline-dependent use, and uses that prevent and/or minimize flood damage;
- Uses that preserve or restore shoreline ecological functions provided by vegetation, open space, flood plain or sensitive area lands;
- Uses that minimize interference with navigation and flood control, consider impacts to public views, and allow for the safe, unobstructed passage of fish and wildlife, particularly those species dependent on migration;
- Uses that provide public access and public recreation, whenever feasible and when ecological impacts can be mitigated;
- Development that is compatible with the natural and biological limitations of the land and water that do not require extensive alteration of the shoreline or new shoreline stabilization, except for restoration projects;
- Enhancement and restoration of ecological functions; and
- Redevelopment of underutilized areas and development of commercial and industrial activities where shoreline impacts are minimized and where there is no net loss of shoreline functions.

High-intensity Shoreline Environment

Policy S-1.3 In the High-Intensity Environment, priority shall be given to the following:

- Water-dependent commercial and industrial uses;
- Development that promotes vegetation conservation and enhancement, sensitive areas protection and preservation of water quality, to assure no net loss of shoreline ecological functions;
- Uses that remove shoreline armoring unless required for a shoreline-dependent use, and uses that prevent and/or minimize flood damage;
- Uses that preserve or restore shoreline ecological functions provided by vegetation, open space, flood plain or sensitive area lands;
- Uses that minimize interference with navigation and flood control, consider impacts to public views, and allow for the safe, unobstructed passage of fish and wildlife, particularly those species dependent on migration;
- Uses that provide public access and public recreation, whenever feasible and when ecological impacts can be mitigated;

- Development compatible with the natural and biological limitations of the land and water that does not require extensive alteration of the shoreline or new shoreline stabilization, except for restoration projects;
- Enhancement and restoration of ecological functions; and
- Redevelopment of underutilized areas and development of intensive commercial and industrial activities, where shoreline impacts are minimized and where there is no net loss of shoreline functions.

Shoreline Environments

Map 5-1: Shoreline Environment Designations

Shoreline Aquatic Environment

Policy S-1.4 In the Shoreline Aquatic Environment, priority shall be given to the following:

- Uses that preserve or restore the natural character of the shoreline or promote preservation of vegetation, open space, flood plain or sensitive area lands;
- Water-dependent uses;
- Uses that remove shoreline armoring unless required for a shoreline-dependent use, and uses that prevent and/or minimize flood damage;
- Uses that minimize interference with navigation and flood control, consider impacts to public views, and allow for the safe, unobstructed passage of fish and wildlife, particularly those species dependent on migration;
- Uses that provide public access and public recreation, whenever feasible and when ecological impacts can be mitigated;
- Development compatible with the natural and biological limitations of the land and water, that does not require extensive alteration of the shoreline or new shoreline stabilization, except for restoration projects;
- Enhancement and restoration of ecological functions; and
- Uses compatible with the adjoining shoreline environments.

Photo

The Aquatic Environment applies to areas below the ordinary High Water Mark of a lake, stream or marine water body.

➢ ***Shoreline Planning and Management***

Tukwila is located in the lower reach of the Green/Duwamish River watershed, which covers 482 square miles and includes over 93 river miles from the Cascade Mountains to Elliott Bay. The City's portion of the river covers approximately 13 river miles; as a result, the City's Shoreline Master Program recognizes that – to be successful – protection and enhancement of shoreline resources is not only a City responsibility but also a regional one. The City is a member of the Water Resource Inventory Area (WRIA) 9, which covers the Green/Duwamish River watershed, and has adopted the WRIA 9 Salmon Habitat Plan that identifies specific actions and restoration projects to improve salmon habitat.

GOAL S-2 **Expanded value of the river as a community and regional resource, through regional coordination of shoreline management programs and through programs that foster river appreciation and awareness, involving partnerships among businesses, schools, residents and government and community organizations.**

POLICIES

Policy S-2.1 Coordinate shoreline planning and management activities with other local jurisdictions and their plans – such as the WRIA 9 Salmon Habitat Plan and the King County Flood Hazard Management Plan – to establish region-wide consistency in addressing river issues with regional implications, such as economic development, public access, wildlife habitat, water quality control and flood control.

Policy S-2.2 Promote river stewardship and increase river awareness through actions which further shoreline goals, such as educational programs, community activities and partnerships with Tukwila residents, businesses, schools, government, and community organizations.

Policy S-2.3 Promote and participate in the implementation of the Watershed Resource Inventory Area (WRIA) 9 Plan, including supporting the recommended projects located in Tukwila to improve the habitat functions of the Green/Duwamish River, as well as the Plan's policies and goals.

➢ *Land Development Use and Economic Vitality*

An objective of the City's Shoreline Master Program, identified in the Issue section of this chapter, is to allow continued and increased urban development in recognition of the City's role as a regionally- significant industrial and commercial center, while also ensuring no net loss of shoreline ecological functions. The following policies address these objectives.

GOAL S-3 Development along the shoreline that fosters the economic vitality of Tukwila while preserving the long-term benefits of the river.

General Policies

Policy S-3.1 Implement shoreline design guidelines to:

- Encourage design that views the river as an amenity;
- Guide the design of shoreline multiple uses;
- Establish techniques for increasing shoreline multiple use;
- Prioritize locations for uses; and
- Encourage removal of invasive species with nonchemical methods and maintenance of native planted vegetation to minimize the presence of invasive species.

Policy S-3.2 Design and locate all shoreline development to minimize impacts on areas identified as important for other river uses, such as wildlife and aquatic habitat, river vegetation, public access and recreation, historical resources, and flood control.

Policy S-3.3 When no other feasible alternative exists, allow structures for water dependent uses to be placed in the water, or structural reinforcement of the riverbank, only when this provides a significant, long-term public benefit, does not interfere with navigation or flood management, does not cause a loss of shoreline function, or is essential to a water-dependent use.

Policy S-3.4 Prohibit the construction of new flood control facilities unless constructed to incorporate habitat restoration features, and work to remove existing shoreline armoring – where possible – to restore habitat functions.

Policy S-3.5 Recognize and promote the river's contribution to the economic vitality of Tukwila, as a valuable amenity for existing and future businesses which depend on or benefit from a shoreline location.

Policy S-3.6 Ensure that shoreline development does not diminish the commercial navigability of the river.

Tukwila Urban Center Development

Policy S-3.7 Design and locate shoreline development in the Tukwila Urban Center to encourage water enjoyment uses that:

- Provide for shoreline multiple uses consistent with the underlying zoning;
- Provide additional benefits, such as riverbank restoration, fishing piers, non-motorized boat launches, river views, or interpretive signs;
- Support public access to and along the shoreline;
- Provide water-enjoyment uses as a transition between the river and non-water uses;
- Encourage efficient use of land through such techniques as clustering, mixed-use projects, cooperative parking or parking located under principal structures, and shared utility and access corridors; and
- Ensure that new development and re-development in the Urban Center acknowledges the goal of a continuous street façade along Christensen Road and the riverfront, and locates parking facilities **to the interior of the lot.**

(*See also: Shoreline Design Quality policies*)[6]

Manufacturing Industrial Center Development

Policy S-3.8 Ensure that non-water dependent shoreline development in the MIC provides for shoreline multiple uses to the extent that site security and the success of industrial operations are not jeopardized; ensures no net loss of shoreline function and provides adequate mitigation for the loss of shoreline multiple use opportunities.

Policy S-3.9 Allow opportunities for commercial and recreational marinas to locate in Tukwila downstream of the turning basin, where compatible

[6] These policies have been moved to a location in the text where the sequence is more intuitive.

with existing and future navigability and existing and future ecological restoration projects.

(*See also: Shoreline Design Quality policies*)

Development Outside the Tukwila Urban Center or Manufacturing Industrial Center

Policy S-3.10 Design and locate shoreline development outside of the Tukwila Urban Center and the MIC to:

- Provide for shoreline multiple uses;
- Provide water-enjoyment uses as transitions between the river and non-water- dependent uses;
- Encourage efficient use of land through such techniques as clustering, mixed-use projects, cooperative parking or parking located under principal structures, and shared utility and access corridors; and
- Treat the river as an amenity in the design and location of the project.

(*See also: Shoreline Design Quality policies*)[7]

➢ ***Private Property Rights***

GOAL S-4 Protect rights of property owners to reasonable use and enjoyment of private property through appropriate location, access to, and design of shoreline uses.

POLICIES

Policy S-4.1 Design, locate and manage shoreline uses in a manner that maintains reasonable use and enjoyment of private property.

Policy S-4.2 Design and locate public access in a way that is appropriate for the site, depending on site conditions and private property concerns.

Policy S-4.3 Special sensitivity is required for residential property; therefore, all single-family residential development of four or fewer single-family residential lots is excluded from requirements to provide private or public access. Single-family property owners are not exempt from the

[7] MIC Policies were moved to improve the logical flow of the policies

responsibility to improve the habitat value of the shoreline environment.

Policy S-4.4 Maintain flexibility in methods of obtaining access, to allow for different site conditions and private property concerns that might conflict with access, such as privacy, safety and security.

Policy S-4.5 Obtain additional easement area to permit the improvement of river habitat, by setting back levees or removing revetments and other hard shoreline armoring, and replacing with more habitat-friendly shoreline treatment.

➢ ***Shoreline Design Quality***

GOAL S-5 **Enhanced identity of the river as a unique community asset through high-quality development and public activities that reflect Tukwila's history and sense of community pride.**

POLICIES

Policy S-5.1 Require that shoreline development outside of the MIC:

- Ensures no net loss of shoreline function;
- Is designed to be consistent with Tukwila river design guidelines;
- Reflects principles of high-quality design in such areas as site planning, architecture and landscaping; and
- Includes setbacks, bulk, height, density, landscape buffers and provisions for open space that enhance the shoreline environment.

Policy S-5.2 Require that shoreline development in the MIC:

- Is designed to be consistent with Tukwila shoreline design guidelines;
- Maintains or enhances the existing visual quality along the river;
- Provides trees and other landscaping to buffer industrial uses that are incompatible with other river uses; and
- Provides amenities that enhance enjoyment of the river by employees.

Photo

Tukwila's Manufacturing/Industrial Center is an important regional industrial center located along the Duwamish River.

➢ *Access and Recreational Use*

Public access to shorelines of the State is one of the key goals of the Shoreline Management Act; of the seven uses identified in RCW 90.58.020 as having preference in the shoreline, two relate to public access and recreation.

In addition to the Green River Trail, which runs along much of the length of the river through the City, Tukwila is fortunate to have a number of other public access sites along the river. The following goals and policies support preserving existing public access sites and providing additional public access to the river. To support implementation of these goals and policies, the City's development regulations include incentives for private development projects to provide public access to the shoreline.

GOAL S-6 **Increase the amount and diversity of opportunities for public recreation and access to and along the river, including visual and cultural access, access to the water's edge, opportunities for small boat navigation and access, and connections to other neighborhoods consistent with the shoreline character.**

General Policies

Policy S-6.1 Retain and improve areas identified as important in the network of public access to the river, including cross-town connections, former railroad rights-of-way and unimproved street-end rights-of-way, historic sites, unique natural features, or other areas valuable for their interpretive potential.

Policy S-6.2 Maintain existing parks along the shoreline and acquire additional park land to increase access and recreation opportunities.

Policy S-6.3 Incorporate river access requirements to guide the design, location, and management of shoreline public access in all subdivisions and short plats over four lots, as well as multi-family, commercial, and industrial development; to identify types of access appropriate and feasible for various site conditions and locations; and to establish strategies, funding sources and priorities for acquisition and enhancement of shoreline public access.

Photo

Shoreline rails provide important public access opportunities for Tukwila residents.

Policy S-6.4 Design, locate and manage public access for diverse types and variable levels of intensity, in order to minimize impacts on vulnerable features of the natural environment and to minimize conflicts with private property uses.

Policy S-6.5 Where shoreline development provides public access areas, reserve such areas through the means most appropriate for the type, scale and impacts of the development, such as donation or sale of an easement or right-of-way to the City.

Policy S-6.6 Support the implementation of the King County Green River Trail – per the existing King County Green River Trail Master Plan – as well as pedestrian/bicycle connections with the Trail from properties on the opposite bank and the expansion of this Trail, where appropriate.

Policies For Development Outside Manufacturing Industrial Center

Policy S-6.7 Require subdivisions, multifamily residential uses, and commercial and industrial uses along the shoreline to provide a trail for public access along the river, in areas identified for trail connections consistent with the King County Green River Trail Master Plan, Shoreline Master Program, or any other approved access plan. Require any property not included in the King County Green River Trail Plan to provide public access or a private natural area in lieu of physical public access.[8]

Policy S-6.8 Where shoreline public access is provided, ensure that it is designed to be safe and convenient and includes access amenities such as benches, drinking fountains, public parking areas, handicapped access and appropriate lighting, consistent with the shoreline access guidelines.

Policy S-6.9 Except for single-family residential development of four or fewer single-family residential lots, shoreline developments shall maintain views of the water from the shoreline and from upland areas, through

[8] The underlined language is not in the state-adopted Shoreline Element, however it is in the City's version of the Element; is this the language intended by DOE?

appropriate design of building height, bulk and modulation, windows, breezeways, and outdoor spaces.

Policy S-6.10 Public access improvements should be designed and constructed to:

- Look and "feel" welcoming to the public.
- Connect to public areas, street ends, and other pedestrian or public thoroughfares.
- Enhance the character of Tukwila.
- Avoid conflicts with water-dependent uses.
- Provide for public safety and minimize impacts to private property and individual privacy and security.
- Require a low level of operation and maintenance.
- Ensure that construction (i.e., structures and access pathways) incorporates environmentally-sensitive design and materials (e.g., non-toxic, natural materials).

Policy S-6.11 Improve pedestrian connections between the river, Green River Trail and the Urban Center's commercial, office, and residential uses.

Policies for Development in Manufacturing Industrial Center

Policy S-6.12 For MIC properties included in the King County Green River Trail Master Plan, require shoreline development to provide a trail for public access along the river.

Policy S-6.13 Where shoreline public access is provided, ensure that it is designed to be safe and convenient, and includes access amenities such as benches, drinking fountains, public parking areas, handicapped access, and appropriate lighting, consistent with the shoreline access guidelines.

Policy S-6.14 For MIC properties not included in the King County Green River Trail Plan, require shoreline development to provide public access or a private natural area in lieu of public access, or otherwise mitigate the loss of public access.

➢ ***Transportation Within the Shoreline Zone***

GOAL S-7 Safe corridors and amenities for pedestrians, cyclists, and users of public transportation, allowing more citizens to access and enjoy the river.

POLICIES

Policy S-7.1 Design and locate transportation uses within the shoreline jurisdiction to be compatible with shoreline vegetation or other habitat features, turn-outs or parking areas for public access, boat ramps, biofiltration swales to protect water quality, public art, or interpretive signs.

Policy S-7.2 Ensure that transportation uses within the shoreline jurisdiction and within those corridors identified as river cross-connections provide safe, convenient and attractive pedestrian, bicycle, and boater access and facilities for public transportation.

Policy S-7.3 Minimize transportation impacts on the natural environment (such as noises, odors, and air or water pollution), and enhance the natural environment wherever possible through planting trees and other habitat features.

Policy S-7.4 Encourage maintenance of the river's navigability up to the turning basin – where this achieves a greater public interest and a balance between costs and benefits to the broader community, and impacts to the habitat functions of the river – in recognition of the historical significance of navigation and its importance to the economic vitality of water-dependent uses and the MIC.

➢ ***Historical Resource Use***

GOAL S-8 Recognition of the river's contribution to Tukwila history and community identity through identification, enhancement, restoration and protection of sites with historic and cultural value, and through development of interpretive and educational programs.

POLICIES

Policy S-8.1 Ensure that shoreline development reflects the river's important role in Tukwila history, and that long-term public use of the river as a historical resource is protected by providing for the identification, protection and interpretation of unique historic and archaeological features.

Policy S-8.2 Ensure that public shoreline development reflects the river's natural features and community traditions.

Policy S-8.3 Ensure that archaeological artifacts and sites are protected when development takes place in the shoreline jurisdiction.

➢ ***Natural Environment and Habitat Use***

The Green/Duwamish River has undergone extensive modifications in the past, to reduce channel migration and limit the extent and duration of valley flooding by constructing levees and revetments. These modifications to the river system have negatively impacted ecological functions, including hydrology, water quality, riparian habitat and in-stream habitat. River flows have been modified by dam construction, stream diversion, and urban development. River management and levees have reduced the connection between the rivers and their floodplains, changing the spatial extent of habitat, and increasing the potential for negative water quality impacts. Disturbances to the channel banks have resulted in areas that are dominated by non-native invasive species. Wood, in the form of riparian trees and in-channel wood, is generally lacking throughout the system, which has a negative impact on riparian and aquatic habitats.

The following goals and policies seek to improve the ecological function of the river system.

Photo

Aerial view of North Winds Weir Off-Channel Habitat (photo courtesy of WRIA9)

GOAL S-9 **Restored, enhanced, and protected natural environmental resources along the river, including trees, wildlife habitat, and features with value for long-term public, scientific and educational uses.**

POLICIES

Policy S-9.1 Ensure that shoreline development results in no net loss of shoreline ecological function and minimizes impacts on wildlife, and that significant vegetation, sandbars, wetlands, watercourses and other critical areas identified as important for habitat are maintained through the proper location, design, construction, and management of all shoreline uses and activities.

Policy S-9.2 Ensure that shoreline development and activities protect riverbank vegetation and, where feasible, restore degraded riverbanks in accordance with the vegetation management provisions of the Shoreline Master Program, in order to minimize and compensate for impacts on fish and wildlife habitat.

Policy S-9.3 Mitigate unavoidable disturbances of significant vegetation or habitat through replacement of habitat and provision of interpretive features consistent with the shoreline access guidelines.

Policy S-9.4 Support relief from certain Shoreline Master Program requirements for properties affected by habitat restoration projects that result in the movement of the ordinary high water mark.

Policy S-9.5 Support establishing the Transition Zone – given its importance for subtidal and intertidal habitats – as the priority area for habitat restoration projects, to allow salmonids to gradually adjust to the change between fresh and saltwater conditions.[9]

- ***Water Quality, Surface Water, and Flood Control Use***

A system of levees and revetments have been constructed along a major portion of the river in Tukwila. The City has adopted a minimum levee profile to promote river bank stability, protect structures, and enhance shoreline ecological functions. The minimum levee profile incorporates a mid-slope bench that provides a wider river channel to accommodate higher flows during storm events, and that allows planting of native vegetation to improve habitat functions. The vegetation on the mid-slope bench will also reduce the speed of water flows during storm events.

POLICIES

Policy S-10.1 Design, locate and manage shoreline development including streets, flood control projects, surface water drainage and sewer systems, clearing and grading activities, and landscaping in a manner that minimizes opportunities for pollutants to enter the river, provides erosion control, and otherwise protects water quality.

[9] This language is not exactly what is in the adopted SMP, but is *better* language: DOE adopted: *Support establishing the Transition Zone as the priority area for habitat restoration projects given its importance for subtidal and intertidal habitats to allow salmonids to gradually adjust to the change between fresh and saltwater conditions*

Policy S-10.2 Design, manage and mitigate flood control uses to minimize impacts on other shoreline uses such as trees and riverbank vegetation, public access and recreation, and fish habitat; and set them back from the river, where feasible for the project, with land areas between the water and the levee set aside as open space for public recreation or wildlife habitat.

Policy S-10.3 Consistent with project feasibility, mitigate unavoidable negative impacts on other shoreline uses owing to flood control uses through such measures as restoration of trees and native riverbank vegetation, provision of public access to the water's edge, interpretive features, or other mitigation of loss of opportunities for shoreline multiple uses.

Policy S-10.4 Obtain additional easements, where needed, from property owners to set back levees to improve flood control and shoreline habitat functions. Where possible, as redevelopment occurs, replace bulkheads, revetments or other hard bank stabilization with more natural levees, riverbanks, or other shoreline treatments, to improve flood control, ecological functions and habitat.

Figure 5-2: Proposed profile for reconfigured levees

- ***Public Health, Safety and Welfare***

GOAL S-11 Shoreline uses that do not endanger public health, safety and welfare, or the capacity of the river to provide long-term benefits and resources to the community.

Policy S-11.1 Design, locate and manage shoreline uses, such as capital improvement projects and private development, in a manner that does not endanger public health, safety and welfare, and enhances the capacity of the river to provide long-term benefits and resources to the community.

- ***Shoreline Use Preferences***

Goal S-12: Tukwila, in developing and implementing its shoreline master program for shorelines of statewide significance, including the Green/Duwamish River, shall give preference to uses in the following order of preference that:

1. **Recognize and protect the statewide interest over local interest;**
2. **Preserve the natural character of the shoreline;**
3. **Result in long term over short term benefit;**
4. **Protect the resources and ecology of the shorelines;**
5. **Increase public access to publicly owned areas of the shorelines;**
6. **Increase recreational opportunities for the public in the shoreline;**
7. **Provide for any other element as defined in RCW 90.58.100 deemed appropriate or necessary.**[10]

RELATED INFORMATION

Shoreline Master Program
Washington State Shoreline Management Act
Washington State Department of Ecology – Shoreline Information
Water Resource Inventory Area (WRIA) 9: Green/Duwamish Salmon Habitat Plan

[10] This text is in the DOE adopted SMP, but was omitted from Tukwila SMP – is this intended by DOE to be a *policy*? It also appears on P. 3 as narrative.

Parks, Recreation, and Open Space

WHAT YOU WILL FIND IN THIS CHAPTER[1]

- A description of the existing facilities, operations of the system, and intergovernmental coordination;
- A summary of issues; and
- The goals, policies and implementation strategies to guide development of the desired future parks, recreation and open space system.

PURPOSE

Tukwila's parks, recreation and open space system provides opportunities for all residents and workers, all ages, and all cultures and language groups to enjoy nature, gather together, and exercise. This system supports healthy lifestyles, community interaction and identity, while supporting economic vitality. This system also provides for interaction with nature, protection and conservation of the environment, and a walking and biking network for physical activity and transportation.

The Parks, Recreation and Open Space Element guides decision-making that is consistent with Washington's Growth Management Act, community priorities, and related planning efforts and policies, which in turn are the basis for determining the future of Tukwila's parks, recreation, and open space system. State requirements and local aspirations are fulfilled by the Parks, Recreation and Open Space Background Report and the Parks, Recreation and Open Space (PROS) Comprehensive Plan, which is incorporated by reference in Tukwila's Comprehensive Plan.

[1] The Parks, Recreation, and Open Space element of the Comprehensive Plan corresponds largely to the 2020 Parks, Recreation, and Open Space adopted by the Tukwila City Council in March 2020. That planning effort will be updated in 2025, and any changes emerging from that effort will be adopted into future annual updates of the Plan.

EXISTING SYSTEM AND INTERGOVERNMENTAL COORDINATION

Park Lands

In total, there are 33 park properties in the City's inventory, totaling 260.7 acres of parks and open space, classified as either a Local Park, Special Use Park or Open Space, as shown in Table 1.

- Local parks are mostly located in residential areas, range in size from 0.1 acres (Riverton Mini Park) to 10+ acres, and provide places to play, gather, and/or experience nature.
- Special use parks have a single purpose such as the golf course at Foster Golf Links or feature a unique facility or feature that is intended for the entire community, such as Codiga Park or Duwamish Hill Preserve. As noted below, some sites are owned or operated by other providers.
- Open space (and undeveloped parcels) Parks are intended for natural green space preservation, habitat restoration or protection, or similar purposes.

Table 1 – Public Park Facilities in Tukwila

Park Type	Number of Parks	Acres
Local Parks	10	47.7
Special Use Parks	11	182.4
Open Space	12	30.6
	33	260.7

Source: City of Tukwila Parks, Recreation, and Open Space Plan, March 2020

Of the park and recreation facilities available within the City, several are provided through agreements and easements with other entitles, such as the Tukwila School District, Highline School District, King County, and special districts such as the Tukwila Municipal School District.

Another recreational resource within Tukwila is its trail corridors. Trail Corridors[2] are linear parks that facilitate pedestrian and bicycle movement via trails in an attractive open space setting. Trails range in length and width and may be located in utility corridors, along street rights of way, in riparian/natural corridors, or in conjunction with other easements.

The existing System Map (Figure 1) shows the location of all parks and recreation resources in the system, comprising developed and undeveloped park lands. Trails, schools, and recreation sites owned by other providers are also part of this system and add to the number of resources available in the City.

[2] For Trails: See Pages C7 & C8 of PROS Plan Supplement. Walk and Roll Plan is noted as a default resource.

(Figure 1) PROS Existing System Map

Open Space Network

Although not officially mapped, there is an informal and varied network of undeveloped land, made up of the river channel and its banks, creek corridors, landscaped yards and public street trees, and steep valley hills, such as the State highway rights-of-way. This undeveloped open space creates a green network that softens the impact of the urban environment in which we live and work. Much of this informal open space network exists and will be maintained due to community standards and environmental regulations.

Programs and Services

The City of Tukwila offers a wide range of recreational programs and public services. The Tukwila Community Center serves a vital role by providing the majority of public recreation programming and support services in the city. Along with the City-sponsored programs, the number of park- and recreation-related opportunities available to Tukwila residents is expanded through neighboring communities, public schools, private providers and nonprofits. Starfire Sports, SeaTac Community Center, Tukwila Pool, and the Matt Griffin YMCA provide additional programs in and around Tukwila.

Intergovernmental Coordination

Tukwila relies on partnerships with several organizations and local governments to provide services to area residents and to ensure coordination with land use policies. At the crossroads of the regional trail system, Tukwila coordinates with the neighboring cities of Renton and SeaTac, and other governments including King County, to plan, develop and manage the regional trail system. Managing the city's Green/Duwamish River frontage also requires coordination with local, King County and Statewide environmental policies and regulations.

The City partners with area schools to increase access to sport fields and playgrounds in areas that lack parks. The Highline and Tukwila School Districts partner with the City by leasing former school sites for park uses. In general, public schools also present an opportunity for access to recreation activities since they are well distributed in the City, especially in areas without access to park land.

In 2011, Tukwila residents voted to create the Tukwila Metropolitan Park District to fund and operate the Tukwila Pool. This independent entity provides aquatics programming at the pool facility located on Tukwila School District property. The City also works with King County to expand park and recreation opportunities.

ISSUES[3]

Several community priorities and key needs emerged as a result of outreach and engagement activities associated with the 2020 PROS Plan. These include:

Reinvigorated Quality of Existing Parks and Facilities
The community has expressed a desire to elevate the quality of existing parks and facilities to make them more inviting, comfortable, and stimulating. Reinvesting and maximizing use of existing resources resonated strongly with residents.

- Enhance basic comfort and safety.
- Stimulate park activities and formats- upgrade or expand features within existing parks (e.g., community gardens, playgrounds, and areas for dogs).
- Address barriers — increase maintenance and repair/restoration practices, incorporate sustainable practices and artistic elements into parks.

Safe, Family-Friendly Places
Concern for safety often keeps community members from enjoying parks and trails. When asked to identify barriers within the park system, respondents most frequently cited feeling unsafe in certain areas. Respondents also frequently cited needed maintenance and upgrades to equipment and facilities as key issues. Overall, community members are seeking changes to support safe, family-friendly parks throughout Tukwila.

Affordable, Stimulating Experiences for All Ages
Community feedback also noted many opportunities for parks to offer greater stimulation across all age groups- providing for more things to do and the introduction of new features, facilities, or activities. Suggestions pointed to a need for a rich variety of elements to support multiple types of activities, especially those catering to young children, older youth, teens, adults, and seniors. The Older Adults Recreational Services Needs Assessment (2019) also highlighted a need to address social isolation among older adults, which can lead to significant health issues. Community members are looking for better activation of spaces and more stimulating experiences. They also noted affordability as an important quality to maintain.

Close Interaction with Nature
Getting out in nature is the top reason respondents indicated for spending time in Tukwila parks. Whether getting out to observe, relax, or exercise, community members enjoy close interaction with nature. Further, participants identified providing natural, low impact places that support wildlife habitat as the top idea for improving parks and recreation in the city. Community members value Tukwila's

[3] These are the issues listed in the 2020 Parks Plan.

abundant natural elements: forests, Tukwila Pond, the Green/Duwamish River, native plants, and animals (particularly salmon). Another high priority was expanding programs and activities related to nature and outdoor recreation activities, such as wildlife watching, guided hikes, and Wildlife Fairs.

Fun Fitness Opportunities

Exercising, playing, and dog walking are among the most popular activities that draw residents to Tukwila's parks. Community members also value open grass areas for play and pick-up sports. Overall, features and programs that support fitness are an important part of Tukwila's system. Beyond competitive sport facilities, participants are looking for fun play and fitness activities that bring exercise regimes to parks, expand or close gaps in the trail network (specifically east-west connectors and loops), and respond to current trends. Providing a variety of enjoyable ways to stay fit and healthy is particularly crucial in Tukwila, where recent studies show that fewer people exercise as compared to the King County average.

Expanded Parks/Preserved Open Space

Community members conveyed a sense of urgency around preserving sufficient open space for future generations to enjoy. Residents appreciate convenient access to parks and green space for fresh air, exercising, socializing, dog walking, and screen breaks. Particularly with Tukwila's share of denser housing types (over 60% of housing includes four or more units), anticipated residential development, and limited land available for new parks, it is crucial to acquire park land to keep pace with growth. Strategically acquiring land to grow the system may broaden park access to ensure that every resident is no more than a 10-minute walk from a high-quality place to play, exercise, enjoy nature, or link to a trail.

Cultural Heritage Inspiration

A strong connection to cultural roots stood out as a distinguishing aspect of Tukwila's system. The rich cultural heritage of Tukwila can be traced back to the indigenous people of the area. Participants emphasized the importance of respecting tribal traditions and values. One of the top ideas for improving the system is to create unique places that reflect Tukwila's character, history, or culture. Expanding cultural arts programming, cultural celebrations, and educational events are community members' highest program-related priorities. Indigenous peoples' links to nature, stories, arts, and other practices provide inspiration that can be conveyed through physical designs, as well as through programming. Participants expressed a desire to hold cultural events as a way to bring people of different cultures together. The City can explore ways to support these community led gatherings within parks and community facilities.

Vibrant Urban Water Centerpiece
Community members see the Green/Duwamish River and Tukwila Pond Park as major assets that could be further accentuated as a focus of the system. The waters and banks of the 12.5-mile segment of the river sustain fish and wildlife and provide a serene backdrop to nearby parks and trails. Tukwila can continue to lead in restoring this urban ecosystem and maintaining the health of the river. Numerous responses captured a desire to invest in parks and habitat restoration of green spaces along the river and within Tukwila Pond Park. Additional ideas involved expanding river-related recreational activities, such as canoeing or kayaking, and activating portions of the Green River Trail with vendors, cafes, and river-facing patios.

Lively Park-Adjacent Commerce
Participants described nearby food, cafes, and other businesses as an important means of better activating parks. They pinpointed the synergy created between parks and commerce and expressed a desire to see more local businesses and development around parks to stimulate park use. Providing places to gather and eat was also rated among the top ideas for making parks and recreation better in Tukwila. In addition to providing traditional picnic and gathering areas in parks, nearby commerce could help meet the needs of busy residents, workers, and families with convenient access to refreshments and park-facing seating areas.

Convenient, Accessible System
Participants identified unsafe, or lack of, pedestrian and bicycle connections as predominant reasons preventing park use. A long-term goal is for every Tukwila resident to be within a safe 10-minute walk from a quality park or green space. Improving walking paths, bike routes, and trails and closing gaps in the system will facilitate safe and comfortable access. Lack of convenient public transportation was also indicated as a top barrier. Another critical need involves improved promotion and wayfinding around parks. Not knowing where Tukwila parks are located was the top reason respondents identified that keeps them from using parks. Overall, residents seek to maximize use of park and facility resources by making access more comfortable and convenient.

PREPARING FOR FUTURE GROWTH[4]

Tukwila's population has grown slowly in the past with an average annual growth rate of 2.1% between 2015 and 2023. This was far lower than the county-wide average but only about one-third the rate of growth in the nearby jurisdictions of Renton, Kent, and Burien.

[4] This section was updated in 2024 to reflect current demographic data.

In terms of housing unit growth, over the past six years there has been a modest increase in multi-family construction, with nearly 1,350 units constructed and more underway. This development has occurred in the northeast part of the Southcenter District and along the Tukwila International Boulevard Corridor. Per King County's adopted Growth Targets, Tukwila must plan for and accommodate 6,500 net new housing units between 2019 and 2044, or roughly another 5,200 between 2023 and 2044 at a pace of about 250 new units per year. New growth may occur in the Tukwila South District, which is zoned for intensive mixed-use development; within the Southcenter District; existing higher density mixed use zones; and within existing residential areas due to new state legislation that allows additional units on single family lots. New residents and visitors will require additional services and recreation opportunities.

GOALS AND POLICIES

Goals and policies guide the desired future of the parks, recreation, and open space system over the planning period. Policies reflect public needs, past and current planning efforts and priorities, as well as strategic planning, design and management principles. The Tukwila Parks, Recreation and Open Space System Concept Map is the graphic representation of these goals and policies. (Figure 2)

Goal PROS-1 **Safe, Convenient and Connected System - Parks, recreation opportunities, and open spaces are close to home and work and are interconnected by safe streets, off-street trails, and public transportation.**

POLICIES

Policy PROS-1.1 Create a system of close-to-home recreation opportunities, aiming for a ¼-mile to ½-mile travel distance between most residential uses and parks and recreation areas. Prioritize historically underserved communities for open space improvements and investments.

Policy PROS-1.2 Create a system of close-to-work recreation opportunities, aiming for a ¼-mile to ½-mile travel distance between most employment places and parks and recreation areas.

Policy PROS-1.3 Link parks to neighborhood gathering spots and other destinations in the community and region such as schools,

neighboring jurisdictions, regional parks and natural areas, and major employment centers.

Policy PROS-1.4 Improve the pedestrian and bicycle environment by creating safe and efficient connections across busy streets, railways, and the Green/Duwamish River.

Policy PROS-1.5 Increase physical and scenic connectivity with the Green/Duwamish River.

Policy PROS-1.6 Integrate linkages to recreation areas and open spaces when planning and designing the transportation system.

Policy PROS-1.7 Align parks and recreation programs and services with public transit service and advertise how to attend by transit.

Policy PROS-1.8 Continue to provide a safely designed and maintained trail system.

Policy PROS-1.9 Distribute public recreational facilities throughout the City so that they are easily accessible to residents, visitors, and those who come to Tukwila to work.

Policy PROS-1.10 Create a trail system that links significant community focal points and connects the trail network together at strategic points.

Policy PROS-1.11 Connect concentrations of commercial and retail activity with the trail network.

Policy PROS-1.12 Maximize potential and capacity of existing parks and recreation resources to offset existing and future demand.

Policy PROS-1.13 Identify and create opportunities to develop parks, civic places (including schools) and public spaces, especially in or adjacent to centers.

Goal PROS-2: A Network of Green Spaces- Recreational amenities, historical sites, rivers, wetlands, creeks, and other natural resources that are connected to each other and neighboring networks of lands. This network defines Tukwila as Northwest city and includes visually significant bands of

vegetation that provide protection for wildlife habitat, and that provide a contrast to the built environment.

POLICIES

Policy PROS-2.1 Recognize that the City's open space network will be made up of public and private lands that provide, or have the potential to provide, many different functions.

Policy PROS-2.2 Retain and expand the open space network through acquisition, donation, easements, partnerships and regulation.

Policy PROS-2.3 Coordinate with other regional and local plans to complement and enhance the Tukwila open space network.

Policy PROS-2.4 Integrate natural features, such as daylighting streams, and adding trees, shrubs, and other plants into the built environment, including residential, commercial, and industrial areas.

Policy PROS-2.5 Increase the public's awareness and stewardship of the City's open space resources and benefits, including examples such as organizing volunteer events, developing and distributing information.

Policy PROS-2.6 Monitor and maintain natural areas to control invasive species and other impacts.

Policy PROS-2.7 Co-locate public infrastructure, environmental and recreational projects when practicable.

Goal PROS-3 **A Sense of Community - Tukwila's parks and recreation opportunities build community cohesion by providing places and programs for social interaction and gatherings of all sizes, with designs that strengthen community identity.**

POLICIES

Policy PROS-3.1 Design parks and recreation facilities that celebrate unique features of Tukwila and that contribute to quality of life and neighborhood needs.

Policy PROS-3.2 Hold community events that encourage interaction between neighbors and celebrate the diversity of Tukwila.

Policy PROS-3.3 Interpret local culture, history, and environment throughout the system.

Policy PROS-3.4 Integrate art throughout the City, guided by the Tukwila Municipal Arts Plan.

Policy PROS-3.5 Leverage the opportunities presented by multiple redevelopment projects to expand Tukwila's park and trails system into Tukwila South and Southcenter, serving the needs of new residents, as well as visitors and workers of this evolving area.

Goal PROS-4 Opportunities for All- Tukwila's parks, recreation opportunities, and public services offer something for all ages, abilities, and cultures, in settings locations and times that are convenient to as many as possible.

POLICIES

Policy PROS-4.1 Offer flexible recreation programming that is constantly improving and responding to current trends and community desires.

Policy PROS-4.2 Provide programs, activities and special events that embrace Tukwila's many cultures, customs and interests.

Policy PROS-4.3 Design accessible parks, facilities, and programs for all ages and abilities.

Policy PROS-4.4 Increase the capacity at existing parks and recreation facilities to maximize use and expand public access.

Policy PROS-4.5 Provide indoor and outdoor spaces designed for increased access and flexibility of use.

Policy PROS-4.6 Consider future growth needs and planned density when providing parks and recreation opportunities to meet community needs.

Policy PROS-4.7 Expand program options through enhanced partnerships with businesses and organizations, and through volunteerism.

Policy PROS-4.8 Develop a city-wide special event permitting process to promote and encourage tourism, art, culture and sports events. [5]

Policy PROS-4.9 Address mobility and accessibility barriers to parks, facilities, and programs through the development and implementation of a transition plan for parks and recreation, consistent with the Americans with Disabilities Act of 1990.

Policy PROS-4.10 Ensure the provision of a variety of inclusive programs, activities, and events to better serve persons with physical and/or developmental disabilities and adapt offerings to encourage social inclusion and belonging.

Policy PROS-4.11 Provide, promote and encourage reasonable accommodations, changes, exceptions, modifications or adjustments to rules, policies, practices, programs or services so that a person with a disability has an equal opportunity to use and enjoy parks and recreation facilities, parks and programs.

Policy PROS-4.12 Provide, promote, and encourage meaningful language access so that persons with Limited English Proficiency (LEP) can realize improved access to department programs, services, and information, consistent with Title VI of the Civil Rights Act of 1964.

Goal PROS-5 Safe, Inviting, and Affordable- Parks and facilities are safe, well maintained and clean, and programs and services that are welcoming and accessible for all people.

POLICIES

Policy PROS-5.1 Design parks and public spaces using accepted public safety standards such as Crime Prevention through Environmental Design Principles (CPTED) or Defensible Space.

Policy PROS-5.2 Reflect the highest standard of design quality in public developments to enhance neighborhood quality and set a high design standard for private development.

[5] New policy from Parks staff

Policy PROS-5.3 Develop site-specific master plans or site designs that guide all major park improvements and that achieve cohesive design and efficient phasing of projects.

Policy PROS-5.4 Involve the community, including expected users and neighborhood residents, in appropriate aspects of capital project and program planning and implementation.

Policy PROS-5.5 Involve community partners and volunteers in the construction and maintenance of parks to increase the sense of public ownership and reduce City costs.

Policy PROS-5.6 Increase access to affordable, free, or reduced-cost programs and services.

Policy PROS-5.7 Expand awareness of the full range of program offerings and recreation options made available by the City and others.

Policy PROS-5.8 Maintain parks and public spaces so that they are safe, clean, and welcoming.

Goal PROS-6 **Healthy People and Places - Parks and recreation opportunities that promote healthy, active lifestyles are designed and managed to engage and enhance the natural environment and the local economy.**

POLICIES

Policy PROS-6.1 Provide services for all ages to encourage community members to try new activities and build a habit of healthy living.

Policy PROS-6.2 Promote healthy food choices and active living programs as a central focus for community education.

Policy PROS-6.3 Strive to create projects and programs that provide social, economic, and environmental benefit to the community.

Policy PROS-6.4 Leverage the park, recreation, and open space system to meet the needs of the residents while considering economic development and needs of visitors, business, and workers.

Policy PROS-6.5 Provide public education resources and volunteer opportunities to promote understanding and appreciation of Tukwila's natural

environment and Green/ Duwamish River ecosystem, while building an environmental stewardship ethic in the community.

Policy PROS-6.6 Encourage and support the use of public lands for urban agriculture activities through existing and new programming or partnerships.

Policy PROS-6.7 Consider long-term management, operations. and maintenance needs when implementing new projects and programs.

Policy PROS-6.8 Employ best practices in managing facilities, parks, and open space areas, and provide continuing education for City staff on these practices.

RELATED INFORMATION

- Parks, Recreation and Open Space Final Draft (March 2020)
- Parks, Recreation and Open Space, Technical Supplement, September 2019
- Older Adults Recreational Services Needs Assessment (March 2019)
- Public Arts & Culture Master Plan (January 2018)
- Green Tukwila 20-Year Stewardship Plan (2017)
- Tukwila Pond Park Master Plan (January 2022)

Appendix A

LOCAL PARKS			
Park	**Acres**	**Ownership**	**Total Acres**
57th Avenue South Park	0.4	City of Tukwila	
Cascade View Community Park	2.4	City of Tukwila	
Crystal Springs Park	11	City of Tukwila	
Hazelnut Park	0.6	City of Tukwila	
Riverton Mini Park	0.1	City of Tukwila	
Tukwila Park	6.4	City of Tukwila	
Total		City of Tukwila	**20.9**
Crestview Park	10.9	Highline School District	
Duwamish Park	2.1	Tukwila School District	
Riverton Park	4.9	Tukwila School District	
Total		School District	**17.9**
Joseph Foster Memorial/Lee Philips Park	8.9	Tukwila School District, City of Tukwila	
Total		Tukwila School District, City of Tukwila	**8.9**
TOTAL LOCAL PARKS			**47.7**
SPECIAL USE PARKS			
Special Use Park	**Acres**	**Ownership**	**Total Acres**
Bicentennial Park	1.3	City of Tukwila	
Codiga Park	6.7	City of Tukwila	
Duwamish Gardens	2.2	City of Tukwila	
Duwamish Hill Preserve	8.7	City of Tukwila	
Fort Dent Park (Starfire Sports Complex)	51.3	City of Tukwila	
Foster Golf Links	63.3	City of Tukwila	
Ikawa Park (Japanese Garden)	0.2	City of Tukwila	
Macadam Winter Garden & Wetlands	9.9	City of Tukwila	
Tukwila Community Center	12.7	City of Tukwila	
Tukwila Pond Park	24.8	City of Tukwila	
Total		City of Tukwila	181.1
Tukwila Pool	1.3	Tukwila School District/Tukwila MPD	
Total		Tukwila School District/Tukwila MPD	1.3
TOTAL SPECIAL USE PARKS			**182.4**
OPEN SPACE			
Open Space	**Acres**	**Ownership**	**Total Acres**
Black River Lot	0.3	City of Tukwila	
Christensen Road Property/Riverview Plaza Riverfront	3	City of Tukwila	
Interurban Hill Lot	1.7	City of Tukwila	
Siccardi Parcel	0.9	City of Tukwila	
Southgate Park	10.9	City of Tukwila	
TIB Parcel	0.9	City of Tukwila	
Tukwila Hill	1.8	City of Tukwila	
Tukwila Parkway	1	City of Tukwila	
Wilcox Drive/Pamela Drive Open Space	0.7	City of Tukwila	
Total		City of Tukwila	21.2
Cecil Moses Memorial Park	3	King County	
Lookout Park	0.2	King County	
North Wind's Weir	2.6	King County	
Total		King County	5.8
P-17 Pond	3.6	City of Tukwila, King County	
		City of Tukwila, King County	3.6
TOTAL SPECIAL USE PARKS			**30.6**
TOTAL ALL PARK LAND			**260.7**

Transportation

WHAT YOU WILL FIND IN THIS CHAPTER:

- A description of the existing transportation network in Tukwila;
- A discussion of how transportation planning and land use are related;
- A discussion of how demand on the transportation network is managed; and
- Goals and Policies for providing adequate levels of service.

PURPOSE

The Transportation Element establishes Tukwila's transportation goals and policies for the 20-year planning period. It provides direction for transportation decisions regarding annual plan updates and other related transportation plans, including:

- The Six-Year Transportation Improvement Plan (TIP)
- The Six-Year Capital Improvement Program and Financial Planning Model (CIP/FPM)
- The biennial budget
- The Local Road Safety Plan (new for 2024)
- The ADA Transition Plan
- Infrastructure Design and Construction Standards

It is key in supporting community livability and economic vitality, as prioritized in Tukwila's Strategic Plan. It also provides guidance for development review and approval, land use and zoning decisions, and continuing transportation and maintenance programs.

The Transportation Element establishes a basis for decision-making that is consistent with Washington's Growth Management Act, King County's Countywide Planning Policies, and the Puget Sound Regional Council's (PSRC) Vision 2050. The specific requirements of each of these plans are fulfilled by the City of Tukwila Transportation Element Background Report of the Comprehensive Plan Update (hereafter referred to in this element as the Background Report) and summarized herein. The Transportation Background Report, Local Road Safety Plan, ADA Transition Plan, Commute Trip Reduction (CTR) Program and Plan, Growth and Transportation Efficiency Center (GTEC) Plan, the annually updated six-year Transportation Improvement Plan, six-year CIP/ FPM, and the budget are all adopted by reference in the Tukwila Comprehensive Plan.

ISSUES

Tukwila is a vibrant community with diverse residents, businesses, and regional attractions, connected by various transportation options to local and regional destinations. Since incorporating in 1908, Tukwila has grown into a community with a population of 20,265 residents (2020).[1] In addition to serving its residents, Tukwila is home to jobs from a wide range of sectors, such as manufacturing, industry, local businesses, and retail. Tukwila's major shopping area draws shoppers from across the Puget Sound region.

Tukwila's diverse transportation system includes freeways, highways, arterial streets, local streets, bus, light rail, commuter rail transit service, Amtrak passenger rail service, sidewalks, bike lanes, trails, and neighborhood footpaths. In addition, Sea-Tac International Airport and Boeing Field provide air transportation for general, commercial and business aviation. The Duwamish River provides water access to Elliott Bay and beyond. The City's road and rail network enables freight and rail transportation within and through the city. A detailed inventory of the existing transportation system in Tukwila is contained in the Background Report (Fehr & Peers, XXX, 2024).

In recent years, Tukwila has sought to address traffic congestion and improve multimodal connectivity, especially near Tukwila International Boulevard and in Southcenter. Tukwila also maintains two major regional trails: the Green River Trail and the Interurban Trail. These trails allow people to walk, roll, scooter, and bike throughout the city and to neighboring communities.

There have been several major transportation investments in the City of Tukwila, including the Tukwila International Boulevard Link Station. The station boasts high usage and provides much needed transit connections to Tukwila International Boulevard, which has undergone several pedestrian access improvements in recent years. Sound Transit is also planning to add an additional light rail infill station on the north side of the City, near Boeing Access Road. In addition to light rail service, King County Metro and Sound Transit both provide bus routes serving the Tukwila area.

This Transportation Element seeks to proactively build on these investments to support Tukwila's continued evolution over the next 20 years. The Transportation Background Report includes the transportation project list, which was developed in coordination with the community who helped identify the long-term vision for transportation in Tukwila.

[1] 2016-2020 American Community Survey, U.S. Census Bureau's American Community Survey Office. Table S0101 https://www.census.gov/
Note: ACS data was used for consistency among data sources within the Demographics section and Appendix A. The Decennial Census has limited data on population characteristics other than the population sum. To present a wide range of population characteristics with a consistent source, all data in the Transportation Background Report uses ACS 2020 5-year estimates.

Major transportation issues facing Tukwila include:

- Physical and geographic barriers that challenge connectivity throughout the City. Physical barriers include the valley wall, the Green/Duwamish River, and highways that separate portions of the City from each other.
- Limited funding to satisfy competing priorities.
  - Increasing connectivity is very costly given the need to acquire new rights-of-way, conducting engineering studies and design, and construction costs.
  - Criteria for grant funding are most often targeted toward Tukwila's Urban Center or the Manufacturing/Industrial Center because these are the locations where significant employment and residential growth are planned and are supported by regional plans.
  - There are unmet needs in other areas of the City, including streets that do not meet City standards, and it is unlikely that the roads in these already developed areas would be improved.
  - Inclusion of safety projects to meet the City's safety goals to be established in the forthcoming Local Road Safety Plan will increase the need for funding sources.
  - Implementation of a new Multi-Modal Level of Service standard will create new demands on limited funding.
  - Reliance on state and regional agencies, such as the Washington State Department of Transportation (WSDOT), Port of Seattle, Metro, and Sound Transit, to serve local needs.

Changes in Tukwila Transportation Planning

The City views the Transportation Element update as an opportunity to step back and develop a holistic vision for transportation in Tukwila. Five new goals have been developed with this update to address the changing needs in Tukwila and to incorporate the required elements established by the State of Washington and King County. The goals were developed with input from Tukwila's residents and will guide the City of Tukwila's future investment decisions.

The Transportation Element takes a layered network approach to focus on how Tukwila's transportation network can function, as a system, to meet the needs of all users. In general, Tukwila has managed vehicular congestion levels throughout the entire city, but transportation includes more than just roadway capacity. This update introduces a new method of measuring how well the entire network functions, including non-motorized facilities and transit. This is called a Multi-modal Level of Service Standard, or MMLOS. The Level of Service standard for vehicles on Tukwila's road system is not changing with this update, but new standards establishing requirements for pedestrian and bicycle facilities are added. These new standards will ensure that more than just roads are improved. Tukwila doesn't provide transit services, but this update includes guidelines for transit that will aid in advocacy with King County Metro and Sound Transit. Details of the new MMLOS and layered network approach are included in Chapter 5 of the Transportation Background Report.

A new emphasis on safety is also included with this update. Concurrent with the development of the Transportation Element, the City is developing a new Local Road Safety Plan (LRSP) (to be adopted in early 2025 and will be adopted by reference). The LRSP is a relatively new requirement and has dedicated federal grant funding available for project implementation.

Chapter 6 of the Transportation Background Report describes the projects and programs that support the Goals, Policies, and Transportation Vision of Tukwila. The project list has been updated to include pedestrian facilities and bike lanes as well as new safety-specific projects.

GOALS AND POLICIES

The Transportation Element supports other elements in the City's Comprehensive Plan. It demonstrates how the City will maintain and preserve the existing network, as well as address deficiencies, while demonstrating how planned growth will be accommodated over the next 20 years.

Establishing goals and policies to guide future investments is the first step in guiding improvements to the transportation network, while implementation strategies provide specific actions to be taken to bring the planned improvements to fruition.

GOAL T-1	**Equity: Eliminate system barriers to ensure fair access to healthy, affordable, reliable transportation options, livable places, and jobs.**
Policy T-1.1	Provide a balanced transportation system that delivers circulation for all users throughout the City, including people walking, bicycling, persons who use a wheelchair or other ambulation devices, seniors, youth, people with low incomes, and residents of all ages and abilities.
Policy T-1.2	Plan and implement the transportation system utilizing urban street design principles in recognition of the link between urban design, safety, economic development, community health, and transportation system design in the planning and implementation of transportation projects.
Policy T-1.3	Consider the economic development and community benefit implications in the planning and design of transportation projects.
Policy T-1.4	Work with BNSF to mitigate impacts associated with rail and intermodal yard operations within Tukwila's residential neighborhoods.
Policy T-1.5	Encourage transit providers, paratransit operators, and private purveyors to provide mobility for people of all ages, abilities, and income levels in the City of Tukwila and the surrounding community.

Policy T-1.6	Regularly update the City of Tukwila's ADA Transition Plan and invest in the identified infrastructure to ensure that transportation systems serve people of all ages and abilities.
Policy T-1.7	Support efficient transit capacity to reduce single-occupancy vehicle trips to, from, within, and through Tukwila.
Policy T-1.8	Prioritize investments that address systemic barriers to accessing livable places and jobs.
GOAL T-2	**Safety: Provide a safe transportation system and placemaking to emphasis Tukwila as a welcoming place, particularly for historically marginalized and vulnerable populations.**
Policy T-2.1	Balance travel efficiency, safety, and quality-of-life by exploring context-sensitive roadway design strategies (including appropriate vehicle lane widths, traffic calming measures, landscaping, and buffers separating vehicle traffic from other modes of travel).
Policy T-2.2	Invest in transportation projects and programs that address safety issues systematically impacting historically marginalized and vulnerable populations.
Policy T-2.3	Design streets to safely accommodate a range of motorized and non-motorized travel modes such that it is comfortable and safe to access destinations without a vehicle.
Policy T-2.4	Design intersections and sidewalks to promote pedestrian safety and foster walking (or using a bicycle, wheelchair or mobility device, scooter, or stroller) as a viable mode of transportation.
Policy T-2.5	Meet or exceed standards for pedestrian facilities, such as sidewalks and crosswalks, to encourage residents and visitors to walk or roll for transportation, recreation, and improved health.
Policy T-2.6	Prioritize preserving and maintaining existing transportation facilities to avoid costly replacements and to meet public safety objectives in a cost-effective manner.
Policy T-2.7	Work with school officials and school community members to promote Safe Routes to School projects and programs and require safe routes to school improvements – such as sidewalks and crosswalks – as new development occurs along designated school walk routes.
Policy T-2.8	Partner with transit agencies to improve safety and cleanliness in and around transit stops and stations to encourage ridership.

Policy T-2.9 Set posted speed limits to prioritize the safety of all roadway users with specific consideration given to the severity of potential conflicts (i.e., amount of potential kinetic energy transfer) between vulnerable road users (e.g., people walking, biking) and motor vehicles.

Policy T-2.10 Seek to minimize conflicts between non-motorized modes and freight vehicles.

Policy T-2.11 Provide well-maintained facilities. Coordinate with the Washington State Department of Transportation to keep state facilities in Tukwila free of debris.

Policy T-2.12 Prioritize emergency vehicle routes and access to hospitals and trauma care centers.

Policy T-2.13 Integrate the Safe System Approach into City design guidance, standards, and related policies, and project development processes, and be consistent with industry best practice.

Policy T-2.14 Implement safety improvements prioritized based on the occurrence of fatal and serious injury crashes, the City's High Injury Network, and/or the presence of systemic characteristics that invoke a fatal or serious injury crash.

Policy T-2.15 Secure funding for implementing safety strategies and long-term maintenance of improvements.

Policy T-2.16 Strive to eliminate traffic fatalities and serious injuries through a Safe System Approach.

GOAL T-3 Connectivity: Maintain, expand, and enhance Tukwila's multimodal network particularly walk, bike, roll, and transit to increase mobility options where needs are greatest.

Policy T-3.1 Focus on transportation efficiency by maximizing the movement of people with streets that are designed to be safe for all transportation modes, accommodating existing land uses while designing for the future.

Policy T-3.2 Include trucking design parameters in principal and minor arterial improvements as well as in commercial areas.

Policy T-3.3 Allow truck traffic on all principal and minor arterials, as well as on commercial area local access streets. Consider using load limit

restrictions and geofencing on residential collector arterials and residential local access streets.

Policy T-3.4 Support goods mobility by all modes, recognizing that Tukwila is part of a regional freight distribution hub and a major international trade gateway.

Policy T-3.5 Encourage transit-oriented uses, development patterns, and pedestrian amenities in the vicinity of high-capacity transit stations.

Policy T-3.6 Continue to coordinate with surrounding jurisdictions and with regional and State agencies to finance and develop a multi-modal transportation system that enhances regional mobility and reinforces the countywide vision for managing growth.

Policy T-3.7 Recommend and pursue a regional multi-modal center in conjunction with the Tukwila Commuter Rail/Amtrak Station and secondary pedestrian/bicycle/transit hubs elsewhere in the City.

Policy T-3.8 Require all new streets, street improvements, property developments, and property improvements to provide sidewalks and other non-motorized infrastructure consistent with adopted standards and subarea plans. Property developments and improvements in commercial areas should provide direct pedestrian access from sidewalks to buildings, as well as to, from, and between parking areas.

Policy T-3.9 Evaluate street improvement projects for the inclusion of features that support the Complete Streets policy in order to encourage walking, bicycling, and transit use.

Policy T-3.10 Encourage and support public transportation services.

Policy T-3.11 The development and extension of any light rail or commuter rail system should meet the following objectives:

- Any commuter or light rail system serving Tukwila, Seattle, South King County and/or Sea-Tac Airport should be located in a manner which promotes the coordinated short term and long-term use of alternative transportation systems, such as carpools, transit, biking and walking.
- Such systems should allow for commuter and/ or light rail service to East King County and Southeast King County, and should be coordinated with other transit service.
- Such systems should be located in a manner that provides multi-modal connections to Tukwila's urban center, Manufacturing and Industrial Center, and transit centers, so as to encourage development in the manner contemplated by this Plan and the Countywide Planning Policies.

Policy T-3.12 Collaborate with transit providers to expand transit connectivity to Tukwila South and other developing areas within Tukwila.

Policy T-3.13 Support, encourage, and implement programs and improvements that promote transit, foot, and bicycle access to community amenities, stores, and jobs.

Policy T-3.14 Incorporate proportionately greater neighborhood-enhancing elements in collector, minor arterial, and principle arterial design. These elements include collector lanes, wider sidewalks, separated sidewalks, and curbline trees.

Policy T-3.15 Continue to provide assistance to King County, King County Metro, Sound Transit, Washington State Department of Transportation, and other agencies in increasing people-carrying capacity of vehicles and reducing vehicular trips.

Policy T-3.16 Coordinate with adjacent agencies on the development of a network of regional non-motorized transportation improvements in, through, and to Tukwila such as connected network of bicycle facilities and trails.

Policy T-3.17 Work with King County Metro and Sound Transit to coordinate regarding bus layover space, amenities for transit riders, encourage transit use, and enhance multi-modal connections to transit.

Policy T-3.18 Construct neighborhood links by providing additional sidewalks and trails as opportunities and development occur.

Policy T-3.19 Pursue converting railroads and other easements to pedestrian and bicycle trails.

Policy T-3.20 Require secure bicycle storage (i.e., racks, lockers, cages, etc.) in appropriate locations near community destinations.

Policy T-3.21 Provide wayfinding along roads, sidewalks and trails to direct non-motorized travelers to trails and destinations.

Policy T-3.22 Plan and budget for non-motorized transportation projects within the Tukwila Capital Improvement Program.

Policy T-3.23 Maintain existing unimproved rights-of-way if there is a potential future opportunity to create a non-motorized connection through stairs or other trail improvements.

Policy T-3.24 Improve transit, walking, and biking connections to the Tukwila Community Center.

Policy T-3.25	Update the concurrency program to incorporate identified level-of-service standards for multimodal transportation.

GOAL T-4 **Adaptability: Anticipate and plan for the community's evolving needs, new technologies, and opportunities for mobility.**

Policy T-4.1	Protect the transportation system (e.g., roadway, rail, transit, air, and marine) against major disruptions by developing maintenance, prevention, and recovery strategies, and by coordinating disaster response plans.
Policy T-4.2	Maintain a partnership with King County Metro in operation and maintenance of the Tukwila Transit Center.
Policy T-4.3.	Continue to encourage the use of rideshare, transit, bicycle, and evolving technological transportation improvements.
Policy T-4.4	Balance modal priorities on residential streets through design and maintenance that supports needs for emergency access, while still implementing strategies to slow traffic.
Policy T-4.5	Adopt and implement multimodal LOS standards to guide City improvement and development approval decisions.
Policy T-4.6	Prioritize transportation demand management strategies and improving nonmotorized infrastructure (i.e., transit use, carpooling/rideshare, pedestrian and bicycle facilities) to preserve system capacity, before considering other street capacity improvements (i.e., signal improvements, street widening) as a last resort).
Policy T-4.7	Use the Transportation Background Report – in conjunction with the Land Use Element – to prioritize construction of new sidewalks, bike lanes, and trails.
Policy T-4.8	Advocate for Tukwila representation on the boards of King County Metro and Sound Transit in order to influence service and policies that are effective and supportive of Tukwila.
Policy T-4.9	Advocate through verbal and written testimony to King County Metro and Sound Transit to achieve and maintain a minimum LOS C (defined by headway, vehicles per hour and hours of service), and work within Tukwila's Transit Priority Corridor Classification System.
Policy T-4.10	Promote emerging technology and innovative approaches to local deliveries, including cargo bikes, delivery drones, microhubs, and sidewalk autonomous delivery robots (SADRs) where local infrastructure supports their use.

Policy T-4.11 Address spillover parking (onto private property, public property, or public streets) near transit facilities and other community destinations, balancing competing land use needs and opportunities.

Policy T-4.12 Coordinate with local stakeholders to address truck parking needs.

GOAL T-5 Environment: Plan, design, and construct transportation projects that reduce greenhouse gas emissions, improve community health, and protect the natural environment.

Policy T-5.1 Collaborate with King County, the Port of Seattle, and BNSF to ensure that King County International Airport, SeaTac International Airport, and BNSF railway operations and development:

- Enhance Tukwila goals and policies;
- Incorporate Tukwila land use plans and regulations;
- Minimize adverse impacts to Tukwila residents; and
- Are not encroached upon by incompatible land uses.

Policy T-5.2 Support Tukwila employers providing Commute Trip Reduction Program (CTR) services to workers to reduce drive-alone trips, vehicle miles traveled, traffic congestion, and greenhouse gas emissions.

Policy T-5.3 The City of Tukwila will pursue investing in transit benefits and education to set an example to other employers by a commitment to reducing drive-alone trips, vehicle miles traveled, and greenhouse gas emissions.

Policy T-5.4 Design and operate transportation facilities in a manner that is compatible with and integrated into the natural and built environments in which they are located. Incorporate features such as natural drainage, native plantings, and local design themes that facilitate integration and compatibility.

Policy T-5.5 Support car-share, bike-share, and other alternatives to individual automobile ownership, to enhance sustainability.

Policy T-5.6 Support, encourage, and implement transportation programs and improvements that promote water quality and regional air quality.

Policy T-5.7 Preserve and enhance the urban tree canopy to provide shade, improve air quality, and enhance placemaking by including vegetation wherever feasible.

Policy T-5.8	Support and encourage the development of infrastructure that minimize reliance on fossil fuels and reduce greenhouse gas emissions, such as electric and high fuel efficiency automobiles.
Policy T-5.9	Establish mode-split goals for all significant employment centers which will vary according to development densities, access to transportation service, and levels of congestion.
Policy T-5.10	Support transportation system improvements and programs that encourage transit use, high-occupancy vehicle trips, and non-motorized transportation to reduce single-occupancy vehicle trips, vehicle miles traveled, traffic congestion, and greenhouse gas emissions.

RELATED INFORMATION

Transportation Background Report
Commute Trip Reduction (CTR) Program and Plan
Growth and Transportation Efficiency Center (GTEC) Plan
Local Road Safety Plan (adoption planned for 2025)

Utilities

WHAT YOU WILL FIND IN THIS CHAPTER:

- A description of the utility systems and providers in the City of Tukwila;
- Goals and Policies for providing effective utility service to Tukwila's residents; and
- Strategies for implementing the City's policies and working with private utility providers.

PURPOSE STATEMENT:
To provide utility services and facilities that meet the community's current and future needs in a safe, reliable, efficient, economic and environmentally responsible manner.

PURPOSE

The availability and adequacy of utility facilities and services are closely linked to the development of land, affecting whether, how, and when it can be developed, as well as to other comprehensive plan elements and goals. The City of Tukwila provides a range of utility facilities and services and also relies on other public and private agencies to provide many of these services.

Sewer, water, surface water management, solid waste, electricity, natural gas, and telecommunications are addressed in this Element. Policies pertaining to utilities and vegetation are located in the Natural Environment element. The Utilities Element profiles both City-owned and non-City-owned utilities operating within Tukwila. Sewer and water services are provided by the City, adjacent municipalities, and special districts. Surface water drainage is managed locally, but with interjurisdictional and watershed wide cooperative planning and management. The remaining utilities are provided to residents and businesses through franchise agreements between the City and service providers.

The Utilities Element establishes a basis for decision-making that is consistent with Washington's Growth Management Act, the Puget Sound Regional Council's Vision 2050, and King County's Countywide Planning Policies, as well as with the City's targets for housing units and employment, which are a basis for determining demand for utility services and infrastructure. These State and regional requirements are fulfilled by the Utilities Background Report, Comprehensive Sanitary Sewer Plan, Comprehensive Water Plan, and the Surface Water Comprehensive Plan. These documents, along with the six-

year Capital Improvement Program and the City of Tukwila budget, are adopted by reference in Tukwila's Comprehensive Plan.

TUKWILA UTILITY PROVIDERS WATER
City of Tukwila
City of Seattle
City of Renton
King County Water District #20
King County Water District #125
Highline Water District

SEWER
City of Tukwila
City of Seattle
City of Renton
Valley View Sewer District

SURFACE WATER
City of Tukwila

ELECTRICITY
Puget Sound Energy
Seattle City Light

NATURAL GAS
Puget Sound Energy

REGULATORY REQUIREMENTS
This element is consistent with Washington State GMA, PSRC Vision 2050, and King County County-wide Planning Policies requirements for utilities planning, based on housing and employment targets.
These requirements are fulfilled by the following documents:
Utilities Background Report
Comprehensive Sanitary Sewer Plan
Comprehensive Water Plan
Comprehensive Surface Water Management Plan

ISSUES

Several key issues in meeting the utility needs of the City are addressed in this Utilities Element:

Service Extensions. Planned extensions of utility services are based on existing needs, or to accommodate planned growth or growth targets.

Coordination of Service Providers. The City-managed utilities must coordinate with adjacent providers that provide utility services to portions of the City. Coordination among Tukwila's three non-City sewer and five non-City water districts is critical.

Concurrency and Implications for Growth. Utility projects and other capital facilities must be developed so that improvements are in place by the time they are needed, to address growth and to accommodate growth targets.

Environmental Sustainability. Utility planning and operations requires compliance with federal and state laws including the Clean Water Act, NPDES, ESA, State Waste Discharge Permit, and contributes to watershed-wide restoration efforts to preserve the quality of the natural environment.

Residential Neighborhood and Sub-Area Vitality. City-planned utility improvements and extensions place priority on improving and sustaining residential neighborhood quality and

livability. Utility investments affect neighborhood quality of life and contribute to human health and vitality and the ability to realize established visions for specific sub-areas.

System Rehabilitation, Replacement, and Retrofit. Much of the City's utility infrastructure has reached, or is near, its life expectancy. Rehabilitation or replacement of these systems is needed to ensure their continued reliability. Federal, State, and local policies require utility system improvements to comply with new regulations.

SYSTEM DESCRIPTIONS

WATER AND SEWER

The City of Tukwila purchases all of its water from the Cascade Water Alliance under a contract through the year 2064. Tukwila's Comprehensive Water System Plan identifies areas of water supply and distribution deficiency, and the six-year Capital Improvement Plan proposes corrective improvements. *See Map U-1*.

The Tukwila sewer system is exclusively a collector system with no treatment component. King County DNRP Wastewater Treatment Division provides regional wastewater treatment at the South Treatment Plant in Renton. The Comprehensive Sewer System Plan identifies deficiencies in the system, and corrective improvements are proposed in the six-year Capital Improvement Plan. *See Map U-2*.

Certain areas of the City are served by other water and sewer providers, which develop their own plans in coordination with the City of Tukwila.

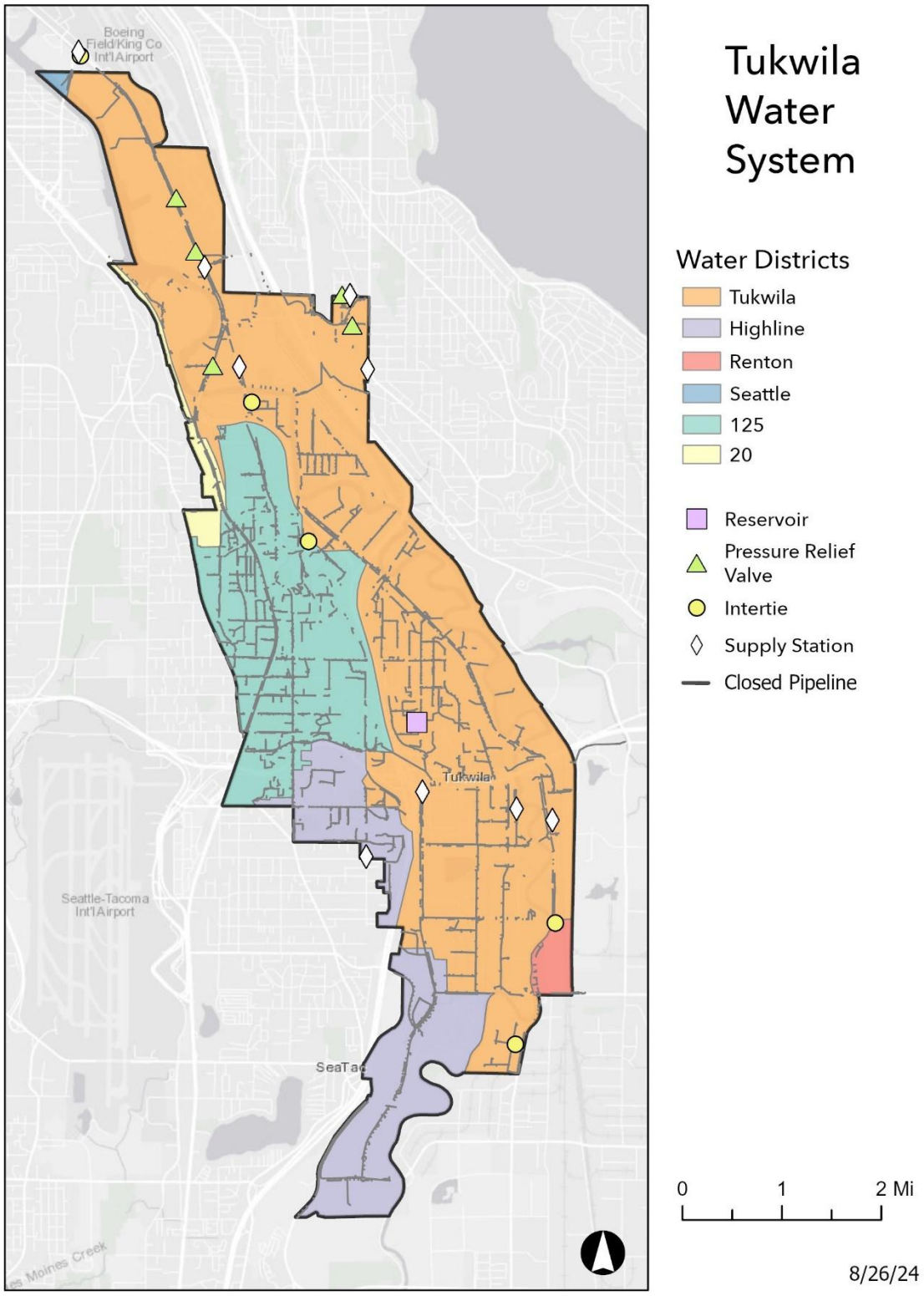
Tukwila's Comprehensive Water System and Sewer System Plans are adopted by reference as part of the Comprehensive Plan. Those system plans identify present and future improvements and establish certain required levels of service and priorities for system improvements. Level of service standards are also established by applicable Board of Health regulations, the Uniform Plumbing Code, and the Uniform Fire Code. Consistent with State mandates, Tukwila revises and updates system plans to assure consistency with the Comprehensive Plan and the Capital Improvement Program.

SURFACE WATER MANAGEMENT

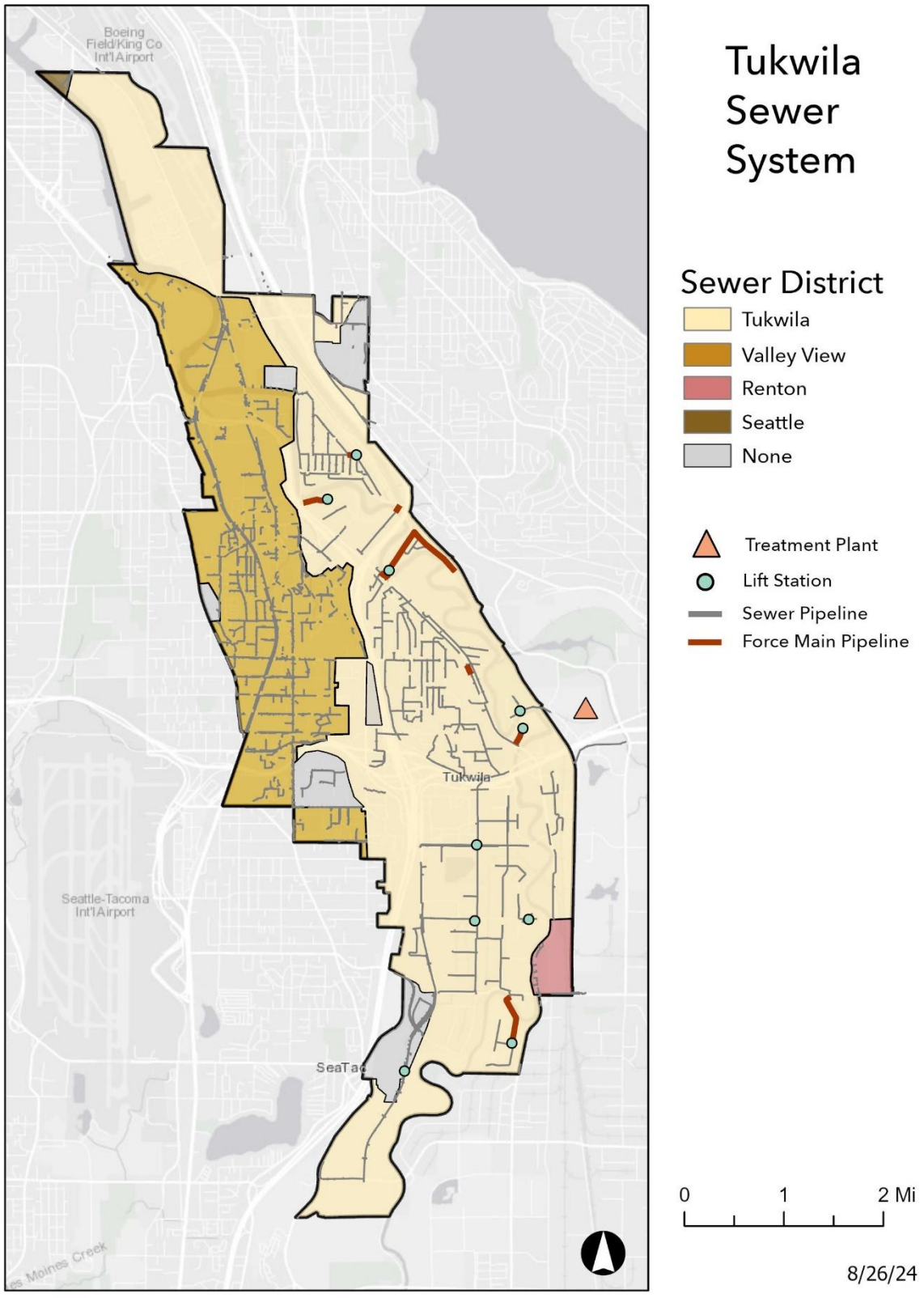
Tukwila's surface water system consists of both built stormwater drainage infrastructure and surface waters such as rivers and creeks. All of the City's sub-basins drain to the Green/Duwamish River. For locations of surface water management facilities, see *Map U-3*.

The Surface Water Comprehensive Plan contains an inventory of existing facilities and identifies current system deficiencies and planned improvements. It evaluates the system under present development conditions and identifies remedies for segments of the system where problems exist or are likely to develop in the future as a result of growth and development. Proposed improvements are included in the Six-Year Capital Improvement Program (CIP).

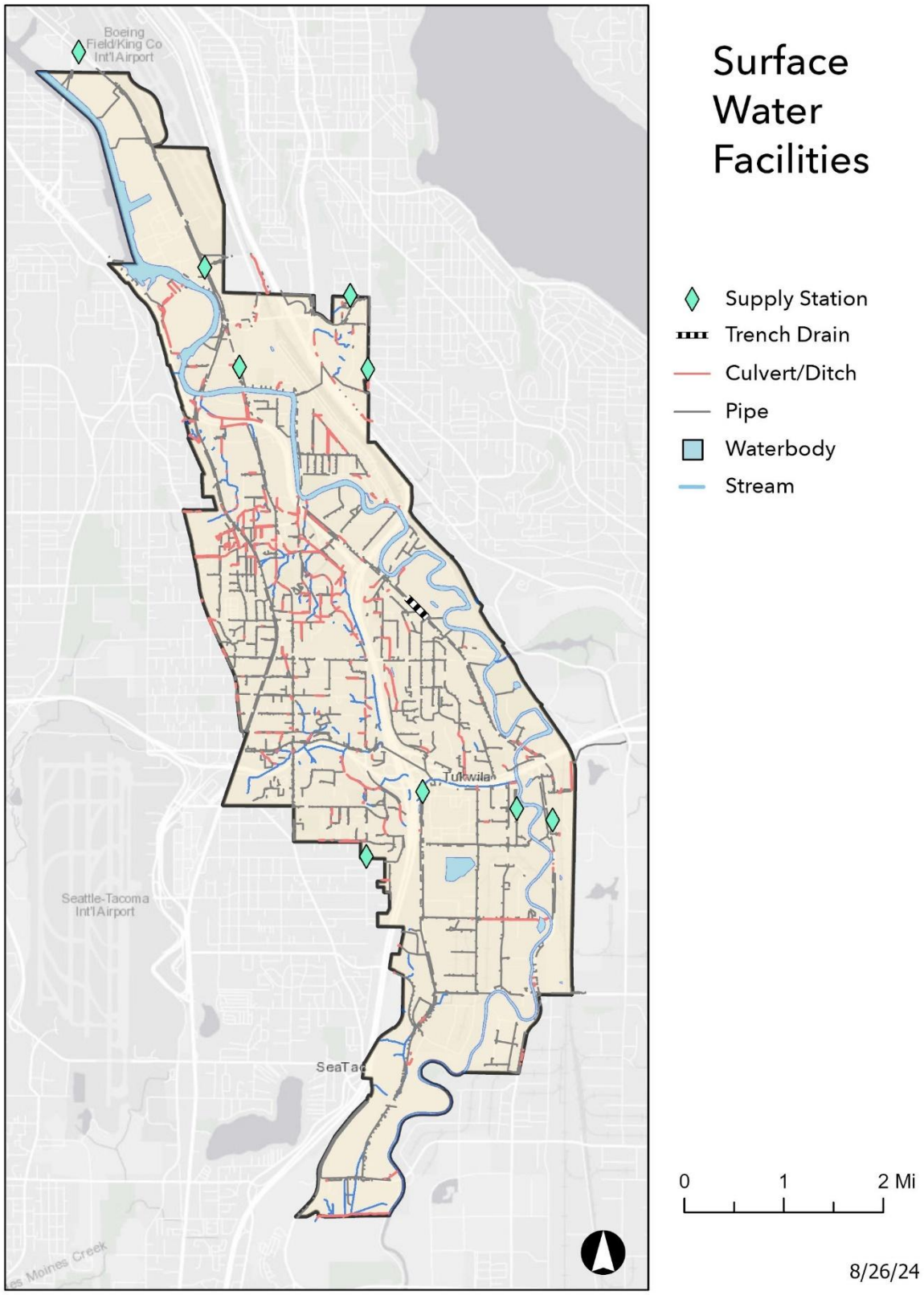
Map U-1


Boeing Field/King Co Int'l Airport
Tukwila
Seattle-Tacoma Int'l Airport
SeaTac
Des Moines Creek
Tukwila Water System
Water Districts
Tukwila
Highline
Renton
Seattle
125
20
Reservoir
Pressure Relief Valve
Intertie
Supply Station
Closed Pipeline
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Map U-2: Tukwila Sewer System



Map U-3: Surface Water Management Facilities



The City reviews and updates its Surface Water Management Plan annually to assure consistency with this Plan, State and local regulations, the CIP, and other ongoing City planning processes.

TURNING WASTE INTO ENERGY
King County's Cedar Hills Landfill is the destination for much of Tukwila's solid waste.

The landfill has a gas-to-energy project which leads to cleaner air and reductions in greenhouse gas emissions. In 2021, the landfill generated an average of about 6,500 standard cubic feet per minute of landfill gas. This gas is transmitted to the Bio Energy Washington (BEW) gas-to-energy plant and converted into pipeline-quality biogas. The renewable gas produced equals the amount of energy needed to meet the natural gas needs of over 17,500 homes in King County.

Image source: King County Solid Waste Division

SOLID WASTE

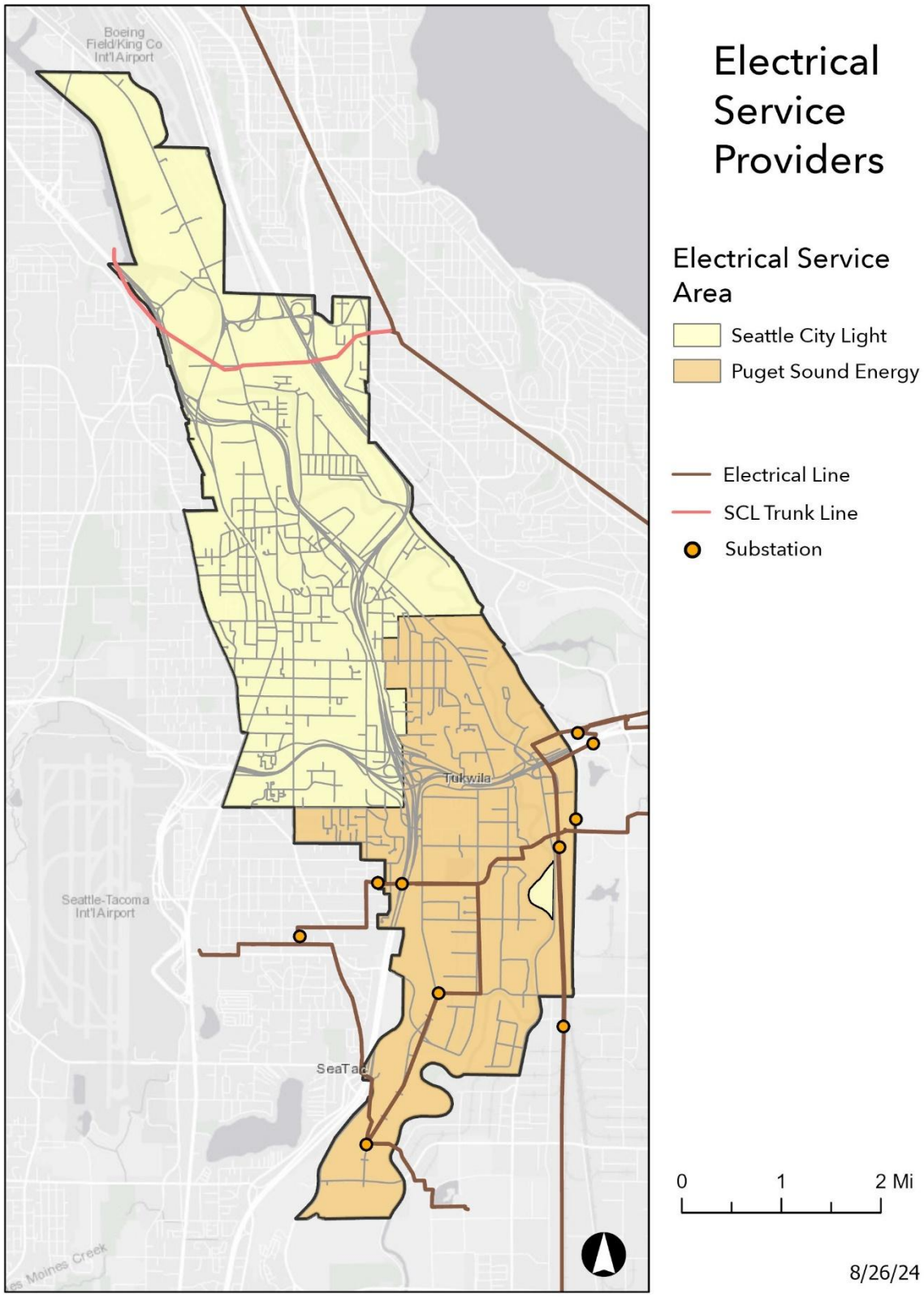
Solid Waste collection, transportation and disposal in Tukwila is governed by State and local regulations, an interlocal agreement with King County, and collection contracts with solid waste providers. Through a competitive ten-year contract with the City, as of November 1, 2023, Recology provides comprehensive garbage, recycling, and food and yard waste collection services to residential, multifamily, and commercial customers. Residential garbage collection is voluntary.

The City's solid waste is ultimately taken to King County's Cedar Hills Landfill for disposal. As part of the Solid Waste Interlocal Agreement (ILA) with King County, Tukwila and other parties will develop plans and alternatives to waste disposal at Cedar Hills Landfill in advance of its closure in 2038.

ELECTRIC POWER

Electric power involves both transmission systems and distribution systems. Tukwila's electric power is provided by Puget Sound Energy, with approximately 3,800 customers, and Seattle City Light, serving approximately 5,700 residential and 1,000 commercial customers in Tukwila. Both companies operate under non-exclusive franchise agreements with the City. See *Map U-4*.

Map U-4: Electrical Service Providers in Tukwila



Plans from both Seattle City Light and Puget Sound Energy place a priority on using energy conservation as a way to increase service capacity. Puget Sound Energy estimates that half of its long-term need for electric power can be met by energy efficiency and additional wind-power. The rest is likely to be met with added natural gas-fired resources. To meet future demand, some new transmission lines and substations will be built in Tukwila, and existing ones rebuilt and/or maintained. Distribution plans include line and station projects. Future distribution improvements will be required to meet the demands of Tukwila's projected growth. Seattle City Light's plans for future distribution capacity include additional feeder capacity that is expected to meet demand in Tukwila through the year 2031. Seattle City Light intends to meet electrical load growth through conservation and new generation resources powered by renewable energy.

NATURAL GAS

Puget Sound Energy, an investor-owned utility, builds, operates, and maintains natural gas facilities serving approximately 3,400 customers in Tukwila. Puget Sound Energy covers virtually all of Tukwila with their main distribution lines. The utility foresees no difficulties in meeting future demand during the planning period. No major improvement projects are planned at this time. For natural gas service areas in Tukwila, see *Map U-5*.

TELECOMMUNICATIONS

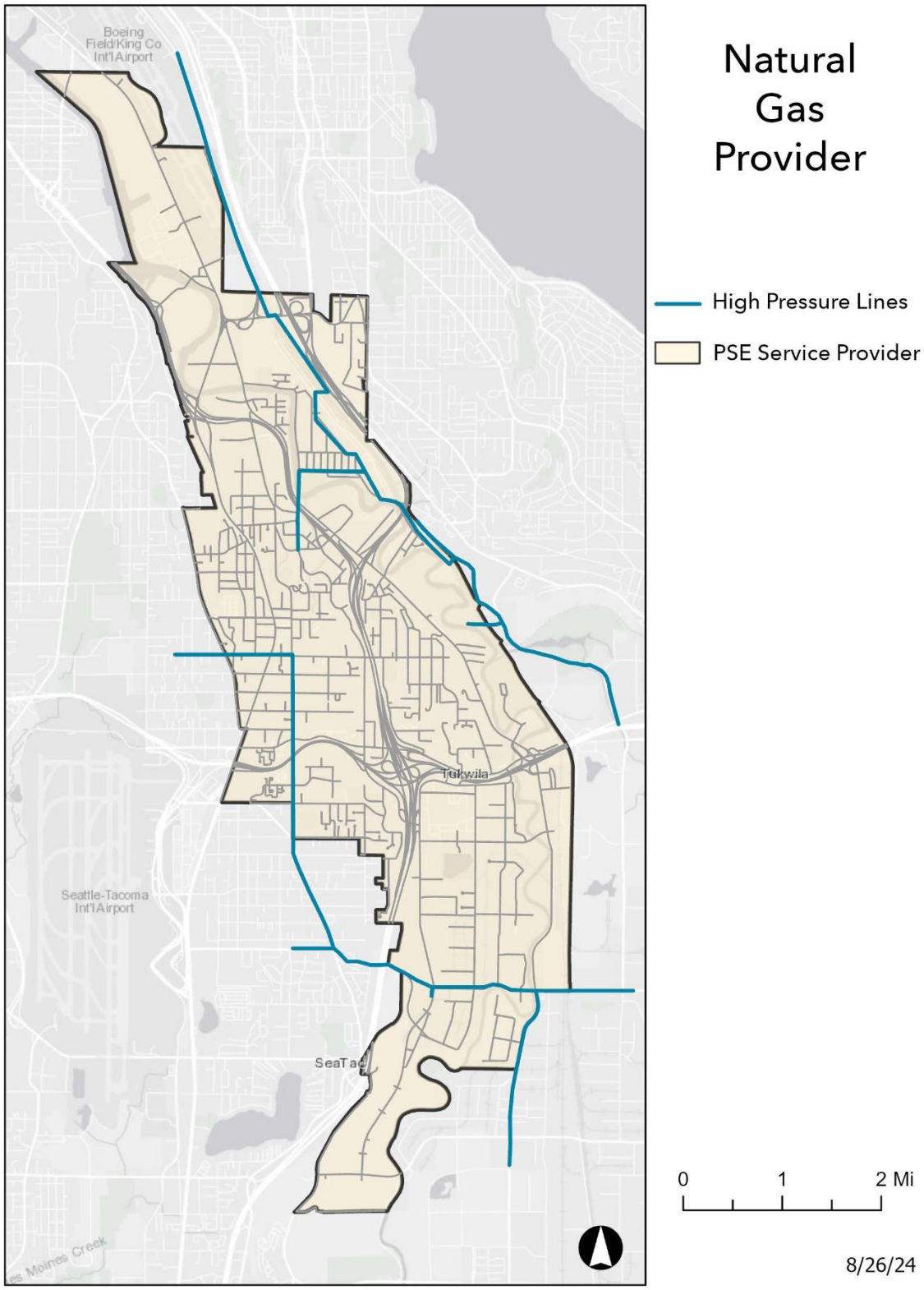
As telecommunications technologies have evolved, convergence of these technologies has occurred, resulting in multiple communication services migrating into consolidated networks.

Telecommunications in Tukwila includes both wired and wireless telephone services, cable and satellite television, and high-speed broadband technology. Through partnerships with franchised telecommunications companies, internal public works projects and completion of capital projects, the City has a robust conduit infrastructure that would enable and facilitate future fiber optic connectivity projects benefiting the City, its residents and businesses, and project partners. The City has joined a connectivity consortium of cities and other public partners that would construct and maintain a regional fiber-optic telecommunications system. This fiber-optic system would provide redundancies, enhance communications networks, and emergency operations.

CABLE AND SATELLITE TELEVISION

The City of Tukwila has a non-exclusive franchise agreement with Comcast Corporation to construct, operate and maintain a cable system in compliance with Federal Communications Commission (FCC) regulations. Comcast's network provides high-definition television capacity and high-speed internet access through cable modems and includes coaxial and fiber optic cabling systems deployed both underground and overhead using utility poles leased from power and telephone companies.

Map U-5: Natural Gas Providers in Tukwila



Satellite television competes directly with cable television by delivering hundreds of channels directly to mini-dishes installed in homes and businesses throughout Tukwila.

WIRELINE AND WIRELESS COMMUNICATIONS

Many companies offer telecommunications services including integrated voice and data, and voice over internet protocol (VoiP) technology. CenturyLink, the Incumbent Local Exchange Carrier (ILEC), is now joined by several Competitive Local Exchange Carriers (CLECs) in providing more communications service options to Tukwila residents and businesses.

With the expansion of telecommunications infrastructure, new technologies and competition, telecommunications utilities are expected to meet voice, video, and broadband demands during the planning period.

GOALS, POLICIES AND STRATEGIES

GOAL U-1 **Utility services and facilities that meet the community's current and future needs in a safe, reliable, efficient, economic, and environmentally responsible manner.**

➢ *POLICIES FOR CITY-MANAGED UTILITIES*

Service Extensions

Policy U-1.1 Ensure that the City of Tukwila utility functional plans and operations meet applicable federal, State, regional and county requirements and regulations to address health and safety requirements, address deficiencies, and assure quality of service.

Policy U-1.2 Require the use of Tukwila's applicable service standards to design and construct all utility service extensions.

Policy U-1.3 Base the extension and sizing of utility system components on applicable design standards and Comprehensive Plan development priorities.

Policy U-1.4 Ensure that new development, redevelopment, and other actions within the City of Tukwila's jurisdiction do not cause significant adverse upstream or downstream impacts on flooding, erosion, and natural resources within and outside of Tukwila's jurisdiction.

Coordination of Service Providers

Policy U-1.5 Coordinate with service providers for reliable and cost-effective utility services to the public.

Policy U-1.6 Coordinate with other jurisdictions and agencies in planning and implementing utility operations, facility additions and improvements located in or affecting multiple jurisdictions.

Policy U-1.7 Participate in the regulation of all water, sewer, and surface water utility services within the City's boundaries.

Policy U-1.8 Allow utility service outside City boundaries only when required by adjustments to City limits or to provide temporary service due to emergency.

Policy U-1.9 Establish and maintain franchises and working agreements with electricity, gas, sewer, and water utilities currently operating within the City limits, to ensure that the level of service provided is consistent with the City's requirements and revitalization plans.

Policy 1.10 Allow special-purpose sewer and water districts to continue to operate and serve Tukwila residents and businesses, when appropriate.

Concurrency and Implications for Growth

Policy U-1.11 Schedule and phase utility extensions to occur concurrently with expected growth and development.

Policy U-1.12 Approve development only if adequate utilities are available when a need is created for those facilities, or within a reasonable period as required by State law.

Equity

Policy U-1.13 Promote affordable and equitable access of public services, including drinking water and telecommunication infrastructure, to provide access to all communities, especially underserved communities.

Environmental Sustainability

Policy U-1.14 Provide environmentally sound and sustainable operations with cost-effective methods in water, sewer, and surface water management utilities operations.

Policy U-1.15 Make conservation and efficiency efforts an integral part of Tukwila's utility operations and management.

Policy U-1.16 Promote energy efficiency, conservation methods, and sustainable energy sources in utility operations to support climate change reduction goals.

Policy U-1.17 Consider Tukwila's Urban Forest together with other green stormwater infrastructure systems – during utility planning, design, installation and/or maintenance – to ensure that trees and water quality are protected.

Policy U-1.18 Require water reuse and reclamation, where feasible, especially for high-volume non-potable water users such as parks, schools, and golf courses.

Neighborhood and Sub-Area Vitality

Policy U-1.19 Give priority to the City's regional growth and manufacturing/industrial centers, while balancing the needs of residential neighborhoods for City-planned utility improvements and extensions.

Policy U-1.20 Design, construct, and maintain facilities to minimize impacts on adjacent neighborhoods and businesses.

Water Utility

Policy U-1.21 Actively participate in determining a regional solution to Tukwila's water supply and addressing the potential impacts of climate change and fisheries protection on regional water resources.

Policy U-1.22 Provide safe, reliably maintained, and sustainable water service for domestic, commercial, industrial, fire flow and water emergency uses, to meet present and future needs.

Sewer Utility

Policy U-1.23 Serve all existing and potential residences and businesses with a sewer utility.

Policy U-1.24 Replace failing septic systems within the City with sanitary sewers or alternative technology that is comparable or better.

Surface Water Utility

Policy U-1.25 Serve all of Tukwila's residences and businesses with a surface water utility.

Policy U-1.26 Provide capital, maintenance, education, and enforcement programs as a function of the surface water utility.

Policy U-1.27 Require low impact development techniques including green stormwater infrastructure for both development and redevelopment projects.

Policy U-1.28 Apply an adopted surface water design manual and all appendices as the minimum requirement for all development projects and other actions that could cause or worsen flooding, erosion, water quality and habitat problems, for both upstream and downstream development.

Policy U-1.29 Coordinate water quality improvement programs with adjoining jurisdictions whose surface waters flow into or through Tukwila.

Policy U-1.30 Use the Surface Water Fund to retrofit surface water systems to improve water quality, support forest conservation and restoration, restore aquatic and riparian habitat and enhance fish passage, by establishing:

- A water quality retrofit program that prioritizes projects based on need, benefit, and other criteria, and takes into account Washington Department of Ecology's expanded listing of impaired water bodies; and
- A Habitat restoration programs that restore aquatic and riparian habitats and remove fish barriers. Project priorities are based on habitat needs, benefits and other criteria and meet regulatory requirements.
- An urban canopy preservation program that emphasizes supports citywide canopy preservation policies and strategies.

Policy U-1.31 Encourage the retention and planting of trees for their beneficial effects on surface water runoff, including flow attenuation, water quality enhancements and temperature reduction including through the use of Green Stormwater Infrastructure, such as rain gardens.

UTILITIES NOT OPERATED BY THE CITY

Aside from water, sewer and surface water management, most utilities serving the residents of Tukwila are not owned or operated by the City. While the City can provide input on planning efforts for these utilities, it does not directly control service rates or the exact location of new infrastructure.

Private utilities are required to obtain any City permits necessary to operate or install infrastructure within the City and must comply with all applicable City and State regulations.

Image Source: Puget Sound Energy

➢ *POLICIES FOR NON-CITY-OWNED UTILITIES*

Non-City-owned utilities develop strategic and operational plans with varying degrees of input and involvement from the City. They set capacity and service levels on an area-wide basis and rely on the local government's involvement to ensure that capacity is sufficient.

As a condition of applying for a permit, new development that uses non-City owned water and sewer utilities is required to obtain a letter of service availability. This letter establishes that utility service meeting City standards is either available or will be available prior to occupancy.

The electric power and natural gas utilities project adequate capacity during the 20-year planning period, assuming responsible use of these resources. Electric utility capacity is set regionally, with Tukwila's needs determined and provided for as part of an area-wide system. Similarly, natural gas is provided via a regional delivery system.

With new technologies, telecommunications utilities project virtually limitless capacity within the planning horizon.

Through long-term Interlocal Agreements (ILAs), the solid waste system will continue to be upgraded to meet Tukwila's current and future needs. The Cedar Hills Landfill expects to reach full capacity in 2025. The current ILA that expires in 2040 addresses the process that cities and King County will follow to develop disposal options prior to Cedar Hills Landfill reaching its full capacity. Tukwila and other suburban cities participate in planning and contribute to reaching regional goals via their recycling and waste reduction strategies and practices.

General Policies

Policy U-1.32 Actively coordinate project implementation with individual utilities, based on Tukwila's Comprehensive Plan and development regulations.

Policy U-1.33 Require new development that uses non-City-owned water and sewer utilities to obtain a letter of service availability as a condition of receiving a Tukwila permit.

Policy U-1.34 Require utilities operating in the right-of-way to obtain a franchise that includes service levels and requirements meeting Comprehensive Plan forecasts and other applicable federal, State, and local regulations.

Policy U-1.35 Encourage utilities to consolidate facilities, use existing transportation corridors, and minimize visual impacts of facilities, where technically feasible.

Policy U-1.36 Encourage communication between the City of Tukwila, the Washington Utilities and Transportation Commission, and the utilities regarding cost distribution and rate-setting for existing and proposed facilities and services.

Policy U-1.37 All new electrical and communication facilities shall be constructed underground, unless specifically exempted by the Tukwila Municipal Code or determined by the City Council to be financially impractical.

Policy U-1.38 If a utility relocation is required by a public works project – such as a street widening project, utility repairs or upgrades – or any major replacement of aerial facilities, the relocated/replaced facilities shall be underground, unless the City determines that doing so is not in the best interest of the public.

Policy U-1.39 Recognize and support agreements with water purveyors to promote effective conveyance of water supplies and secure adequate supplies for emergencies.

Telecommunications

Policy U-1.40 Provide telecommunication infrastructure to serve growth and development in a manner consistent with Tukwila's vision, as outlined in the Comprehensive Plan.

Policy U-1.41 Encourage the equitable provision of telecommunication infrastructure and affordable, convenient, and reliable broadband internet access to businesses, and households of all income levels, with a focus on underserved areas.

Solid Waste Management

Policy U-1.42 Reduce the solid waste stream and encourage reuse and recycling.

Policy U-1.43 Maintain a comprehensive solid waste management program that includes environmental responsibility and sustainability, competitive rates, and customer service excellence for Tukwila's residential, multifamily, and commercial customers.

Policy U-1.44 As current franchise agreements expire in areas annexed to the City, provide waste management services that are consistent with that provided to other areas of the City.

Policy U-1.45 Encourage and actively participate in a uniform regional approach to solid waste management.

Policy U-1.46 Allow for the future siting of organic waste materials facilities in coordination with the City's Solid Waste provider and King County, consistent with RCW 70A205.040(3). Such facilities shall be considered "essential public facilities", and the City shall engage with area jurisdictions and agencies in the siting decision.

Electric and Gas Utility

Policy U-1.47 Reduce the rate of energy consumption and use efficiency and conservation as a means to lower energy costs and mitigate environmental impacts associated with traditional energy supplies.

Policy U-1.48 Promote use of renewable and alternative energy resources to help meet long-term energy needs, reduce environmental impacts associated with traditional energy supplies, and increase community sustainability.

Policy U-1.49 Ensure that development regulations are consistent with and do not otherwise impair fulfilling public service and other obligations imposed by federal and State law.

Policy U-1.50 Actively support the greenhouse gas reduction policies pertaining to utilities described in the Natural Environment Element of this Comprehensive Plan (*The locations of these policies will be listed during final formatting*).

RELATED INFORMATION

Utilities Background Report
Tukwila Water Plan
Tukwila Sewer Plan
Tukwila Surface Water Plan
Tukwila Capital Improvement Program (CIP)
Valley View Sewer District
City of Renton Utilities: Water Utility Plan
City of Seattle (Water, Sewer)
Highline Water District
King County Water District #125
King County Water District #20
Puget Sound Energy (Electric, Natural Gas)
Seattle City Light
Recology

Capital Facilities

WHAT YOU WILL FIND IN THIS CHAPTER:

- A description of how and why capital facilities are planned;
- A discussion of the funding methods and challenges facing the City; and
- Goals and Policies for providing adequate levels of service.

PURPOSE

Growth Management Act Capital Facility Planning Requirements

This element of the Comprehensive Plan presents the goals and policies for Tukwila's Capital Facilities. Capital Facilities Planning under the Growth Management Act (GMA) requires an inventory of public facilities and their capacities; establishment of a minimum acceptable level of service for the community; a list of needed capital projects to serve growth and that maintain the adopted standards; a realistic financing plan; and stipulation that adjustment of the Plan will occur if funding is inadequate or if growth requires previously unanticipated expansion.

In Tukwila, Capital Facilities are defined as including structures, streets, land, parks, major equipment, and other infrastructure necessary for both general government and enterprise funds, and that are usually amortized over a long period of time.

In adopting its Comprehensive Plan and the supporting documents, Tukwila makes a commitment that the land use intensities and pattern of uses are appropriate for the community and that its adopted levels of service will be met and maintained.

WHY PLAN FOR CAPITAL FACILITIES?

Under GMA, the City is required to include a capital facilities element in its Comprehensive Plan. The Capital Facilities Element and associated Capital Facilities Plan describe how public services will be provided and financed. Capital facilities planning also helps the City manage limited funds, provide the greatest value to City residents and take full advantage of available funding opportunities.

WHAT IS CONCURRENCY?

"Concurrency" exists when adequate public facilities or services are in place to serve new development. Specifically pertaining to streets and utilities in Tukwila, concurrency requirements are intended to prevent new development from outpacing Tukwila's ability to provide the improvements that are needed to serve the new development. New development's infrastructure demands can result in congestion or overcrowding that will impact new and existing residents alike, if improvements are not made in time. Concurrency is often referred to as a pass-or-fail test for a new development.

The GMA Capital Facilities Plan for Tukwila consists of:

1. The Comprehensive Plan Capital Facilities goals and policies;
2. The Capital Facilities Element Background Report, which contains a discussion of the City's growth targets for the Comprehensive Plan's planning period to 2044;
3. The City's Capital Improvement Program/Financial Planning Model (CIP/FPM), which includes projects for the six-year period and projects to address community needs and maintain standards to 2044. The Comprehensive Plan's goals cannot be carried out unless the supporting infrastructure can be financed. The CIP/FPM addresses how specific projects and facilities will be financed, and provides a current assessment of the City's financial capacities and limitations; and
4. The systems plans and their regular updates, such as the Puget Sound Regional Fire Authority Capital Facilities Plan; the Parks, Recreation and Open Space Plan; the Surface Water Comprehensive Plan; the Water Plan; the Sewer Plan; and the Transportation Plan; all of which are adopted by reference as part of this Comprehensive Plan.

Concurrency

A key concept of the GMA and capital facilities planning is concurrency – that specific public facilities will be available when the impacts of development occur or within ten years of the development for transportation. Concurrency in Tukwila is supported through policy and systems planning and implemented in current regulations. Tukwila implements concurrency on water delivery, sewer collection, and transportation facilities.

Tukwila's public facility needs are served not only by City facilities but also by regional agencies such as the Washington State Department of Transportation, Sound Transit, King County, and the Port of Seattle; and by special purpose districts such as Tukwila and Renton School Districts, King County Library System, and the King County Flood Control, Valley View Sewer, Highline Water, and the Metropolitan Park Districts. (See also the Utilities Element.) In addition to maintaining adequate levels of service on City-provided facilities, the City of Tukwila must coordinate with these special purpose districts and regional providers on Tukwila's growth and land use planning.

Capital Facility Planning in Tukwila

Capital facilities planning in Tukwila is separated into two categories:

- Capital Project Funds which include funds for general capital needs such as residential streets, arterials, buildings, parks and trails, and other improvements.

- Enterprise Funds, which include funds for which fees are received in exchange for specific goods and services. In Tukwila these include water, sewer, surface water, and the Foster Golf Course.

General Government Facilities

General government facilities are designed, built, and operated for the general public, unlike enterprise funds, which serve specific fee-paying customers. Any person may drive on City streets, walk on a trail, play in a City park, be served by fire and emergency aid, etc.

Tukwila does capital improvement planning by organizing its general government facilities needs into similar programmatic categories, which are referred to as funds. There are four categories of funds, which illustrate the focus of the City's capital planning and spending. All phases of a capital project are included in capital planning, from plan and project development, preliminary engineering, right-of-way acquisition, permitting, construction engineering, to construction.

- The Residential Streets Program is specifically identified for street improvement in residential neighborhoods, and includes lane widening, curbs and gutters, sidewalks, illumination, and utilities undergrounding. Funding for the program's projects is primarily through City General revenues, grants, and motor vehicle excise tax.

- The Bridges and Arterial Streets Program is designed to improve mobility within the City and to correct deficiencies in arterial streets and traffic operations and is the largest category of spending in the City's Capital Facilities Plan. The dollar size for the current six-year list of projects is ten times larger than any of the other City program funds. It also complements the City's Transportation Improvement Program, which is a State requirement. Expenses supported through this fund include transportation planning, sidewalks, new streets, traffic control devices, nonmotorized improvements, and lane additions.

In addition to City General revenues, projects in this program are paid for with grants, real estate excise tax, motor vehicle excise tax, parking tax, developer funds, local improvement district funds, and impact fees.

- The Parks and Trails Program supports the acquisition and development of land for parks and recreational facilities, including the planning and design costs associated with the projects. Dollars to pay for these projects come from City funds, grants, real estate excise tax, excess property tax levy, and impact fees.

- The Fire Improvements Program collects fire impact fees, which are directed to the Regional Fire Agency for major capital expenses.

General government sources of revenue for capital expenditures and allocation percentages by funding category are illustrated in Figure 14-1.

[image]

Figure 14-1: General government sources of capital revenue and expenditures by capital improvement programming categories

Enterprise Facilities Funds

Enterprise Funds are supported by revenues generated by user fees and charges. Grants and developer contributions supplement the Water, Sewer and Surface Water Funds, and the Foster Golf Course is self-supporting. Enterprise funds are used by public agencies to account for operations that are financed and operated in a manner similar to private business enterprises. They are established as fully self-supporting operations with revenues

provided primarily from fees, charges, or contracts for services, and require periodic determination of revenues earned, expenses incurred, and net income for capital maintenance, public policy, management control and accountability.

In order to provide for the short-term and long-term operating and capital needs of the water, surface water and sewer utilities, the City evaluates and utilizes a combination of revenue sources such as utility rates, bonds, loans, grants, developer contributions, Public Works Trust Fund loans, and local improvement districts (LIDs). An example of enterprise capital sources of funds and expenditures is illustrated in Figure 14-2.

[Graphic]

Figure 14-2: Enterprise capital sources of funds and expenditures.

Water and Sewer Funds
Slightly more than 50 percent of the area of the City is served by Tukwila Water and Sewer Utilities. With respect to sewer service, the remainder of the City is either not served or served by other districts. In order to provide infrastructure in the unserved portions of the City, additional revenue is needed in order to extend service to these areas. Available revenue sources include local improvement districts, grants, Trust Fund loans, rate increases, customer contributions, and general fund loans or transfers.

Surface Water Fund
This fund accounts for operations and capital improvements for the management of the City's storm drainage system and surface waters, including stormwater, flood hazard management and habitat restoration projects as well as the City's NPDES pollution prevention program. Surface Water capital projects are required to correct deficiencies and to meet federal, State, and local laws and priorities. Required infrastructure is paid for by developers, local improvement districts, and grants, but the largest fund contribution comes from the utility's ratepayers.

Foster Golf Course
This is a publicly-owned facility funded by operating revenues, primarily user fees but also general obligation bonds, Councilmanic bonds, and transfers in from the General Fund. The City has chosen to account for the Golf Course as an enterprise fund for a number of reasons. Enterprise funds may be used to report any activity for which a fee is charged to users for goods or services, and the enterprise fund structure provides transparent accounting of costs and revenues. The Golf Course is expected to meet its capital and operating needs over the 20-year planning period, and to maintain a rate structure competitive with nearby municipal courses. Capital improvements will be funded from the above-mentioned revenues. The Golf Course Enterprise Fund accounts for operation, maintenance, and improvements of the municipal golf facility. The difference between the Golf Course Enterprise Fund and other utility enterprise funds is that the Golf Fund serves voluntary customers as opposed to the users of the water, sewer, and surface water funds, who have no choice in service provider.

Relationship To Other Plans
Capital facility planning is related to a variety of other long-range, sub-area and system plans adopted by the City. Figure 14-3 illustrates how these various plans are interrelated.

[Graphic]

Figure 14-3: Relationship of Adopted City of Tukwila Planning Documents

ISSUES

The following issues are based upon City experiences as well as from likely events that could impact Tukwila's ability to pay for its future.

Decreases in Capital Spending
Figure 14-4 shows 10 years in operations and maintenance spending versus capital spending. There is a trend line that shows the increasing percentage of City revenues being spent on operations and maintenance, and less on capital. In addition, capital projects are being funded by dedicated revenue sources rather than general operating revenues.

External Forces Reducing Available Local Revenues
The Washington State legislature capped the growth of property tax revenue to no more than one percent over the previous years' revenues or Implicit Price Deflator (IPD), whichever is lower. The 1% property tax limitation is still the most revenue restrictive element of the general revenue base. Accordingly, other revenue categories must make up the difference in order to achieve the overall 3% revenue growth target.

[Graphic]

Figure 14-4: Operations vs. Capital Spending Trend (2003-2012).

Sales tax is the City's largest revenue source. The pandemic that started in early 2020 caused businesses to close for a few months in the spring 2020. Businesses slowly reopened throughout the summer months but the effects of businesses being closed significantly reduced this revenue stream. While sales tax revenue has returned to pre-pandemic levels, increases have not kept pace with inflation resulting in ongoing expenditures rising faster than ongoing revenues. Retail sales tax from construction activity is expected to remain relatively strong as a number of projects are in the pipeline. Additionally, the Washington State Legislature ended the payment of Streamlined Sales and Use Tax Agreement mitigation payments to cities hard-hit by destination-based sales tax. The mitigation payments decline each year and are scheduled to end in 2026.

WHAT ARE SPECIAL PURPOSE DISTRICTS?
Special Purpose Districts can be created to provide a new service or a higher level of service than is currently available. Special Purpose Districts can be established for a variety of purposes, such as agriculture, economic development, education, parks, or environmental protection. Special Purpose Districts may collect funds within their boundaries to provide services related to their stated purpose, though funding mechanisms (property tax, fees, etc.) vary by district.

Levying New Taxes and Fees

There are several ways that the Tukwila community has been able to compensate for the decrease in revenues. Beginning in 2006, the City instituted a Utility Tax, which applies to electric, natural gas and communication sales. The City enacted a solid waste utility tax in 2009 to address revenue shortfalls in certain areas and unexpected costs in other areas. Utility tax revenues have remained fairly level over the past several years but took a dip in 2020 due to businesses being closed for a few months. Increases of up to 2.4% are expected in 2023 but, due to conservation efforts and changes in consumer behavior, no growth is projected for 2024. The City enacted a business license fee in 2010 which currently is expected to generate revenues exceeding $3.2 million per year.

In order to continue to provide the same high-level of services in the next biennium and in the out years, it will be necessary for the City to implement a new revenue stream. The Council approved a modest business and occupation (B&O) tax to take effect in January 2024. The tax is levied on businesses that exceed $750 thousand annual gross revenue. In addition to maintaining the current level of service, this new revenue source will allow the City to hire frozen commissioned officer police positions within the Police Department.

Real Estate Excise Tax (REET)

Real Estate Excise Tax (REET) is levied on the sales of real property. The tax is calculated based on the selling price, including the amount of any liens, mortgages, and other debts given to secure the purchase. The tax is due at the time of sale and is collected by the County at the time of recording. The City of Tukwila imposes a 0.25% real estate excise tax-known as REET1 or the “first quarter percent” and an additional 0.25% REET2 tax on the “second quarter percent” with such proceeds to be used primarily for capital projects and limited maintenance.

Creating More Special Purpose Districts

Forming special purpose districts allows the community to collect additional money for specific needs, such as for parks. In 2011, a Metropolitan Park District was created with coterminous boundaries with the City of Tukwila, in order to sustain the operation of the Tukwila Pool. Beginning in 2013, Tukwila property owners began paying an additional 15 cents per $1,000 of assessed valuation.

[Graphic]

Levee repair at Lilly Point

Preparing for Disasters and Emergencies
The effects of climate change can be felt throughout the Puget Sound region and can be categorized into six categories: temperature, precipitation, sea level rise, vegetation change, ocean acidification and slope stability. We have witnessed first-hand temperatures rising, and patterns of rain and drought changing. Flooding events will occur with greater frequency, water levels will rise, and more droughts will occur. Tukwila is already experiencing more severe weather impacts due to climate change and the opportunity for flooding to occur more often. A significant water feature of the City is the Duwamish/Green River and its tributaries.

Property owners of the City pay taxes to the King County Flood Control District which manages the levee system along the Green/Duwamish River. The primary levee located with Tukwila is the Tukwila 205 Levee which mitigates flood risks to both residents and businesses along the Lower Green River. The Tukwila 205 Levee is a 4.3-mile levee located along the left bank of the Green River from the southern boundary of the city extending to I-405. Over the course of the next 25 years the city in conjunction with the King County Flood Control District is rebuilding this entire levee system to provide 500-year level of flood protection plus 3 feet of freeboard. There are other smaller levees and revetments found throughout Tukwila along the Green/Duwamish River that mitigate flooding risks. The 205 levee is a prioritized project in the Regional Hazard Mitigation Plan.

Tukwila is located in a seismic zone and is vulnerable to earthquake or a hazardous substance release. As one of the responsible public service entities, the ability to support the community after such an event is paramount. The location and condition of the City's infrastructure to withstand significant catastrophes, and the presence of a reserve to pay for unexpected events, must be included in the City's capital planning. The city is in compliance with all regulations to be eligible for federal and state reimbursement if it experiences a Presidential Declared Disaster.

GOALS AND POLICIES

These policies are intended to ensure the availability of financing to accomplish the goals expressed here and in the other elements of the Comprehensive Plan over the next 20 years.

GOAL CF-1 **Public facilities and services that reflect desired levels of quality, address past deficiencies, and anticipate the needs of growth through acceptable levels of service, prudent use of fiscal resources, and realistic timelines.**

General Policies

Policy CF-1.1 The City shall use non-capital and regionally-shared capital options to meet its public facility needs when there are financial or economies of scale to be gained.

Policy CF-1.2 The City's management of its capital facilities shall follow this order:

1. Regular inspection of systems for evaluation and to ensure conformity with current safety standards;
2. Prioritizing projects when making improvements, if the public health and safety is at risk;
3. Preventive maintenance and cost-effective replacement of aging elements; and
4. Planning for the orderly extension and upgrading of capital systems to accommodate future growth

Policy CF-1.3 Projects listed to be initiated during the 7–20 year time frame shall be generally described, estimated, and evaluated using Comprehensive Plan goals. Projects in the six-year CIP/FPM shall include a progressively more detailed description, project budget, anticipated funding sources, and projected expenses).

Policy CF-1.4 The City shall ensure that transportation capital facilities are provided within a maximum of six years of the occurrence of impacts that will degrade adopted level of services standards.

Policy CF-1.5 Dedicated funding for building needs shall be included in the CIP/FPM.

Policy CF-1.6 Continue to fund the correction of residential neighborhood infrastructure deficiencies, including transportation, surface water, sewer and water, through interfund loans or general fund transfers, in order to address emergency and public health and safety issues.

Policy CF-1.7 No capital improvement projects located outside the city limits shall be approved without specific City Council approval.

Paying For Facilities

Policy CF-1.8 If the City determines that the public's health, safety, and welfare will be benefited, or if funding is available through external sources such as development or grant funds, the City may allocate funding for preliminary engineering and design of commercial and residential street projects.

Policy CF-1.9 Late-comer agreements shall be considered an acceptable means of funding capital projects, improvements, and replacements, in whole or in part when requested by a developer.

Policy CF-1.10 The City shall initiate property negotiations in all projects with a request for donation of the property needed for rights-of-way and easements.

Policy CF-1.11 Arterial street improvements listed in the six-year CIP/FPM may be funded through an LID or financing external to the City. The City may use operating revenues, grants, or bonds, based on health and safety needs or public benefit.

Policy CF-1.12 The City may consider paying for local improvement district formation costs in addition to the preliminary and construction engineering costs, in order to provide a more-timely option for residential street improvements.

Policy CF-1.13 The City shall, whenever practical and advantageous, apply for grants, loans, or other external financing sources. Grant applications for capital facilities shall be made:

- Only for projects listed in the CIP/FPM, and
- After City Council approval.

Policy CF-1.14 Transportation, fire, and parks impact fees shall be collected so that "growth may pay for growth" and growth-caused improvements may be constructed.

Policy CF-1.15 Impact fees shall be adjusted periodically based upon an appropriate capital cost index and/or other relevant data, to ensure that the fees reflect the cost of planned system improvements related to growth and shall be subject to City Council approval.

Policy CF-1.16 The City shall consider issuance of bonds for facilities, if repayment can be made from revenue allocations and if it is more cost-effective.

Policy CF-1.17 Non-transportation and non-utility capital projects and improvements (i.e., parks, trails, City offices) shall be funded by general revenues, impact fees, grants, or bonds as determined in the biennial CIP/FPM review process.

Facility Construction – Prioritizing, Site Selection, and Design

Policy CF-1.18 Provide affordable and equitable access to public services to all communities, especially the historically underserved. Prioritize investments to address disparities.

Policy CF-1.19 Capital improvements shall be coordinated, whenever feasible, with related improvements by other jurisdictions.

Policy CF-1.20 Transportation improvements shall be coordinated with related improvements such as utility, landscaping, sidewalks, etc.

Policy CF-1.21 Capital facility projects shall be prioritized using Comprehensive Plan and Strategic Plan goals and policies.

Policy CF-1.22 Prioritize the selection, design, and construction of capital facility projects using consideration of how these choices reduce greenhouse gas emissions (GHG) and support state, regional, and local GHG reduction goals.

Policy CF-1.23 Prioritize capital facility decisions that require and expand the use of conservation, alternative energy sources, and energy management technology.

Policy CF-1.24 Support coordinated planning for public safety services and programs, including emergency management, in partnership with communities that have disproportionately carried the burden of harm from social, or political disenfranchisement.

Policy CF-1.25 Establish new or expanded sites for public facilities, utilities, and infrastructure in a manner that ensures disaster resiliency and public service recovery.

Financial Planning and Plan Maintenance

Policy CF-1.26 Capital planning decisions shall be linked to City-wide goals, by tracking actual growth patterns and evaluating growth targets and level-of-service standards.

Policy CF-1.27 The CIP/FPM shall be updated biennially and include reviews of forecasts and actual growth, revenue, and cost totals.

Policy CF-1.28 Capital Facility policies shall be reviewed biennially during revisions to the CIP/FPM. Desirable changes shall be implemented during the annual Comprehensive Plan amendment process.

Policy CF-1.29 Policies and practices of sound governmental budgeting and accounting principles, revenue diversity, and promoting the economic well-being of the City shall be used, in order to maintain an AA bond rating or better for the City.

Policy CF-1.30 In the event that anticipated funding falls short of meeting existing and/or anticipated needs, the City shall reassess and revise the following, as needed:

- Funding alternatives; and/or
- The level of service standards of the City.

Enterprise Funds Policies

Policy CF-1.31 Utility rates and charges shall be structured to ensure adequate infrastructure development, in addition to compliance with operation, maintenance, and federal and State requirements.

Policy CF-1.32 Adequate reserved working capital balances shall be maintained for each enterprise fund's annual expenditures. The fund balance for enterprise funds, at the close of each fiscal year, shall equal or exceed 20% of the previous year's revenue, exclusive of significant non-operating, non-recurring revenues such as real estate sales, transfers in from other funds, or debt proceeds.

Policy CF-1.33 Rate increases shall be small, applied frequently, and staggered to avoid an overly burdensome increase and undue impact in any given year.

Policy CF-1.34 Each enterprise fund shall be reviewed at least biennially and shall have a rate structure adequate to meet its operations and maintenance and long-term capital requirements.

Policy CF-1.35 Rate increases of external agencies (i.e., King County secondary wastewater treatment fees) shall be passed through to the users of the utility.

Policy CF-1.36 For safety and health reasons, the City shall provide sewers to all residential and commercial areas in the City's service area by using a combination of operating revenues, grants, loans, bonds, voluntary local improvement district formations, and/or interfund loans.

Policy CF-1.37 Interfund loans shall be permissible if practical. Interest rates shall be computed based on the discounted market rate that is based on the US Treasury note rate(s) corresponding to the term of the loan, in order to adequately compensate the loaning fund.

Policy CF-1.38 When there is a general long-term benefit to the respective enterprise fund and its customers, the City shall use bonded indebtedness as a funding alternative.

Level-of-Service Standards

Policy CF-1.39 Sufficient system capacity for surface water, water, sewer, and transportation is required prior to approval of any new development. (Standards for surface water, water and sewer are codified in the City's Municipal Code, and the transportation standards are in the Transportation Element of this Plan.) New development must pass the concurrency tests before development may be permitted.

Policy CF-1.40 The City shall monitor the capacity and maintain the water, sewer, surface water, and transportation systems at the adopted standards.

GOAL CF-2 **A Capital Improvement Program and facility designs that meet the broad spectrum of the City's human needs, rather than just traditional needs such as vehicular and pedestrian circulation, drinking water distribution, and sewage collection.**

Policy CF-2.1 The City shall recognize and provide for multiple purposes and functions of all City facilities and, where possible, incorporate the needs of the individual within the design.

Policy CF-2.2 The design of infrastructure improvements shall include conservation of resources, such as water reuse and energy-efficient electric fixtures, and the use of local power generation.

Policy CF-2.3 The design and location of infrastructure improvement shall consider the impact of climate change, environmental justice, seismic occurrence, flood risk, and maintaining the ability to serve the community in the event of a natural or other disaster.

Policy CF-2.4 Minimizing the costs of maintaining, operating, and other life cycle costs shall be used as a criterion in the design and funding for any capital facility.

Policy CF-2.5 The design and construction of capital projects shall:

- Use best practices for constructing in accordance with crime prevention through environmental design;
- Create high-quality built places that, as appropriate, are accessible to all;
- Have a strong landscape component;
- Maximize environmental and economic benefits;
- Minimize environmental impacts; and
- Promote public health by providing opportunities for safe and convenient daily physical activity.

Policy CF-2.6 Throughout the City, the focus of capital investments shall be on creating a connected, dynamic urban environment.

Policy CF-2.7 The City, both acting on its own or in coordination with flood protection partners, shall seek, design, and implement flood hazard reduction projects, that are long-term and low-maintenance flood hazard management solutions that meet multiple objectives, such as flood hazard protection, flood storage, water quality, recreation and habitat restoration.

Policy CF-2.8 Reduce the solid waste stream and encourage reuse and recycling.

GOAL CF-3.1 **The Green River levee system is constructed, maintained and certified to meet the accreditation standards of the Federal Emergency Management Administration and the City's Shoreline Master Program**.

Policy CF-3.2 Coordinate with King County Flood Control District and the U.S. Army Corps of Engineers to inspect and maintain the City's levee system and determine if it adequately protects the City in the face of increased flood events associated with Climate Change.

Policy CF-3.3 Restrict levee encroachments by adjacent property owners.

Policy CF-3.3 Continue to work with the U.S. Army Corps of Engineers to develop levee vegetation policies for the Green River levee system that enhance the ecosystem by providing shade and improving fish habitat, while at the same time protecting public safety and reducing long-term maintenance needs and costs.

Policy CF-3.4 Coordinate with the City of Kent on flood control projects and climate impact studies that affect both jurisdictions, while complying with Tukwila's Shoreline Master Program.

RELATED INFORMATION

Capital Facilities Element Background Report
Capital Improvement Program/Financial Planning Model (CIP/FPM)
Fire Master Plan
Parks, Recreation and Open Space Plan
Surface Water Plan
Water Plan
Sewer Plan
Transportation Background Report

TUKWILA COMPREHENSIVE PLAN

Background Reports

Land Use

Housing

Natural Environment

Parks, Recreation, and Open Space

Transportation

Utilities

Capital Facilities

Tukwila Land Use Background Report

Section 1 – Planning Context

Tukwila boasts a great diversity of natural features and built form across the approximately 9.6 square miles of areas with the City limits. In the interest of supplying adequate and affordable housing, ample, and well-paying jobs and an enjoyable, healthy environment to live and interact within, the City designates comprehensive plan and zoning designations to encourage the types of uses and forms of development and redevelopment that will achieve these aims.

The Land Use Element frames existing conditions, regional framework, including growth targets, and other considerations for how and where the City grows.

According to the United States Census Bureau, Tukwila has a total area of 9.60 square miles (6,144 acres), of which 9.19 square miles (5,881.6 acres) is land and 0.41 square miles (1.06 km^2) is water. The amount of zoned land, excluding areas of right-of-way, water, or certain utility corridors, totals approximately 7.66 square miles, as reflected in Table 4. In 2020, the City's population per square mile was 2,373.2.

Land Capacity

The development and adoption of the King County Urban Growth Capacity Report precedes the periodic update of the comprehensive plan, determining capacity for additional net housing units and employment (jobs) within each King County jurisdiction. Data used to determine capacity included the quantity and type of development that occurred from 2006 through 2018. Table 1 below details the housing and employment capacity reported for the City between 2019 and 2044.

Table 1. Growth Capacity

		Total Capacity
Housing Units	Growth Capacity (adjusted since 2019)	5,577
	Pipeline Units (as of 2023)	2,642
	Total	**8,219**
Employment (Jobs)	Growth Capacity	30,675
	Pipeline Jobs (as of 2023)	3,074
	Total	**33,749**

Source: King County Urban Growth Capacity Report, 2021, and the City of Tukwila

Pipeline units and jobs included in capacity have largely not come to fruition, with the exception of some housing units as further detailed in the Housing Background Report. Even without the actualization of pipeline units and jobs, the City has adequate capacity to achieve housing and employment growth targets.

Growth Targets

Consistent with the Growth Management Act, the City has been assigned growth targets for both additional employment (jobs) and housing units for the period between 2019 and 2044.

Table 2. Tukwila Housing and Job Targets

	2018 Baseline	Additional Unit/ Job Target	2044 Total Target
Housing (Units)	7,954	6,500	14,454
Employment (Jobs)	47,148	15,890	63,074

Source: King County Urban Growth Capacity Report, 2021, OFM, and PSRC

From 2019 to present, the City has seen significant housing growth reducing the total number of housing units needed to achieve the housing growth target by 2044, detailed further in the Housing Element and Housing Background Report.

Reasonable Measures

Due to Tukwila's low housing and employment growth rate compared to the target rates and number of new housing units and jobs achieved, the City was recommended to adopt reasonable measures by King County to address this inconsistency. Specifically, King County recommends adopting "Action(s) to encourage and / or incentivize residential development", and "Action(s) to encourage and / or incentivize non-residential development".

Policies and implementation strategies related to increasing residential and non-residential development can be found within the Housing and Economic Development Element and associated materials.

Comprehensive Plan Designations

Comprehensive Plan Designations provide general direction for desired land uses in the designation or anticipated in future development in the designation over the planning period. Zoning Districts should correspond with Comprehensive Plan Designations when areas are redesignated as a new Zoning District.

Descriptions of Comprehensive Plan Designations are below and the corresponding zoning classifications for each designation can be found in Table 3.

Residential

- Community Residential (CR) designated areas are characterized by a variety of low and medium-density housing types including but not limited to single-family, duplexes,

triplexes, fourplexes, townhomes, cottage housing, courtyard apartments, accessory housing units, and their accessory uses, along with educational, institutional, and recreational uses. These uses and densities are modified where covered by the Commercial Redevelopment and Urban Renewal Overlays.

- High Density Residential (HDR) designated areas are characterized by larger and higher density multi-family buildings and their accessory uses, along with educational, institutional, and recreational uses. These uses and densities are modified where covered by the Commercial Redevelopment and Urban Renewal Overlays.

Commercial

- Office (O) designated areas are characterized by professional and commercial office structures mixed with retail.

Mixed Use

- Mixed Use Office (MUO) designated areas are characterized by professional and commercial office structures, mixed with retail and residential uses. These uses and densities are modified where covered by the Tukwila South Overlay.
- Neighborhood Commercial Center (NCC) designated areas are areas characterized and scaled to serve multiple residential areas with a diverse mix of uses. Uses include commercial; residential, including senior citizen housing; retail; service; office; and recreational and community facilities, generally along a transportation corridor. These uses are modified where covered by the Urban Renewal Overlay.
- Residential Commercial Center (RCC) designated areas are pedestrian-friendly areas characterized and scaled to serve a local neighborhood, with a diverse mix of uses. Uses include certain commercial; residential; retail; service; office; and recreational and community facilities.
- Regional Commercial (RC) designated areas are characterized by residential, mixed use, commercial services, offices, lodging, entertainment, and retail activities.
- Regional Commercial Mixed-Use (RCM) designated areas are areas characterized by commercial services, offices, lodging, entertainment, retail activities and associated warehousing, and certain accessory light industrial uses. Residential uses mixed with certain commercial uses are also allowed.

- The Tukwila Urban Center (TUC) designated Southcenter Urban Center subarea is intended to develop as a high-density, regionally-oriented, mixed-use center. Residential development is encouraged in proximity to water amenities, or within walking distance of the Sounder commuter rail/Amtrak station or the bus transit center. It contains five sub-districts differentiated through uses and development standards: Regional Center (RC), Transit-Oriented Development (TOD), Pond (P), Commercial Corridor (CC), and Workplace (WP).
- The Tukwila Valley South (TVS) designated areas are characterized by high-intensity regional uses that include commercial services, offices, light industry, warehousing and retail, with heavy industrial subject to a Conditional Use Permit. Mixed-use residential is conditionally permitted within 500 feet of the Green River. These uses and densities are modified where covered by the Tukwila South Overlay.

Industrial

- Commercial/Light Industrial (C/LI) designated areas are characterized by a mix of commercial, office or light industrial uses.
- Light Industrial (LI) designated areas are characterized by distributive and light manufacturing uses, with supportive commercial and office uses.
- Heavy Industrial (HI) designated areas characterized by heavy or bulk manufacturing uses and distributive and light manufacturing uses, with supportive commercial and office uses. These uses are modified where covered by the Tukwila South Overlay.
- Manufacturing Industrial Center/-Light (MIC/L) designated areas are a major regional employment area containing distributive, light manufacturing and limited office uses, with supportive commercial and office uses.
- Manufacturing Industrial Center/-Heavy (MIC/H) designated areas are a major regional employment area containing distributive, light manufacturing and heavy manufacturing uses, with supportive commercial and office uses.

Table 3. Comprehensive Plan Designations and Corresponding Zoning Classifications

Comprehensive Plan Designation	Corresponding Zoning Classifications
Residential	
Community Residential (CR)	Community Residential (CR), Low Density Residential (LDR), Medium Density Residential (MDR)
High Density Residential (HDR)	High Density Residential (HDR)
Commercial	
Office (O)	Office (O)
Mixed Use	
Mixed Use Office (MUO)	Mixed Use Office (MUO)
Neighborhood Commercial Center (NCC)	Neighborhood Commercial Center (NCC)
Regional Commercial (RC)	Regional Commercial (RC)
Residential Commercial Center (RCC)	Residential Commercial Center (RCC)
Regional Commercial Mixed Use (RCM)	Regional Commercial Mixed Use (RCM)
Tukwila Urban Center (Regional Growth Center)	Commercial Corridor (TUC-CC), Pond District (TUC-PD), Regional Center (TUC-RC), Transit Oriented Development (TUC-TOD), Work Place (TUC-WP)
Tukwila Valley South (TVS)	Tukwila Valley South (TVS)
Industrial	
Commercial/Light Industrial (C/LI)	C/LI
Light Industrial (LI)	LI
Heavy Industrial (HI)	HI
Manufacturing Industrial Center/-Light (MIC/L) (Regional Employment Center)	MIC/L
Manufacturing Industrial Center/-Heavy (MIC/H) (Regional Employment Center)	MIC/H

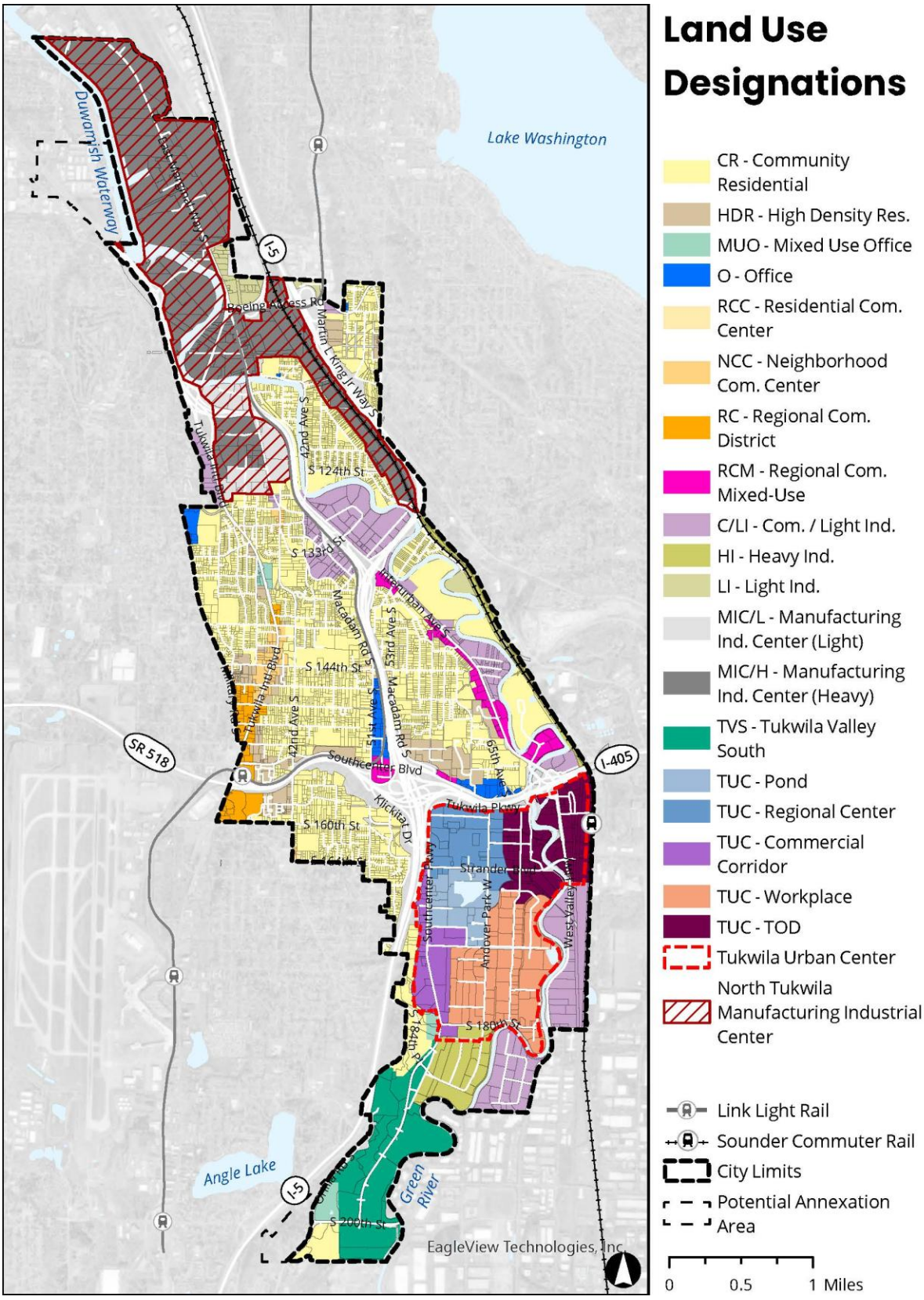


Figure 1. Land Use Designations

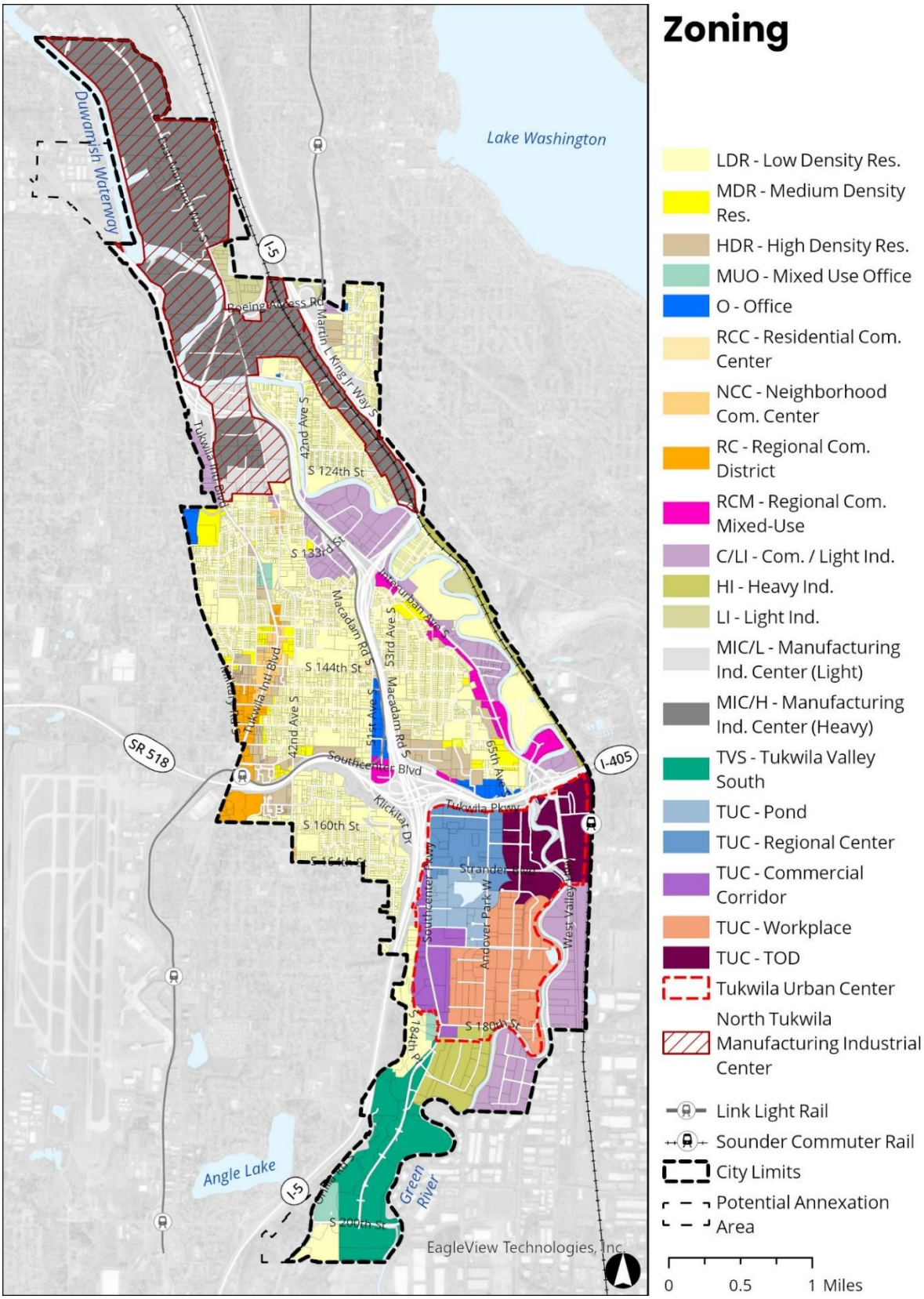


Figure 2. Zoning Designations

Overlays

In addition to zoning and land use designations, Tukwila employs a number of overlays, modifying or adding additional regulations to certain geographies within the City. These include the Public Recreation Overlay, Special Height Exception Area, Special Height Limitation Area, Tukwila South Overlay and Urban Renewal Overlay. Details of each overlay are defined within the Tukwila Municipal Code.

Potential Annexation Areas

Tukwila has two designated areas of potential annexation within unincorporated King County, as shown in Figure 3.

The first potential annexation area is approximately 50 acres on the southwestern edge of current City Limits, bordering the City of SeaTac directly west of Orilla Road South. This area contains significant changes in topography, likely severely limiting development potential, and has a small number of existing single family homes across several multiacre parcels.

The second potential annexation area encompasses approximately 165 acres on the City's northwestern City Limits, bordering the City of Burien to the south, City of Seattle to the north and Unincorporated King County, generally recognized as White Center, to the west. The area consists of a substation, Hamm Creek's path of flow into the Duwamish River, the Duwamish Yacht Club, low density industrial land and a section of West Marginal Way South.

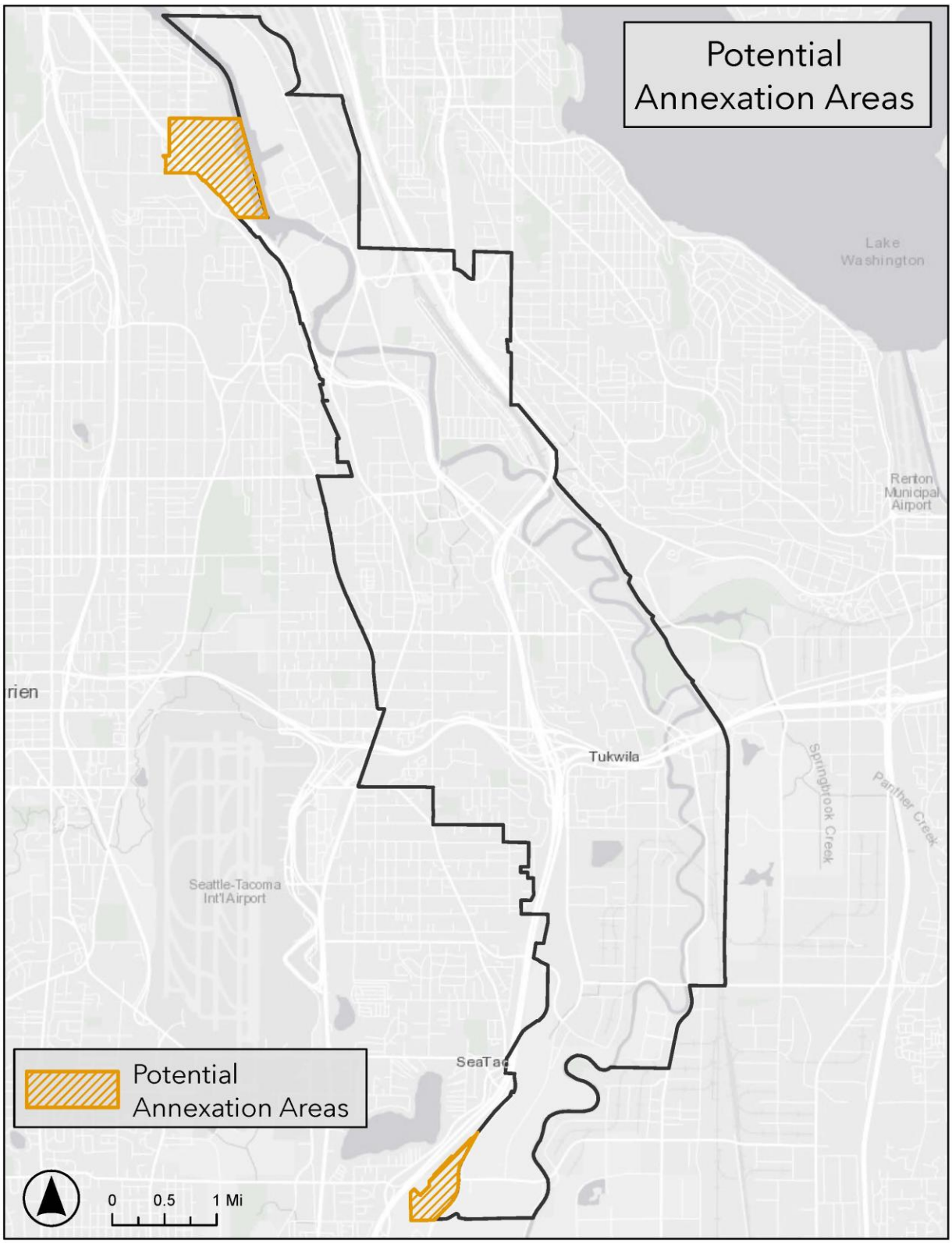


Figure 3. Potential Annexation Areas

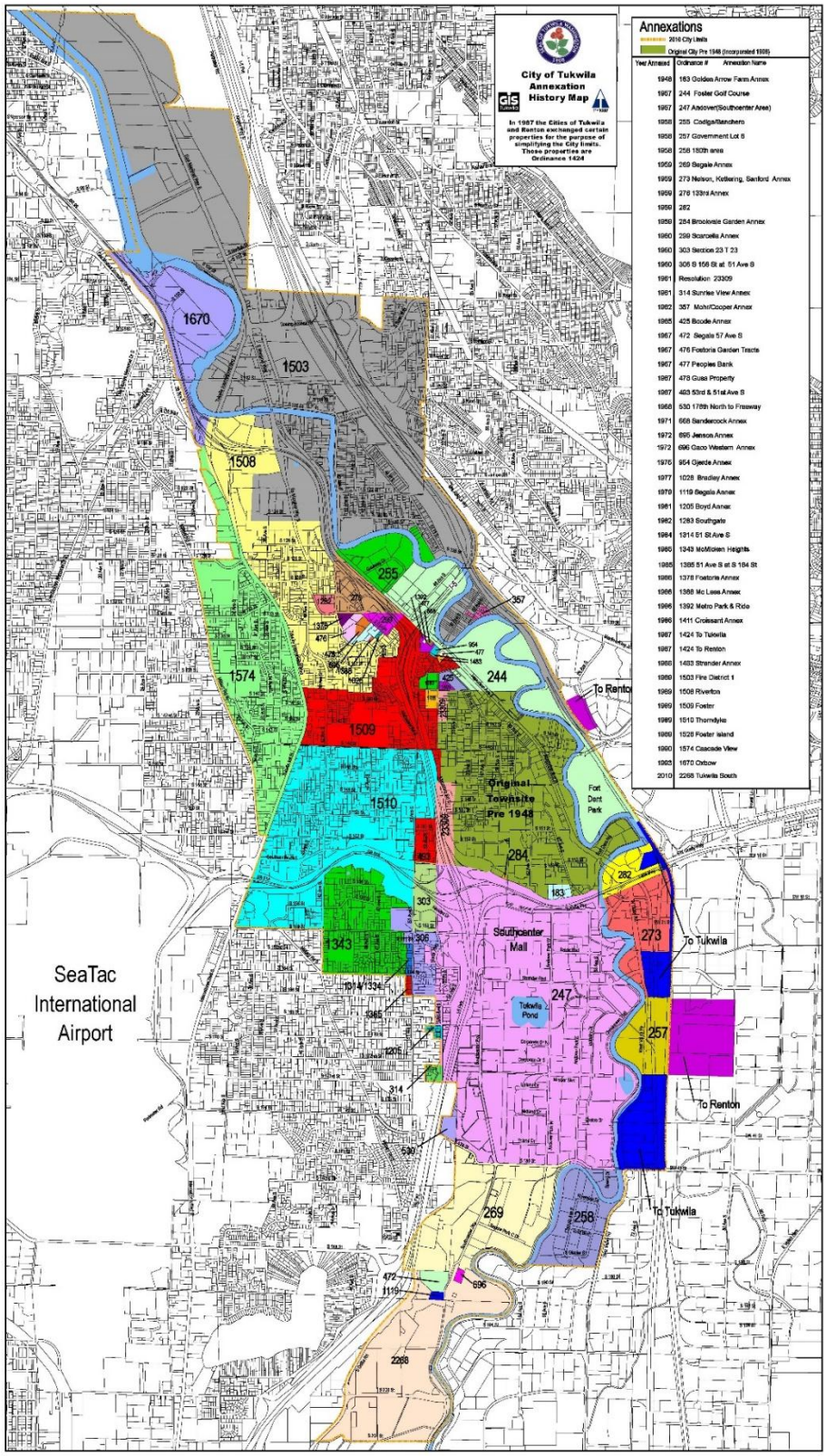


Figure 4. Historical Annexations

Table 4. Zoned Land

Zoning Classification	Zoned Acres	Percentage of Zoned City Land
LDR (Low Density Residential)	1,549.9	31.6%
MDR (Medium Density Residential)	92.2	1.9%
HDR (High Density Residential)	156.4	3.2%
MUO (Mixed Use Office)	30.5	0.6%
O (Office)	41.4	0.8%
RCC (Residential Commercial Center)	5.1	0.1%
NCC (Neighborhood Commercial Center)	38.5	0.8%
RC (Regional Commercial)	69.5	1.4%
RCM (Regional Commercial Mixed Use)	67.9	1.4%
TUC-CC (Tukwila Urban Center - Commercial Corridor)	101.8	2.1%
TUC-Pond (Tukwila Urban Center - Pond)	95.1	1.9%
TUC-RC (Tukwila Urban Center - Regional Center)	122.8	2.5%
TUC-TOD (Tukwila Urban Center - Transit Oriented Development)	178.0	3.6%
TUC-WP (Tukwila Urban Center - Workplace)	266.1	5.4%
C/LI (Commercial/Light Industrial)	416.2	8.5%
LI (Light Industrial)	52.1	1.1%
HI (Heavy Industrial)	159.8	3.3%
MIC/L (Manufacturing Industrial Center/Light)	93.8	1.9%
MIC/H (Manufacturing Industrial Center/Heavy)	773.1	15.8%
TVS (Tukwila Valley South)	592.4	12.1%

Section 2 – Community Profile

The Community Profile discusses Tukwila's current and future population as well as the age, race, and ethnicity of residents. It also discusses the size, income, and characteristics of the City's households. These demographic and household characteristics provide background and context for the types of services, amenities, and housing required to better serve Tukwila residents.

Population

Washington's Office of Financial Management (OFM) 2024 estimates that Tukwila has a 2024 population of 22,930 people. Table 5 shows the change in population by decade between 1970 and 2023. Over the last 20 years, Tukwila's population has grown by about 33%, similar to the 35% population growth experienced by King County over the same time period. Note: Since the 1990 annexation of Cascade View, Tukwila has had added little to no population from through annexation. Table 5. Tukwila Population, 1990 to 2024

Year	2024 estimate	Decennial Census					
		2020	2010*	2000*	1990*	1980*	1970*
Tukwila	22,930	21,798	19,107	17,181	11,874	3,578	3,509
King County	2,378,100	2,269,675	1,931,249	1,737,046	1,507,305	1,269,898	1,159,375

**Some annexation occurred between this decade and the next.*
Source: 2023 Office of Financial Management, Forecasting and Research Division, Postcensal Estimates of April 1 Population, 1960 to Present; and April 1, 2024, Population of Cities, Towns and Counties Used for Allocation of Selected State Revenues State of Washington

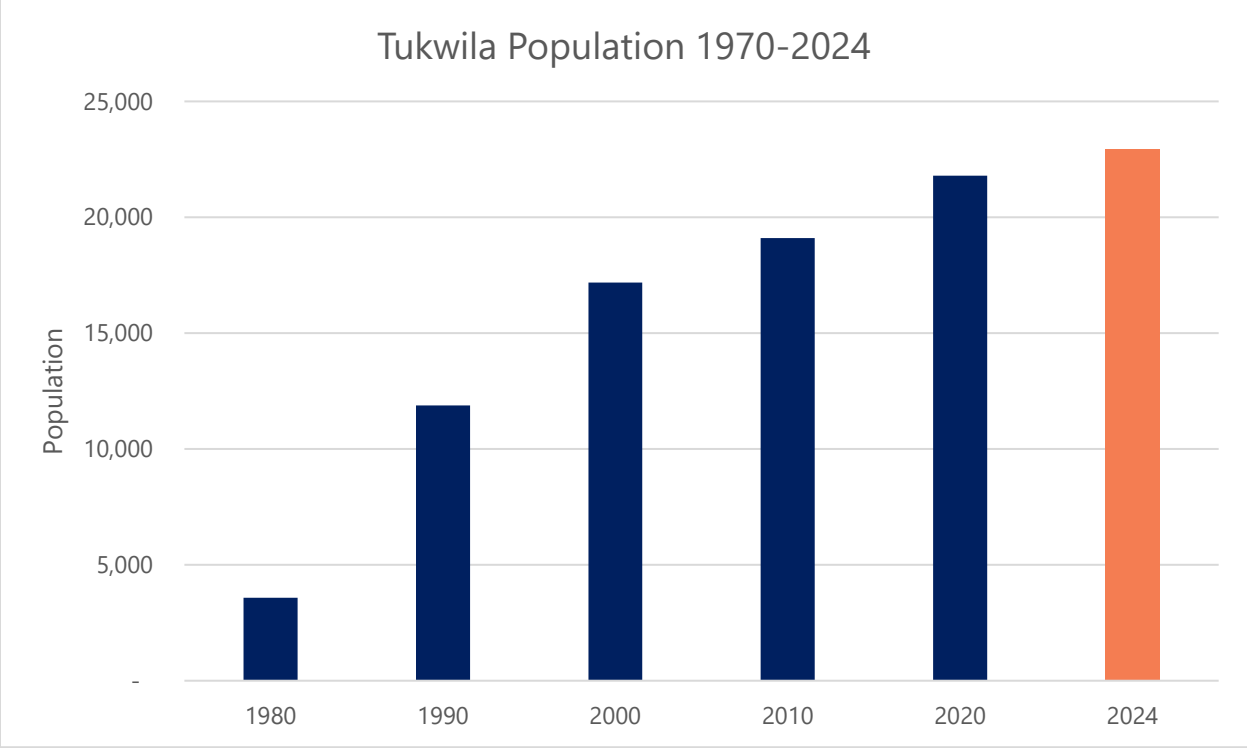
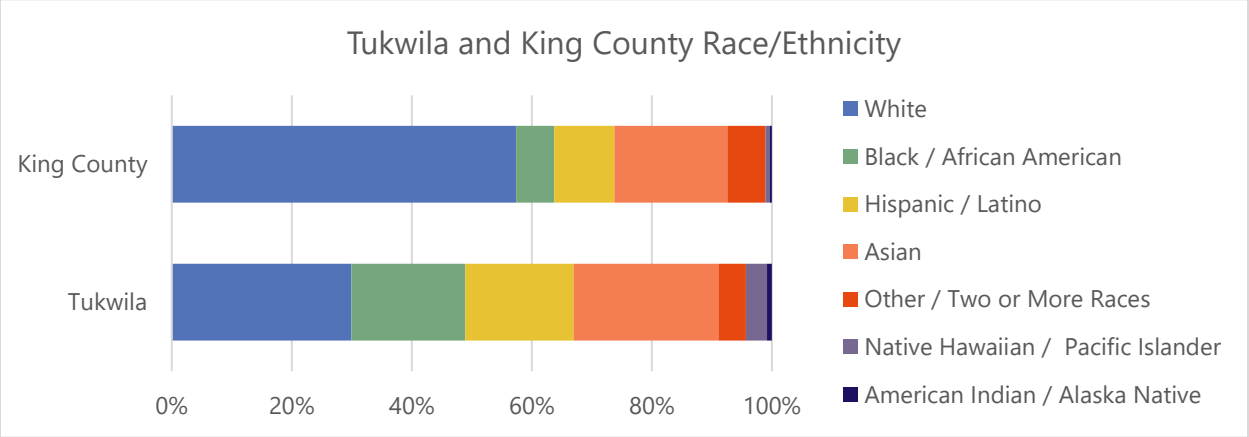


Figure 5. Tukwila's population, 1970-2023. Source: 2023 Office of Financial Management, Forecasting and Research Division, Postcensal Estimates of April 1 Population, 1960 to Present

Age, Race/Ethnicity, and Language

Figure 6 shows the racial and ethnic breakdown of the Tukwila and King County populations. Tukwila is a much more diverse community than most of King County with about 70% of the population identifying as people of color, compared with 43% in King County. The city has a higher share of Hispanic/Latino, Asian, and Black residents than the county as a whole.

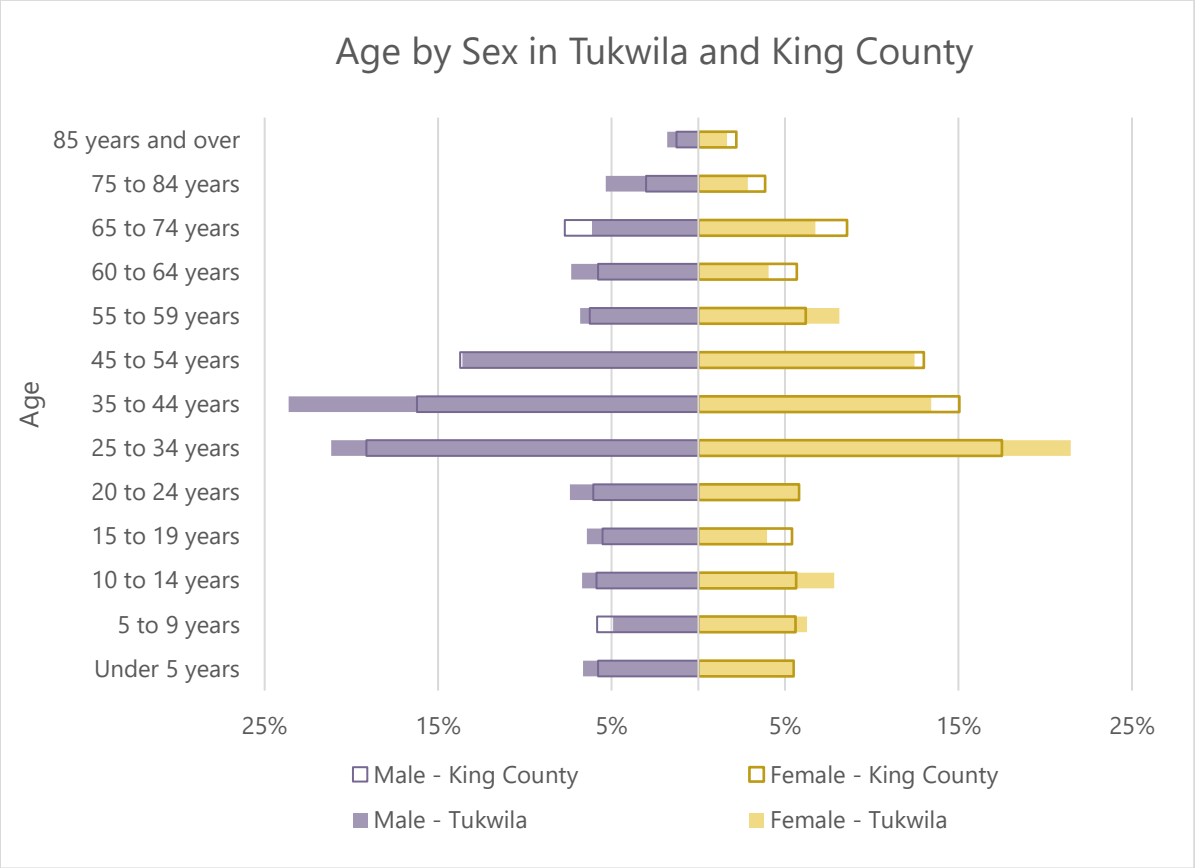
Figure 6. Racial and Ethnic Distribution in Tukwila and King County, 2021



Source: 2021 American Community Survey 5-Year Estimates, Table DP05. Note: all categories except "Hispanic/Latino" show non-Hispanic portions of population for each racial group.

Figure 7 shows age by sex in Tukwila and King County. The Tukwila population is somewhat younger than the county population with 65% under 45 years old compared to 62% countywide, and 11% over 65 compared to 13% countywide. Tukwila also has a significantly larger share of male residents than the county (54% versus 46%).

Figure 7. Age Distribution by Sex in Tukwila and King County, 2021



Source: 2021 American Community Survey, Table S0101

Nearly 40% of Tukwila residents were born in a country other than the United States. A little over a third of Tukwila residents were born in the state of Washington and 22% were born in another U.S. state or territory. A significant number of Tukwila residents were born in Asian, African, and Latin American countries, as seen in Table 6. Among those that were born in other nations, 20.5% are naturalized U.S citizens (2021 American Community Survey 5-Year Estimates, Table B05001).

Table 6. Tukwila Residents Place of Birth, 2021.

Place of Birth	Percent	Total
Native Born	**60.8%**	**13,099**
Washington State	36.3%	7,821
Elsewhere in US	24.5%	5,279
Foreign Born	**39.2%**	**8,446**
Europe	2.9%	616
Asia	17.4%	3,754
Africa	8.5%	1,839
Oceania	1.8%	388
Latin America	8.2%	1,772
Northern America	0.4%	76

Source: 2021 American Community Survey 5-Year Estimates, Table CP02

Almost 50% of Tukwila residents speak a language other than English at home. The diversity of languages spoken at home correlates well with the diversity of residents that are foreign born. About 17% speak an Asian or Pacific Island language, and 12% speak Spanish at home.

Table 7. Language Spoken at Home, 2021

Language	Percent	Total
English	53.8%	10,951
Spanish	12.1%	2,455
Indo-European languages	5.4%	1,097
Asian/Pacific Island languages	17.3%	3,530
Other languages	11.4%	2,318

Source: 2021 American Community Survey 5-Year Estimates, Table S1601

Household Characteristics

Household Size, Type, and Tenure

The U.S. Census Bureau defines a household as "all the people who occupy a housing unit." Households can be comprised of any combination of related family members, unrelated people, or individuals.[1] The 2021 American Community Survey estimated about 7,755 total households in Tukwila (note: the current figure is higher, due to recent housing production).

Table 8 shows household composition in Tukwila and King County. Overall, the shares of family and non-family households are very similar to county averages, with 59% of households classified as family households. About 28% of Tukwila residents live alone, and 8% of nonfamily households are residents over 65 years old.

Table 8. Household Composition in Tukwila, 2021.

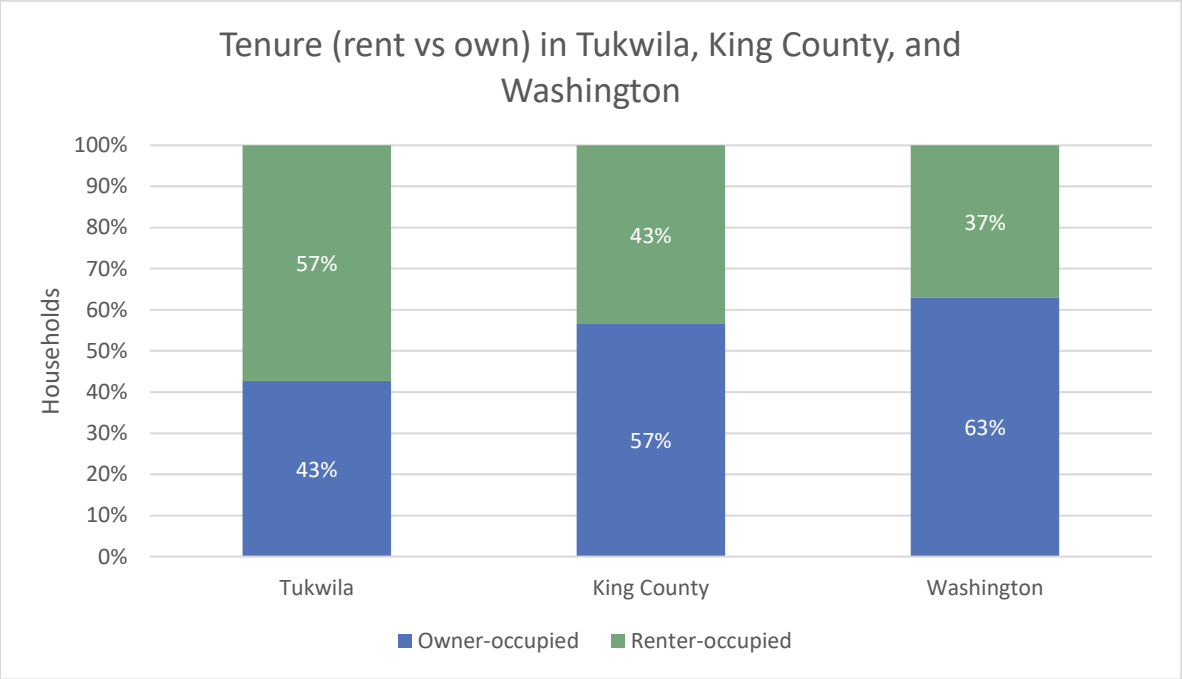
	Tukwila		King County	
Household Type	**Total**	**Percent**	**Total**	**Percent**
Total Households	7,755	100%	924,763	100%
Family households	4,591	59%	548,708	59%
Married-couple family	3,100	40%	445,269	48%
Other family	1,491	19%	103,439	11%
Nonfamily households	3,164	41%	376,055	41%
Householder living alone	2,201	28%	274,452	30%
Householder 65 years and over	586	8%	75,138	8%
Householder not living alone	963	12%	101,603	8%

Source: 2021 American Community Survey (ACS) 5-Year Estimates, Table S2501

Figure 8 shows tenure (renting vs owning a home) in Tukwila. Within King County Tukwila is unusual in having a greater share of renters than homeowners, with 57% of households renting and 43% owning their homes.

[1] *Source: U.S. Census Bureau, Subject Definitions.*

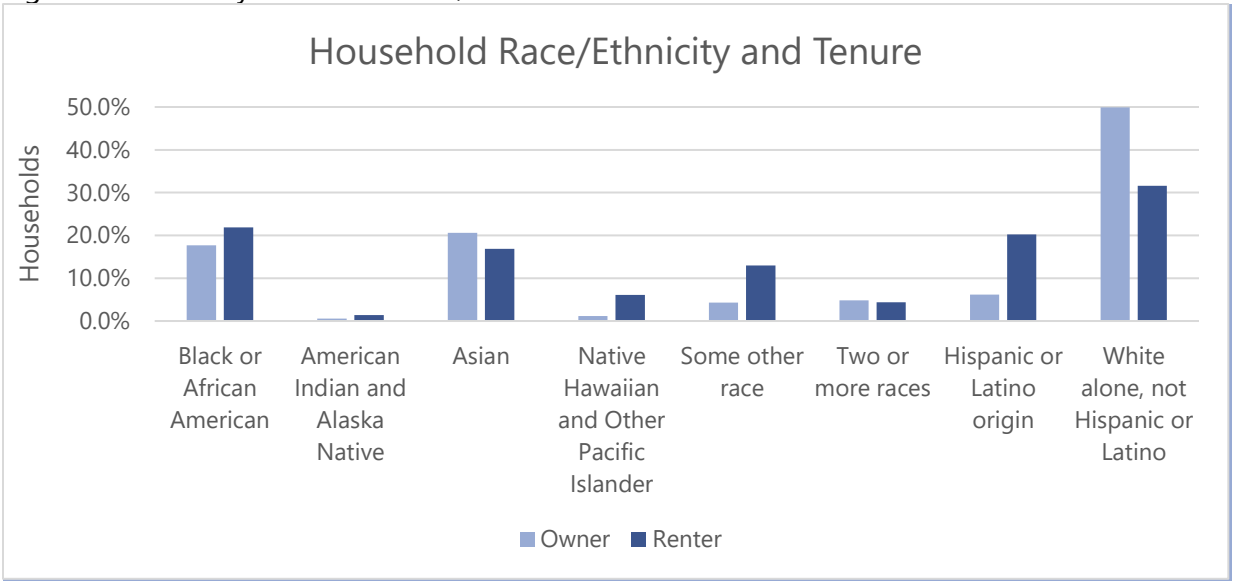
Figure 8. Tenure in Tukwila, King County, and Washington State, 2021



Source: 2021 American Community Survey (ACS) 5-Year Estimates, Table DP04

As shown in Figure 10, in Tukwila, White non-Hispanic households are significantly more likely to be homeowners than renters, as are Asian households, to a lesser degree. Hispanic, Black, and other non-White groups or Asian households are more likely to rent. As a result these groups are disproportionately exposed to increasing housing costs, which impacts renters more directly than homeowners.

Figure 9. Tenure by Race in Tukwila, 2021

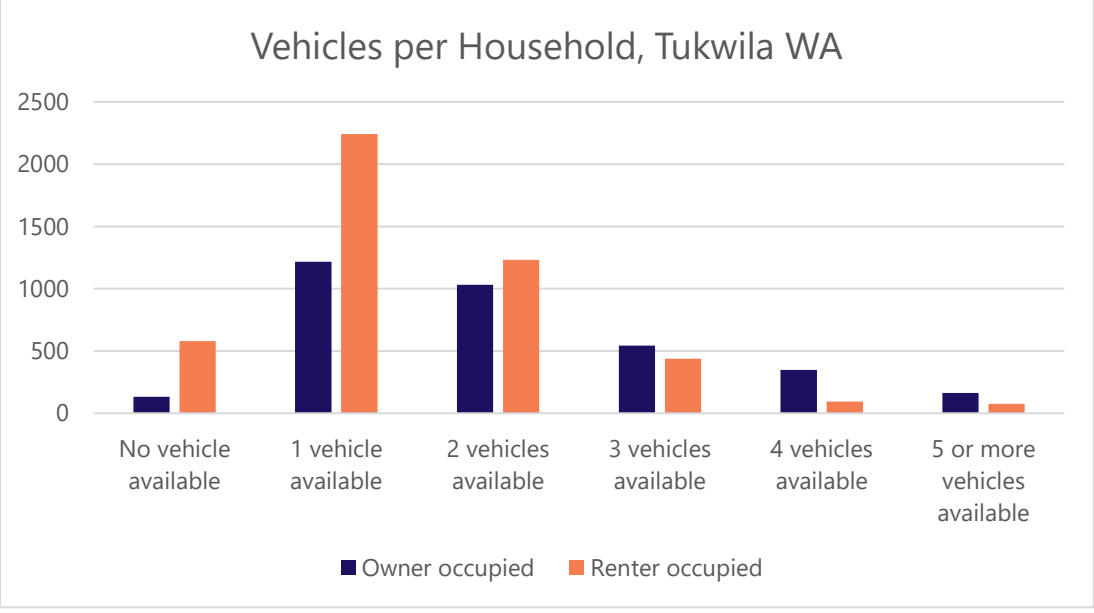


Source: 2021 American Community Survey (ACS) 5-Year Estimates, Table S2502

Vehicles per Household

Most Tukwila households have one vehicle or less, including 60% of all renter households. About 8% of households have four or more vehicles (including 15% of homeowners. Overall, these figures are similar to countywide averages.

Figure 10. Vehicles per household in Tukwila

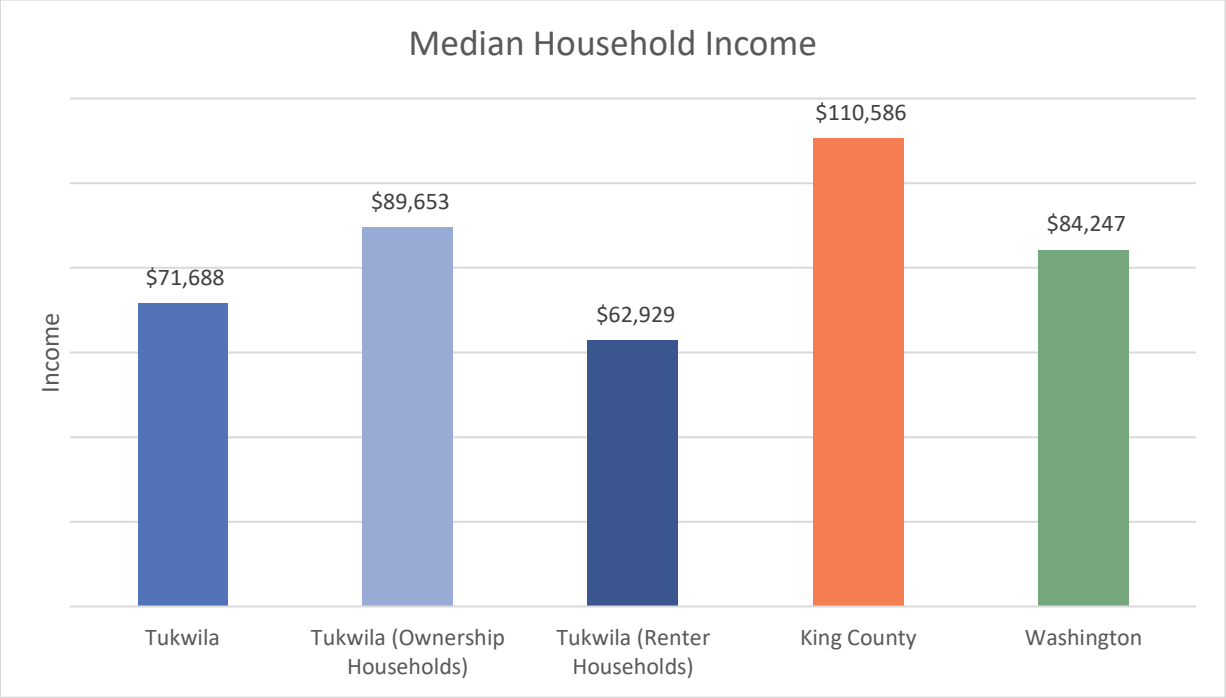


Source: 2022 American Community Survey 5-Year Estimates

Income

As shown in Figure 11, the median household income (MHI) in Tukwila was $71,688 in 2021, $38,898 less than the King County MHI and $12,559 less than the statewide average. Additionally, renters in Tukwila earn less than homeowners, with a median household income for renter households of $62,929 in 2021, compared to $89,653 for ownership households.

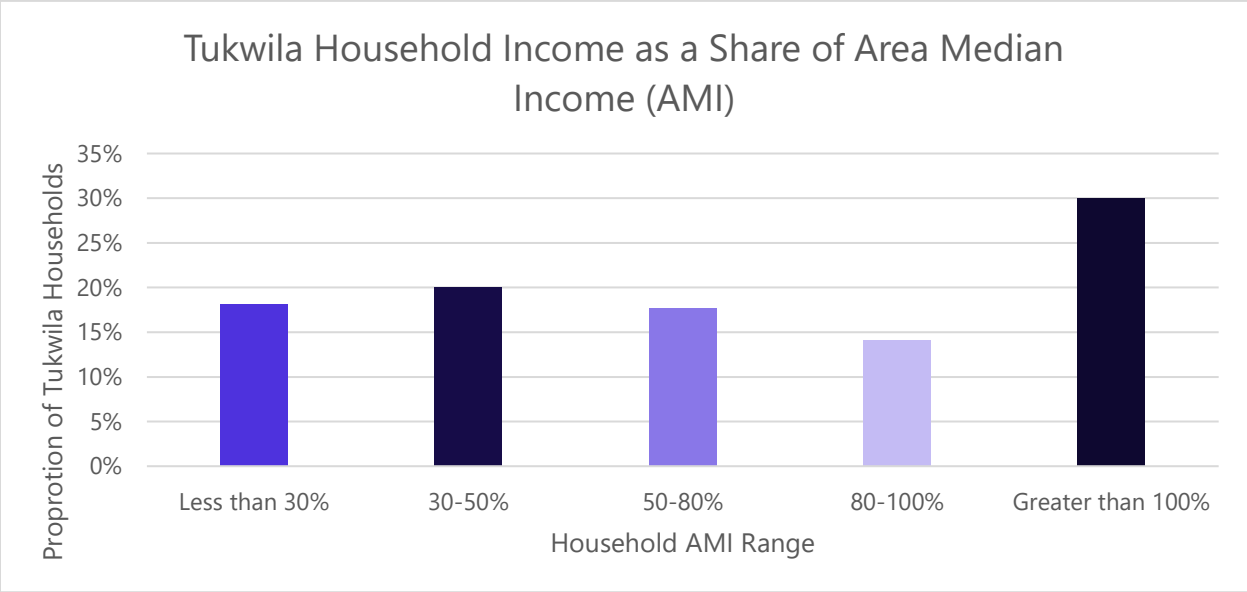
Figure 11. Inflation-Adjusted Median Household Income in Tukwila and Region, 2021



Source: 2021 American Community Survey 5-Year Estimates, Table S2503, CPI Inflation Index

Figure 12 shows the income distribution of Tukwila households. In Tukwila 58.6% of households earn less than 80% of the area median income, the maximum threshold to be eligible for most income-restricted affordable housing units.

Figure 12. Share of Households by Income Level in Tukwila, 2016-2020



Source: HUD CHAS

Workforce Profile

Tukwila's workforce is significantly larger than its residential population; the city has 45,825 primary jobs as of 2022, compared to a population of 22,780.

Compared to the county, Tukwila's workforce is more concentrated in manufacturing, wholesale trade, retail, and transportation/warehousing, and less concentrated in information technology, professional services, education, healthcare, and other services. Overall Tukwila's workforce is somewhat lower income and less educated than the County's as a whole.

Additionally, 64% of Tukwila's workforce commutes 10 or more miles to get to work. Aligning land use and transportation policies can help reduce the number of residents and workers that have long commutes.

Commute Distance	Share
Less than 10 miles	36.4%
10 to 24 miles	40.8%
25 to 50 miles	12.6%
Greater than 50 miles	10.2%

Source: U.S. Census Bureau. 2022. LEHD Origin-Destination Employment Statistics (2002-2020) [computer file]. Washington, DC: U.S. Census Bureau, Longitudinal-Employer Household Dynamics Program [distributor], accessed on 9/1/2023 at https://onthemap.ces.census.gov. LODES 8.0 [version]

Table 9. Jobs by Sector

Jobs by NAICS Industry Sector	Tukwila Share	King County Share
Manufacturing	18.8%	7.8%
Retail Trade	16.5%	8.6%
Wholesale Trade	8.8%	5.0%
Accommodation and Food Services	8.2%	7.4%
Health Care and Social Assistance	7.5%	12.0%
Construction	6.6%	5.5%
Transportation and Warehousing	6.3%	4.7%
Administration & Support, Waste Management and Remediation	4.7%	5.5%
Finance and Insurance	3.9%	3.2%
Professional, Scientific, and Technical Services	3.7%	10.1%
Real Estate and Rental and Leasing	3.6%	2.2%
Management of Companies and Enterprises	2.7%	2.8%
Arts, Entertainment, and Recreation	2.5%	1.9%
Information	1.9%	9.1%
Other Services (excluding Public Administration)	1.8%	3.5%
Educational Services	1.5%	7.1%
Public Administration	1.1%	2.8%
Other	0.0%	0.4%

Section 3 – Current Land Use

Land Use Mix

Tukwila has a broad mix of land uses, with a larger share of non-residential land uses than most suburban cities. By land area the largest existing land use is characterized by wholesale, warehousing, and distribution related uses, which may include some manufacturing uses as well, generally located in the north and southern ends of the City in low-lying areas along the valley of the Green/Duwamish River. The majority (63%) of parcels citywide are used for single-unit residential, predominantly located in hillier areas in the central portion of the city.

Table 10. Existing Land Uses, 2024

Source: King County Tax Assessor, 2023

Use	Parcels	Acres	Acres %
Single unit residential	3,420	939.4	18.9%
Multi-unit/middle housing residential	199	196.7	4.0%
Mobile homes/other residential	148	37.2	0.7%
Lodging	61.2	24	1.2%
General commercial	140	324.8	6.5%
Private services/office	111	251.6	5.1%
Wholesale, warehouse and distribution	256	956.6	19.2%
Civic and religious	43	194.3	3.9%
Parking	8	16.9	0.3%
Vacant	794	890.3	17.9%
Recreation and open space	29	242.1	4.9%
Utilities and infrastructure	121	505.0	10.2%
Other (water, ROW)	105	355.3	7.1%
Total	**5,400**	**4,972.5**	**100%**

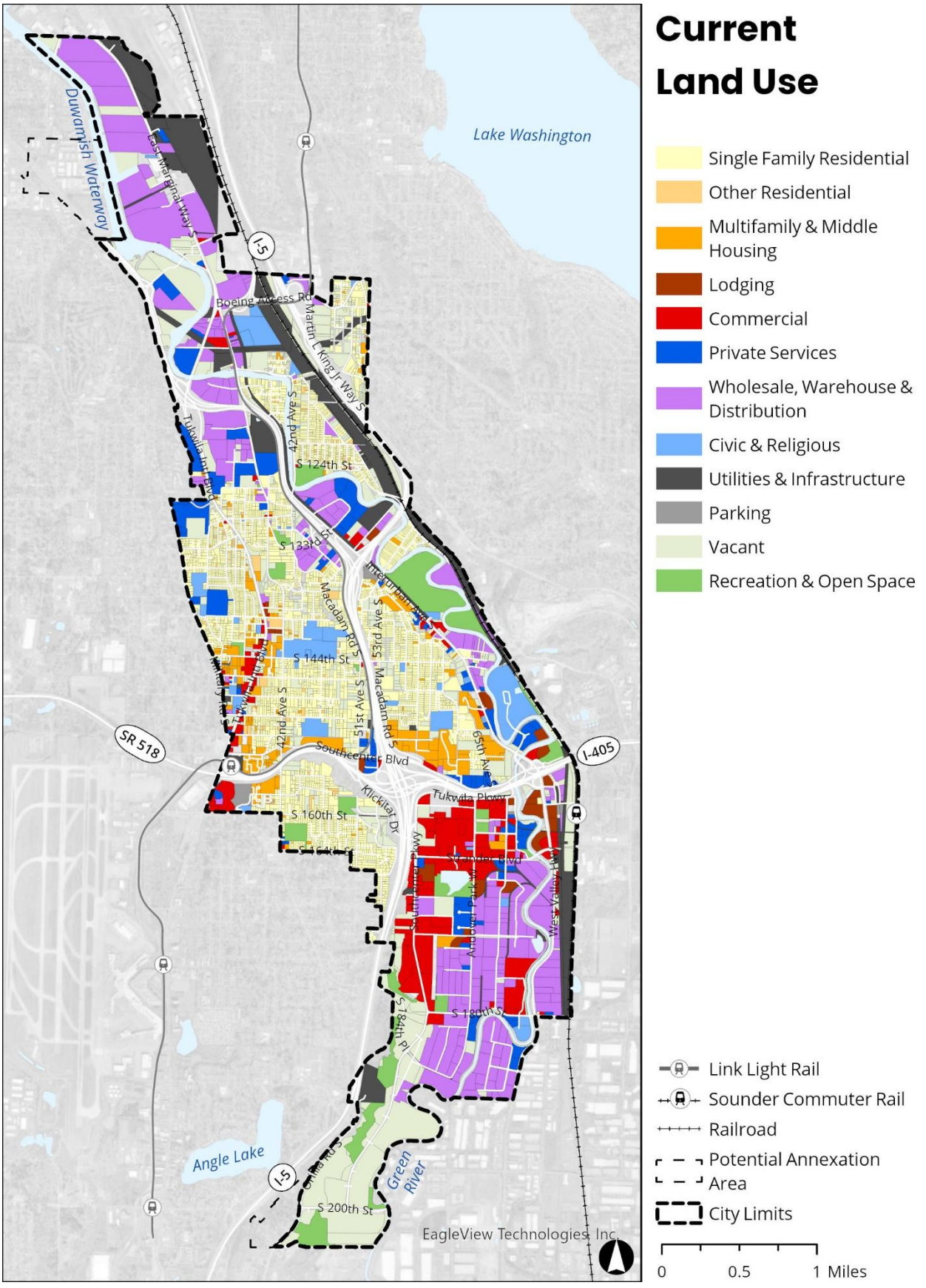

Current Land Use
Single Family Residential
Other Residential
Multifamily & Middle Housing
Lodging
Commercial
Private Services
Wholesale, Warehouse & Distribution
Civic & Religious
Utilities & Infrastructure
Parking
Vacant
Recreation & Open Space
Link Light Rail
Sounder Commuter Rail
Railroad
Potential Annexation Area
City Limits
0
0.5
1 Miles
Lake Washington
Duwamish Waterway
East Marginal Way S
I-5
Boeing Access Rd
Martin L King Jr Way S
42nd Ave S
S 124th St
S 133rd St
Macadam Rd S
S 144th St
51st Ave S
53rd Ave S
SR 518
Southcenter Blvd
I-405
65th Ave S
Klickitat Dr
Tukwila Pkwy
S 160th St
S 180th St
S 184th Pl
Angle Lake
Orillia Rd S
Green River
S 200th St
EagleView Technologies, Inc.

Figure 13. Current Land Use

Residential Use Mix

According to OFM, Tukwila has 9,154 housing units as of 2023. The breakdown of unit types is shown below in Figure 14. Compared to the County, Tukwila has a lower share of housing units that are single-family detached units (40%) versus the County's share of single-family detached units (52%). Tukwila also has a noticeably higher share (24%) of middle density (having 5-19 units) multifamily buildings than the county, which only has 12.2% of similar buildings with a total of 5-19 units. In Tukwila, the percentage of 5–19-unit multifamily buildings is actually a slightly higher share of housing structures having more than 20 or more units (21.8%).

Figure 14. Housing Unit Type in Tukwila and King County, 2021



Source: 2021 American Community Survey 5-Year Estimates, Table DP04.

Tukwila Housing Background Report

Introduction

This background report consolidates essential information about Tukwila housing stock, households, future trends, and regional targets to inform the development of the Housing Element.

It is organized into the following sections:

Section 1 – Planning Context reviews regional planning for land use, transportation, and housing, as well as recent action by the state legislature that altered city powers and responsibilities regarding housing.

Section 2 – Community Profile provides an overview of demographics of Tukwila residents and workers.

Section 3 – Housing Inventory reviews the unique characteristics of Tukwila's housing stock.

Section 4 – Housing Needs explores Tukwila's 2044 growth targets and progress, housing needs by income level, and the cost-burden to residents. This section also identifies gaps in the City's housing stock.

Section 5 – Land Capacity Analysis reviews land availability for needed housing in Tukwila.

Some key findings from this report include:

- **Growth targets:** After slow housing growth between 2006 and 2018, Tukwila has seen significant new development between 2018 and 2023, helping to close the gap towards the 2044 housing target of 14,454 total units. As a result of slow growth, Tukwila must implement "reasonable measures" to ensure sustained housing production. As of 2024, Tukwila must build 5,223 units, or about 25 per year, to meet the target.
- **Income band allocation:** Income-band allocations negotiated between the City and King County place 51% of new units of Tukwila's 2044 growth target in the greater than 120% area median income (AMI) category. This reflects County goals to balance low- and high-income housing across the county.
- **Housing size:** The size, in terms of bedrooms, of Tukwila housing units is poorly aligned to the size and tenure of Tukwila households, i.e., renter households tend to be significantly larger than homeowner households, but renter units tend to be smaller.
- **Building age:** Almost half of Tukwila housing units are more than fifty years old, and most units were constructed between 1960 and 1980. If well-maintained

Area Mean Income (AMI) represents the middle point of income distribution within a specific geographic region, used to describe a household's ability to afford housing available at different income levels.

"Housing affordability" refers to the ability of individuals or households to comfortably afford the cost of housing in a given area, typically considered affordable when housing costs take up no more than 30% of their income.

and protected from displacement, these units offer a naturally-occurring affordable housing reservoir.

- **Racially Disparate Impacts:** Some policies in the 2015 Comprehensive Plan favored exclusive neighborhoods of individual housing types and included ambiguous references to views, character, and architectural design that could exacerbate racially disparate impacts in housing. These policies have been updated and revised in the current planning cycle.
- **Vacancy rates:** Tukwila has very low vacancy rates, which indicates a constrained housing market that doesn't have enough supply or provide households with ample choices as their housing needs change. In 2021, the rental vacancy rate was 1.3% and the ownership vacancy rate was 1.4%.

Section 1 – Planning Context

Growth Management Act and HB 1220

King County and its cities and towns are required to meet Growth Management Act (GMA) planning requirements. In addition, in 2021, the state legislature passed House Bill 1220, which amended the GMA and instructed local governments to "plan and accommodate" for housing affordable to all income levels.

Per the Department of Commerce, cities must now:

- Plan for and accommodate housing that is affordable to all economic segments; including emergency housing, shelter, and permanent supportive housing;
- Promote a variety of residential densities and housing types;
- Encourage the preservation of existing housing stock;
- Provide housing units necessary to meet statewide projections for moderate, low, very low, and extremely low-income households;
- Report on actions taken to provide housing and increase affordability and diversity in supply; and
- Demonstrate how local housing policy is linked to adjacent city, county, regional, and statewide housing efforts.

In response to this update, the Department of Commerce and King County have provided guidance and housing need targets with a focus on affordability and racially disparate housing impacts. Tukwila must take the requirements of HB 1220 into account during the 2024 Comprehensive Plan periodic update.

Regional Planning and Growth Targets

The City of Tukwila's Comprehensive Plan must align with regional growth strategies – Puget Sound Regional Council's VISION 2050 and VISION 2050's Multicounty Planning Policies, and King County's Countywide Planning Policies (CPP) and Urban Growth Capacity (UGC) Report.

Puget Sound Regional Council VISION 2050

- VISION 2050, passed in October 2020, is the region's plan for growth and sets the stage for updates to countywide planning policies and comprehensive plans developed by cities and counties.
- VISION 2050 calls for cities and counties to support building more diverse housing types, especially near transit, services, and jobs. The plan also calls for more housing that's affordable to moderate, low- and very low-income households, including homeownership options.
- Tukwila is one of the 16 Core Cities in PSRC's VISION 2050. It is the smallest Core City, in terms of population, in King County. The Regional Growth Strategy calls for King County's Core Cities to accommodate a large share of the county's population and employment growth through the year 2050.

King County Countywide Planning Policies

- RCW 36.70A.210 requires Washington counties to adopt countywide planning policies in cooperation with the cities within its jurisdiction.
- King County and each of its 39 cities recently ratified the 2021 King County Countywide Planning Policies (CPPs) in preparation for the 2024 statutory updates of city comprehensive plans and in conjunction with the region's growth plan, VISION 2050.
- Under the Growth Management Act, King County, in coordination with the cities in King County, adopts growth targets for the next 20-year planning period. The growth targets are adopted in the CPP and represent policy statements about the amount of housing and job growth each jurisdiction is planning to accommodate in its comprehensive plan. The allocations of growth are consistent with the VISION 2050 Regional Growth Strategy.
- King County classifies Tukwila as a Core City and sets a growth target of a minimum of 6,500 new housing units and 15,890 new jobs in Tukwila for the period between 2019 and 2044. These growth targets were adopted in the Countywide Planning Policies and ratified by the Tukwila City Council.

Tukwila Community Renewal Area

In 1998, the City adopted the Pacific Highway Revitalization Plan, a subarea plan for the Tukwila International Boulevard (TIB) corridor that documented unsafe, unattractive, and declining conditions in the area and conveyed a positive vision for the corridor's future. Building on that effort, in 2000, the City adopted an urban renewal plan that designated an urban renewal area of approximately 64 acres. The designated renewal area allows the City greater latitude to buy and condemn property and conduct site master planning. The City acquired land and worked with developers, nonprofits, and agency partners to create a successful mixed-use development, Tukwila Village, that includes public gathering spaces, a King County Library System (KCLS) public library, and senior housing. The renewal area is still in place and allows the City to undertake similar actions on parcels within the boundary.

Regional Transit Planning

Tukwila is located within the area served by Sound Transit, formally known as the Central Puget Sound Regional Transit Authority. Sound Transit has passed three ballot measures within its service area since 1996 to create and expand high-capacity transit systems, including express

bus service, light rail, bus rapid transit (BRT), and commuter rail. Tukwila is currently served by Link light rail at the Tukwila International Boulevard Station and by Sounder commuter rail at the Tukwila Station. In 2016, voters passed the Sound Transit 3 ballot measure, which proposed creating an I-405 BRT line, adding a light rail station in north Tukwila at Boeing Access Road, and improving Sounder commuter rail frequency. The Boeing Access Road station is planned to open in 2031 and will bring high-capacity transit to this area. "Stride" BRT on I-405 is planned for 2028 and will improve transit access to Burien, Renton, and Bellevue from Tukwila International Boulevard Station. Delays in opening both projects are possible.

State Planning Preemptions

In April 2023, the Washington State Legislature passed several housing-related preemptions and regulations. State preemption constrains local government power around certain actions. The following are the most relevant to Tukwila.

2023 & 2024 Legislation Directly Impacting City Government

- HB 1110 – Reduces zoning and permitting barriers to middle housing.
- HB 1337 – Preempts common regulations on accessory dwelling units (ADU).
- SB 5258 – Requires a short plat procedure for unit lot subdivisions, which is a division of a parent lot into separately owned unit lots (often a useful tool for middle housing).
- SB 5258 – Requires lower impact fees for smaller unit residential development;
- SB 5491 – Encourages cities to allow single-stairway residential buildings up to six stories and with up to four units per floor (currently allowed in buildings up to three stories).
- HB 1042 – Prohibits cities from using development regulations (such as density limits or parking) to prevent added housing within an existing building envelope in a zone that allows multifamily use.
- HB 1998 – Legalizes co-living housing on lots allowing at least six units.
- HB 1181 – Requires comprehensive plans to include a Climate Change & Resiliency Element, starting with planning for the 2045 cycle. This doesn't apply to Tukwila's 2024 Comprehensive Plan Update, but may impact housing policies and implementation.
- SB 6015 – Limits restrictions placed on orientation and type of parking required.

2023 & 2024 Legislation Indirectly Impacting City Government

- HB 1771 and SB 5198 – Strengthens rules to give mobile home park residents an opportunity to purchase the property when proposed for closure or conversion, and for displaced residents to receive relocation assistance.
- SB 5258 and SB 5058 – Encourages construction of small condominium buildings by modifying the procedures for construction defect actions and warranty claims and exempting buildings with 12 or fewer units and two or less stories from condo defect provisions such as extra inspections.
- HB 1474 – Creates a statewide down payment assistance program for first-time homebuyers with income less than the area median who were themselves, or are descendants of someone who was, excluded from homeownership in Washington by a racially restrictive real estate covenant prior to 1968.
- HB 1074 and SB 5197 – Strengthens tenant protections upon move-out or eviction.

- SB 5290 – Creates a consolidated permit review grant program that jurisdictions can apply for to help install a faster permitting process for residential applications for permits covered by the international residential code (IRC).

Federal Development Incentives

Two federal designations subsidize development in certain parts of Tukwila by making tax credits available under certain conditions.

Opportunity Zones

The Opportunity Zone program included in the federal Tax Cuts and Jobs Act of 2017 was designed to provide tax incentives to investors who fund businesses in underserved communities. Investors in Qualified Opportunity Funds that are invested in distressed communities in designated Opportunity Zones can defer paying taxes on capital gains. The program expires in 2026.

In Tukwila, census tracts 272, 282, 281, and 273, generally located in the northeast/central part of the City, are designated Opportunity Zones. Eligible areas can be seen in Figure 1.

Qualified Census Tracts

U.S. Department of Housing and Urban Development designates census tracts where 50% of households fall under 60% AMI, or a poverty rate of 25% or more, as "qualified census tracts". Federal low-income housing tax credits (LIHTC) have increased value when used to finance affordable housing developments in these tracts. Eligible Areas can be seen in Figure 2.

Tracts 271, 272, 273, 281, 282, and 264 are qualified census tracts.

Figure 1. Opportunity Zone eligible tracts

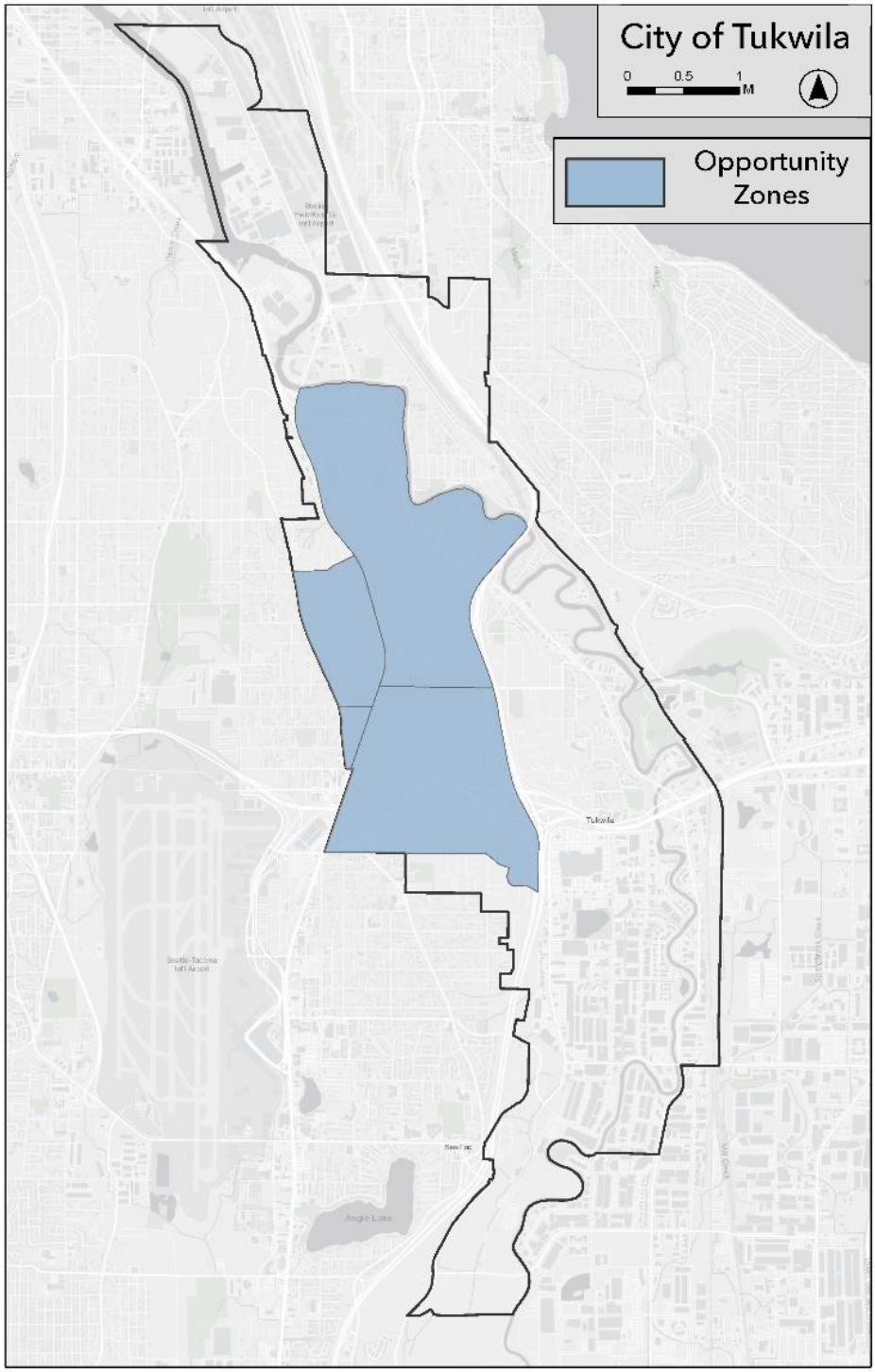
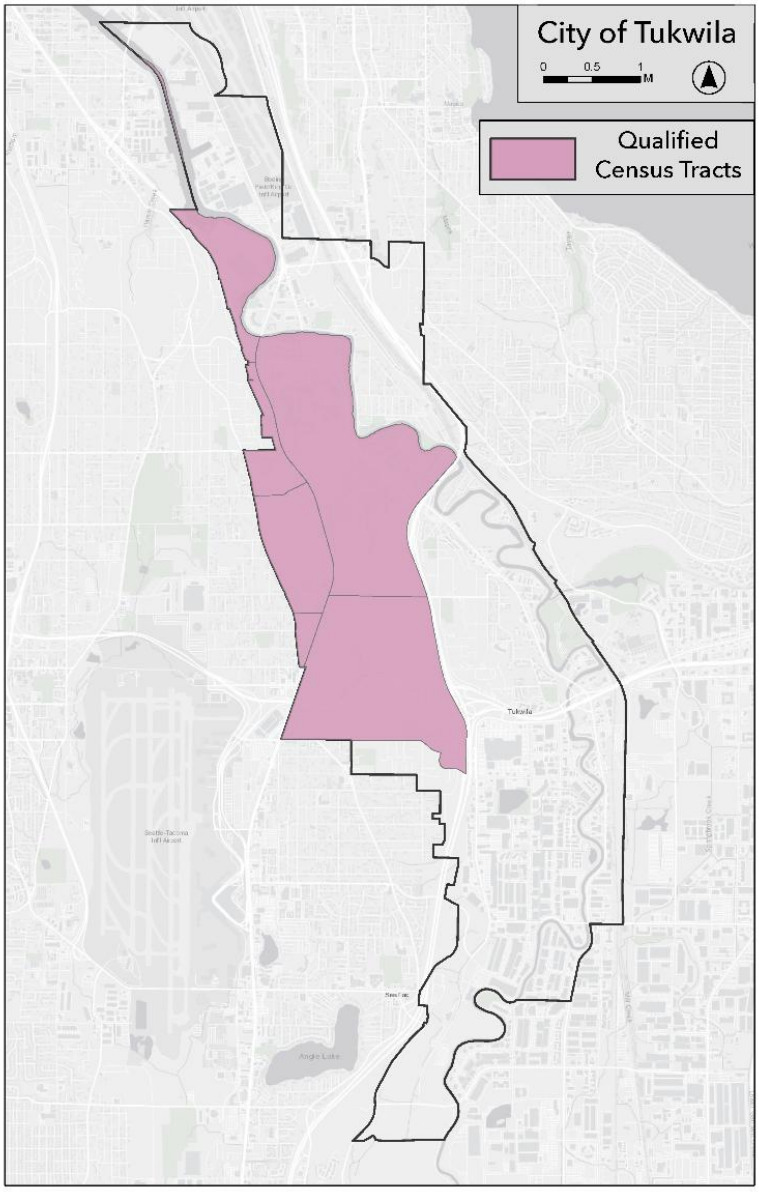


Figure 2. Qualified census tracts



Section 2 – Community Profile

The Community Profile examines Tukwila's current and future population as well as the age, race, and ethnicity of residents. It also discusses the size, income, and characteristics of the City's households. These demographic and household characteristics provide background and context for the types of housing required to better serve Tukwila residents.

Population and Demographics

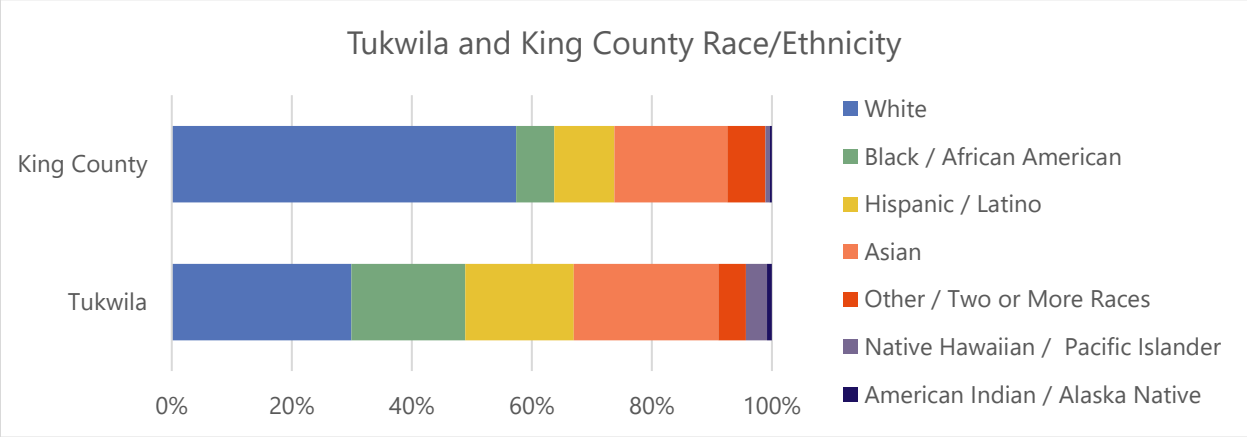
Historic and Future Population

Tukwila's population in 2020 was 21,798 according to the Washington Office of Financial Management (OFM). The OFM Postcensus 2024 population estimate for the City is 22,930 residents, and 9,231 housing units. In the last 20 years, the City has experienced a relatively stable growth rate of about 1% per year. For comparison, King County has experienced a growth rate of about 1.4% per year over the last 20 years.

Age, Race/Ethnicity, and Language

Figure 3 shows the racial and ethnic breakdown of the Tukwila and King County populations. Tukwila is a much more diverse community than most of King County, with about 67% of the population identifying as people of color, compared with 40% in King County. The City has a higher proportion of Hispanic/Latino, Asian, and Black residents than the county as a whole.

Figure 3. Racial and Ethnic Distribution in Tukwila and King County, 2021.



Source: 2021 American Community Survey 5-Year Estimates, Table DP05. Note: all categories except "Hispanic/Latino" show non-Hispanic portions of population for each racial group.

Figure 5 shows age by sex in Tukwila and King County. The Tukwila population is somewhat younger than the county population, having around 65% under 45 years old, compared to 62% countywide, and 11% older than 65, compared to 13% countywide. Tukwila also has a significantly larger share of male residents than the county (54% versus 46%). Approximately, 9.6% of Tukwila Residents are estimated to have some form of disability (2022 American Community Survey 5-Year Estimates, Table S1810).

What is Universal Design?

Universal design is an approach to designing buildings, products, and the built environment to be easily usable by the broadest possible range of people, regardless of age or ability. The approach centers convenience and accessibility for the benefits of all users.

As the population changes over time, family structures gradually transform as well. Many homes are designed around the concept of the nuclear family, typically two adults tied by partnership or marriage, with their minor children. This arrangement once represented a majority of households. Today there is a wider variety of households than in the mid-twentieth century; for example, adults living without children, single adults, and multigenerational families. Universal design helps to support aging in place and multigenerational families by applying design principles that emphasize flexibility, intuitive design, and variations in size and space for different users (Center for Excellence in Universal Design).

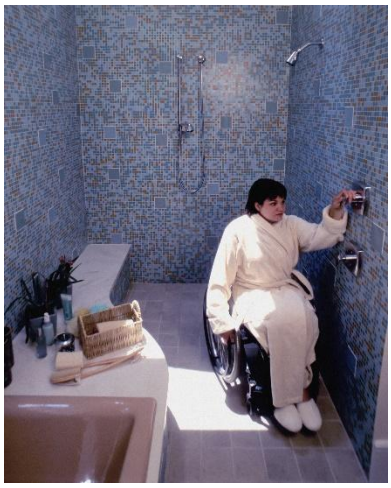
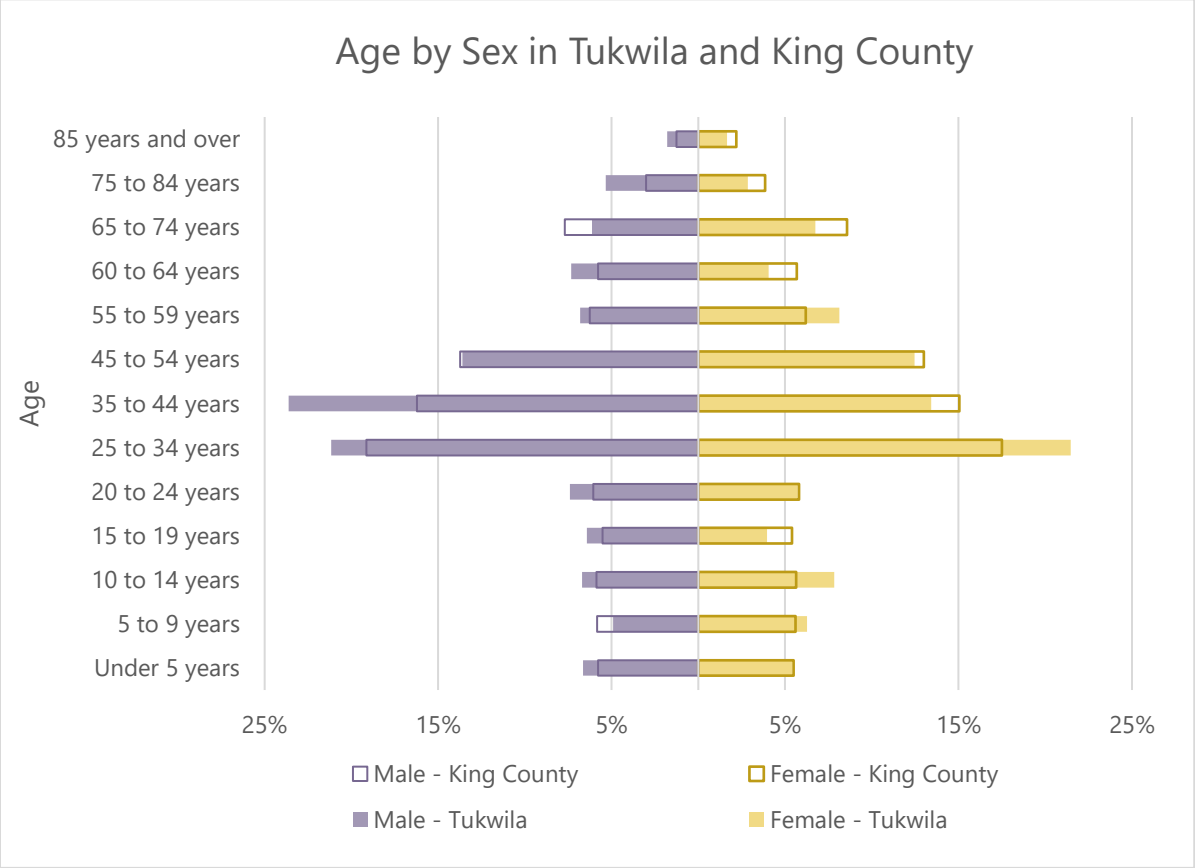


Figure 4. Bathroom with universal design principles. Source: US HUD

One example is a home that includes wide hallways and doorways to ease wheelchair user navigation, tiered or height-adjustable countertops to accommodate more than one height, and a bathroom shower that is spacious and flush with the floor. Through home modifications or retrofitting, barriers that limit a home's accessibility can be eliminated, and families can be better prepared for a lifetime of changing needs.

Figure 5. Age Distribution by Sex in Tukwila and King County, 2021



Source: 2021 American Community Survey, Table S0101

Nearly 40% of Tukwila residents were born in a country other than the United States. A little more than a third of Tukwila residents were born in the state of Washington and 22% were born in another U.S. state or territory. A significant number of Tukwila residents were born in Asian, African, and Latin American countries, as shown in Table 1. Among those that were born in other nations, 55.0% are naturalized U.S citizens (2022 American Community Survey 5-Year Estimates, Table B05002).

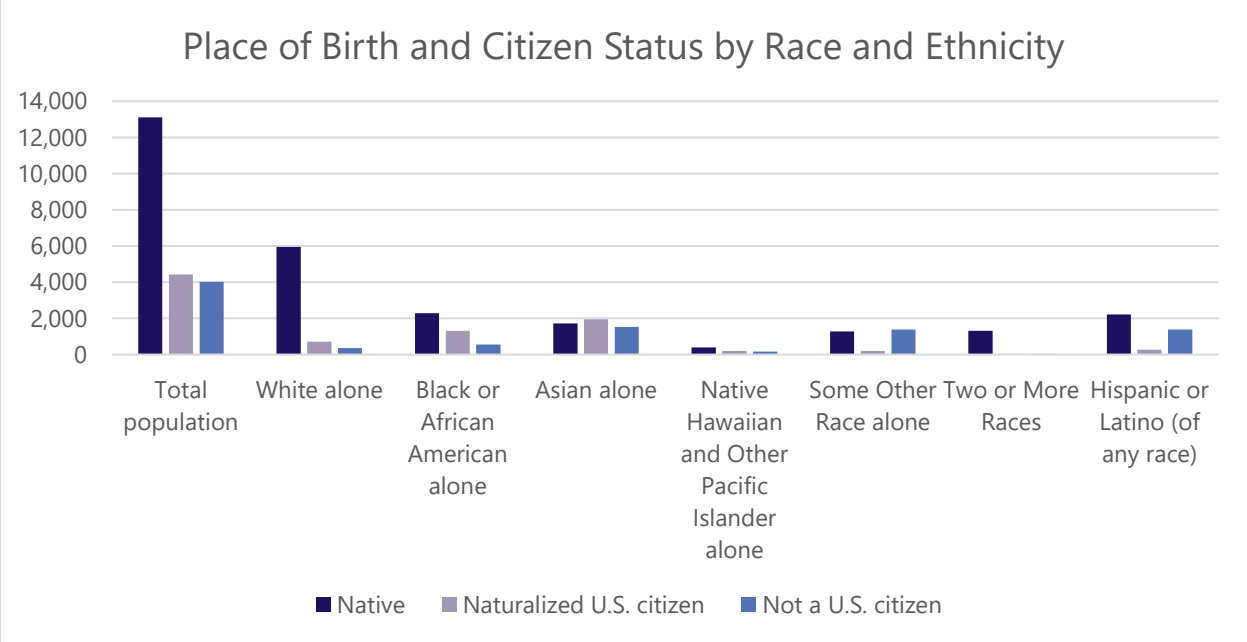
Table 1. Tukwila Residents Place of Birth, 2021.

Place of Birth	Percent	Total
Native Born	**60.8%**	**13,099**
USA (same state)	37.3%	7,821
USA (other state)	22.3%	4,805
Foreign Born	**39.2%**	**8,446**
Europe	2.9%	616
Asia	17.4%	3,754
Africa	8.5%	1,839
Oceania	1.8%	388
Latin America	8.2%	1,772
Northern America	0.4%	76

Source: 2021 American Community Survey 5-Year Estimates, Table CP02

Figure 6 shows further differentiation of place of birth, and U.S. citizen status by race and ethnicity. Significant discrepancies between racial and ethnic groups can be seen, with over half of non-native born White, Black, Asian and Native Hawaiian or Pacific Islander residents having gained U.S. citizenship, while a far smaller proportion of residents identifying as Some Other race, or as ethnically Hispanic or Latino have become naturalized U.S. citizens.

Figure 6. Place of Birth and Citizen Status by Race and Ethnicity, 2021



Source: American Community Survey 5-Year Estimates, Table B05002

Almost 50% of Tukwila residents speak a language other than English at home. The diversity of languages spoken at home correlates well with the diversity of residents that are foreign born. About 17% speak an Asian or Pacific Island language, and 12% speak Spanish at home.

Table 2. Language Spoken at Home, 2021.

Language	Percent	Total
English	53.8%	10,951
Spanish	12.1%	2,455
Indo-European languages	5.4%	1,097
Asian/Pacific Island languages	17.3%	3,530
Other languages	11.4%	2,318

Source: 2021 American Community Survey 5-Year Estimates, Table S1601

Household Characteristics

Household Size, Type, and Tenure

The U.S. Census Bureau defines a household as "all the people who occupy a housing unit." Households can be comprised of any combination of related family members, unrelated people, or individuals.[1] The 2021 American Community Survey estimated about 7,755 total households in Tukwila (note: the current figure is higher, due to increased housing production between 2018 and 2024).

Table 3 shows household composition in Tukwila and King County. Overall, the shares of family and non-family households are very similar to county averages, with 59% of households classified as family households. A smaller percentage of Tukwila family households are married couple families (40%), compared with King County family households (48%). Similar to King County, about 28% of Tukwila residents live alone and 8% of nonfamily households are residents over 65 years old. Household composition data can provide insight into the types and sizes of housing that will best meet City residents' needs.

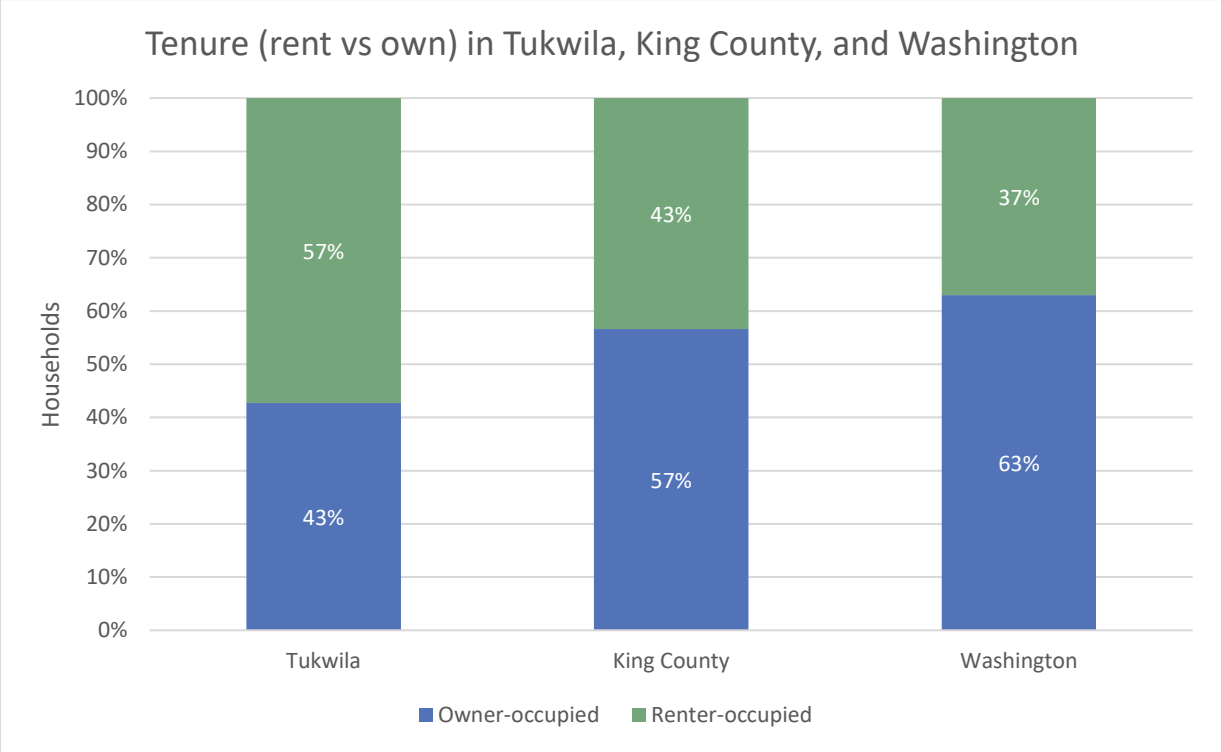
Table 3. Household Composition in Tukwila, 2021

Household Type	Tukwila		King County	
	Total	Percent	Total	Percent
Total Households	7,755	100%	924,763	100%
Family households	4,591	59%	548,708	59%
Married-couple family	3,100	40%	445,269	48%
Other family	1,491	19%	103,439	11%
Nonfamily households	3,164	41%	376,055	41%
Householder living alone	2,201	28%	274,452	30%
Householder not living alone	963	12%	101,603	8%
Householder 65 years and over	586	8%	75,138	8%

Source: 2021 American Community Survey (ACS) 5-Year Estimates, Table S2501

Figure 7 shows tenure (renting vs owning a home) in Tukwila. Tukwila is unusual, compared with King County and State of Washington data, in having a greater share of renters than homeowners, with 57% of households renting and 43% owning their homes. This distribution of owner and renter households has remained relatively flat over the last few decades, with owner occupancy rates of 39%, 42%, and 43% reported in the 1990, 2000 and 2010 censuses respectively (1990 Census, 2000 Census, 2010 Census). A higher distribution of renter households also means increases in rental housing prices can have an immediate impact on most Tukwila households, and, since renters are more likely to be Black, Indigenous, and people of color (BIPOC) and lower-income households, a disproportionate impact on those populations.

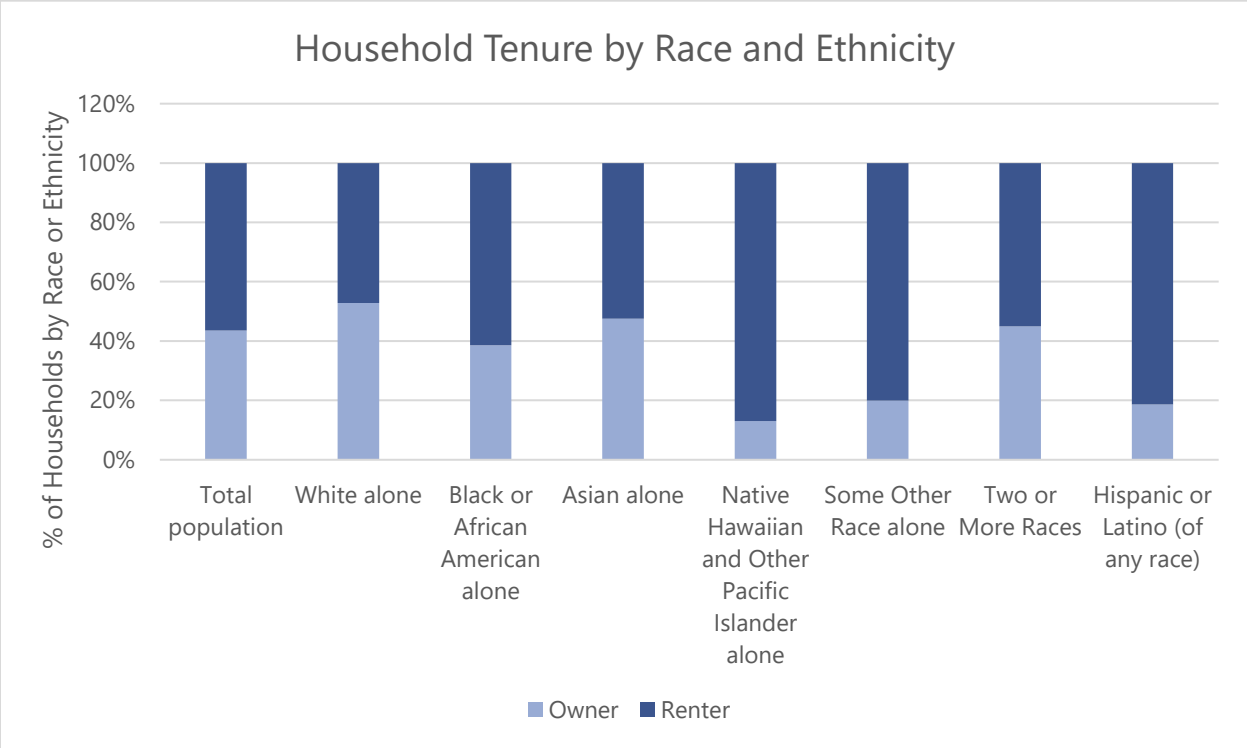
Figure 7. Tenure in Tukwila, King County, and Washington State



2021. Source: 2021 American Community Survey (ACS) 5-Year Estimates, Table DP04

As shown in Figure 8, in Tukwila, White households are significantly more likely to be homeowners than renters, as are Asian households, to a lesser degree. Hispanic, Black, and other non-White or Asian households are more likely to rent.

Figure 8. Tenure by Race in Tukwila, 2021



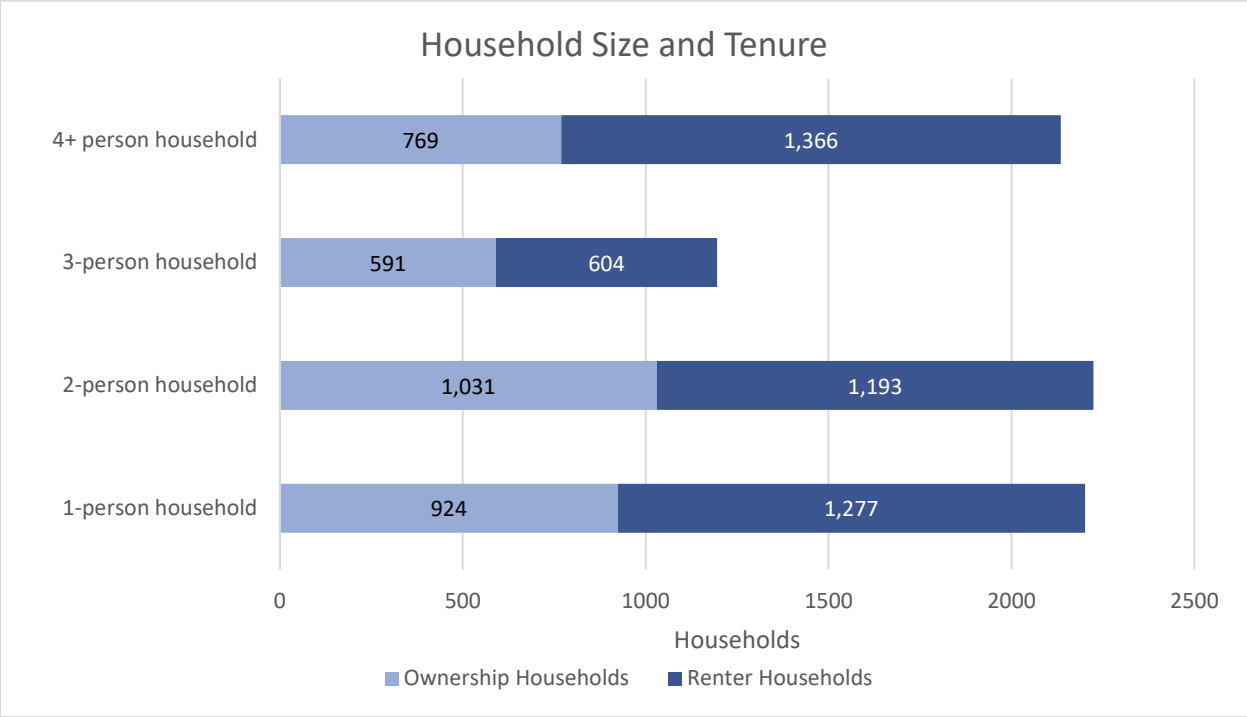
Source: 2021 American Community Survey (ACS) 5-Year Estimates, Table DP04

Figure 9 shows the breakdown of Tukwila's households by tenure and household size. Of the 7,755 total households in Tukwila, 15% are three-person households, and the remaining 85% are equal proportions of the one-person, two-person, and four- or more person households, at about 28% each.

The majority of Tukwila's one-, two-, and three-person households are renters (58%, 53%, and 50%, respectively). Almost two-thirds (64%) of those living in four- or more person households are renters.

Of the 3,315 households owning a home, 59% live in one- or two-person households.

Figure 9. Tukwila Tenure by Household Size, 2021

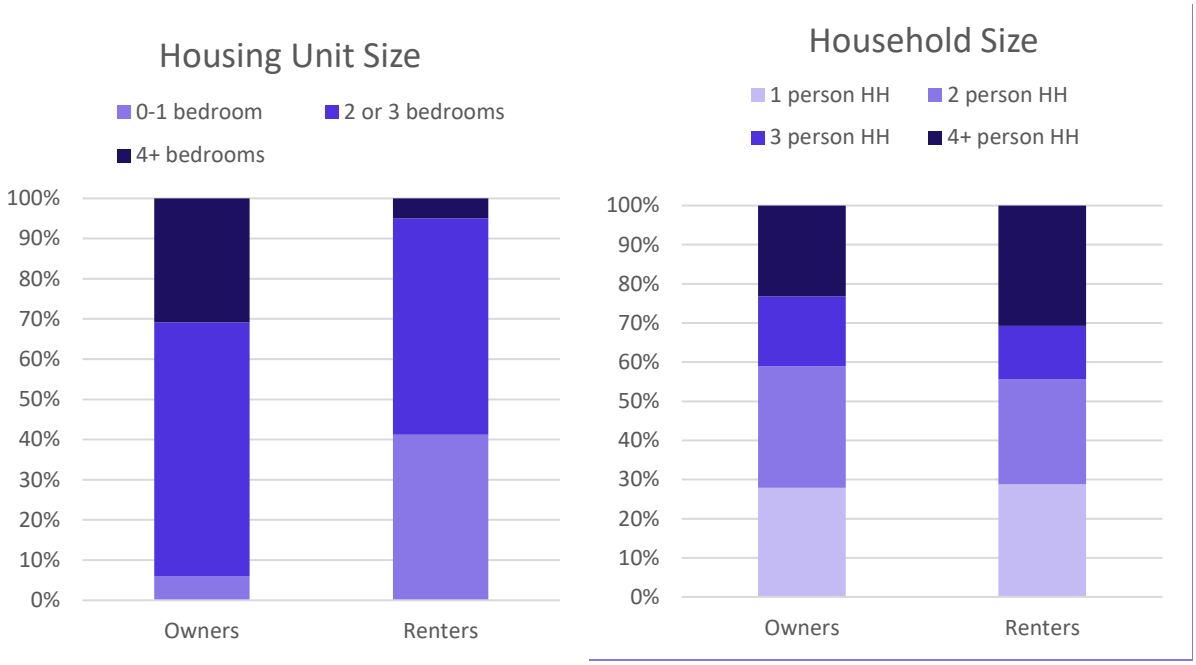


Source: 2021 American Community Survey (ACS) 5-Year Estimates, Table S2501

As shown in Figure 10, there is a mismatch between the percentage of households with four or more people and the percentage of housing units having four or more bedrooms. Such a disparity likely creates pressure and increases competition for three- and two-bedroom units from households with four or more people. The lack of housing for larger households also suggests the potential for overcrowding among larger households or multi-generational families.

When analyzed by tenure, the mismatch between the number of four or more person households and the number of housing units with four or more bedrooms indicates the impact is felt most acutely by households that rent. Figure 10, shows that there are sufficient four or more-bedroom units in the ownership market, but very few such units in the rental market.

Figure 10. Household Size and Housing Unit Size by Tenure in Tukwila, 2021



Source: 2021 American Community Survey 5-Year Estimates, Tables S2501, S2504

Family-sized housing

Family-sized, family-friendly housing units contain at least two bedrooms and include features such as areas where family members can gather for meals and other activities, sufficient storage space, a spot for children to do homework, and easy access to outdoor play and recreation space. Due to various factors related to building design, market demand, and building code stipulations, apartment buildings are rarely constructed with family-sized units with more than two bedrooms and associated spaces. While these elements are historically available in single family detached homes, middle housing types of development, such as duplexes and townhomes, can be well-suited to providing more spacious family-sized housing. Encouraging new family-sized housing in areas with access to transit and proximity to schools, parks, low-traffic streets, and other family-friendly elements will make it easier for families to find their home in Tukwila.

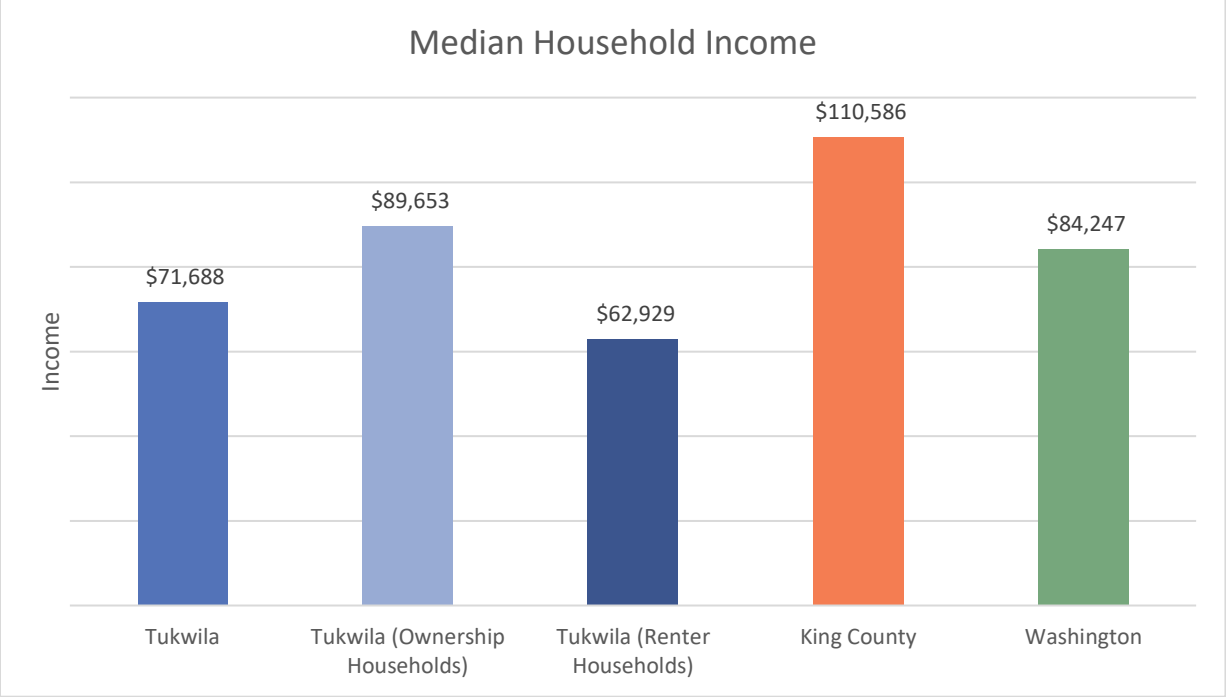
Figure 11. Examples of housing with a common open space to strengthen relationships between neighbors and create safe outdoor play areas for children.



Income

As shown in Figure 12, the median household income (MHI) in Tukwila was $71,688 in 2021, $38,898 less than the King County MHI and $12,559 less than the statewide average. Additionally, renters in Tukwila earn less than homeowners, with the median household income for renter households being $62,929 in 2021, compared to $89,653 for ownership households.

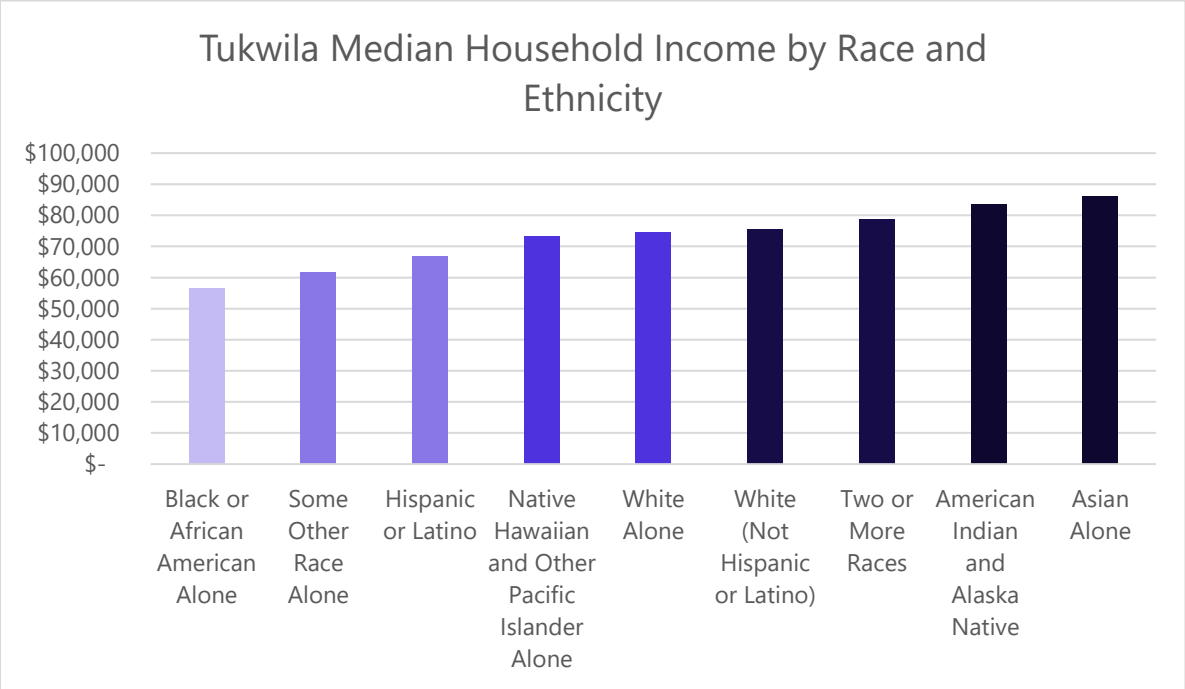
Figure 12. Inflation-Adjusted Median Household Income in Tukwila and Region, 2021



Source: 2021 American Community Survey 5-Year Estimates, Table S2503, CPI Inflation Index

As seen in Figure 13, significant discrepancies exist between the incomes of Tukwila households by race and ethnicity, with the median Black Households earning almost $20,000 less per year the median White Household, and almost $30,000 less per year than the median Asian Household.

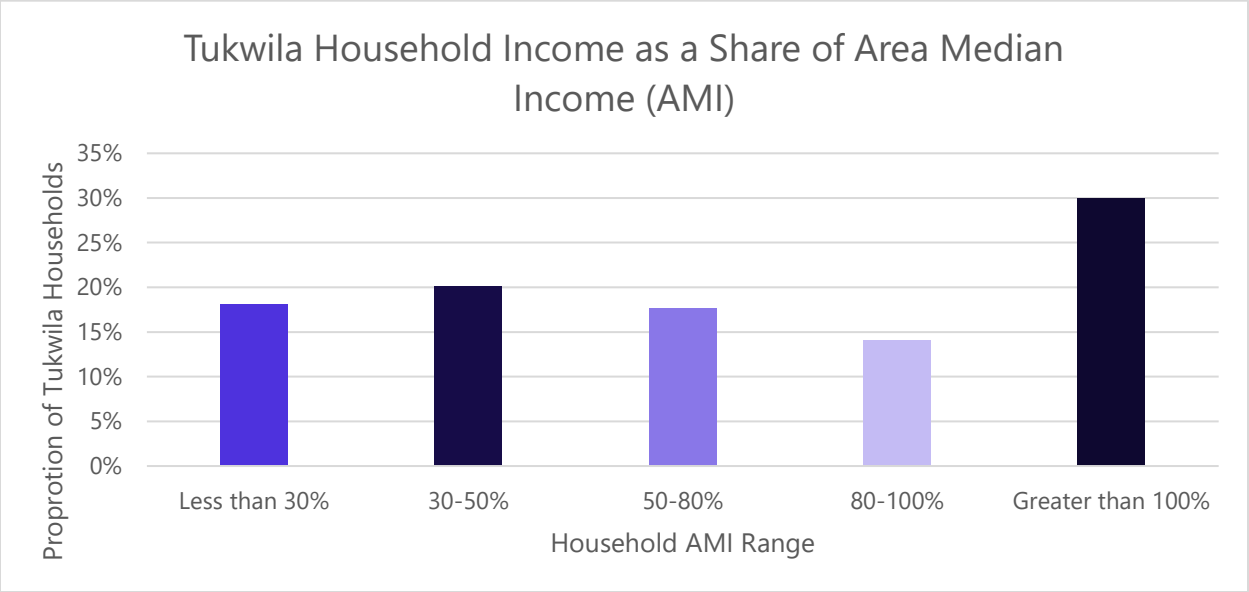
Figure 13. Inflation-Adjusted Median Household Income in Tukwila by Race, 2021



Source: 2021 American Community Survey 5-Year Estimates, Table B19013.

Figure 14 shows the income distribution of Tukwila households. In Tukwila, 55.8% of households earn less than 80% of the area median income of $116,255, the maximum threshold to be eligible for most income-restricted affordable housing units.

Figure 14. Share of Households by Income Level in Tukwila, 2016-2020



Source: HUD CHAS

Workforce Profile

Tukwila's workforce is significantly larger than its residential population; the City has 42,989 jobs as of 2023, compared to a population of 22,930; a ratio of 1.87 jobs/residents, far higher than the County average (PSRC Covered Employment).

The demographic composition of the workforce is less racially diverse than the City's residential population, but it is broadly like the countywide workforce composition in terms of age, race, and ethnicity. Compared to the county, Tukwila's workforce is more concentrated in manufacturing, wholesale trade, retail, and transportation/warehousing, and less concentrated in information technology, professional services, education, healthcare, and other services. Overall Tukwila's workforce is lower income and less educated than the county's as a whole (Source: 2022 American Community Survey 5-Year Estimates, Table S1501).

Residence Location of Tukwila Workers

Just 1.9% of persons working in Tukwila live in Tukwila, while 8.2% of Tukwila residents work within the City. Roughly, 64% of persons working in Tukwila commute more than 10 miles to their jobs, primarily travelling from the north or south. About one quarter of persons working in Tukwila live in other south King County cities (Kent, Renton, Federal Way, Auburn, Burien, or SeaTac), and one-eighth live in Seattle.

Residence Location of Tukwila Workers	Share
Seattle	12.8%
Kent	7.2%
Renton	5.5%
Tacoma	4.2%
Federal Way	4.1%
Auburn	3.6%
Burien	2.5%
Bellevue	2.4%
SeaTac	1.9%
Tukwila	1.9%
Other	53.9%

Race and Hispanic Ethnicity of Workers in Tukwila	Tukwila Share	King County Share
White Alone	71.2%	72.7%
Black or African American Alone	7.8%	6.1%
American Indian or Alaska Native Alone	0.8%	0.9%
Asian Alone	14.8%	15.7%
Native Hawaiian or Other Pacific Islander Alone	1.2%	0.7%
Two or More Race Groups	4.3%	3.9%
Hispanic or Latino	89.8%	91.6%
Not Hispanic or Latino	10.2%	8.4%

Tukwila Workers Commute Distance	Share
Less than 10 miles	36.4%
10 to 24 miles	40.8%
25 to 50 miles	12.6%
Greater than 50 miles	10.2%

Source: U.S. Census Bureau. 2022. LEHD Origin-Destination Employment Statistics (2002-2020) [computer file]. Washington, DC: U.S. Census Bureau, Longitudinal-Employer Household Dynamics Program [distributor], accessed on 9/1/2023 at https://onthemap.ces.census.gov. LODES 8.0 [version]

Table 4. Jobs by Sector

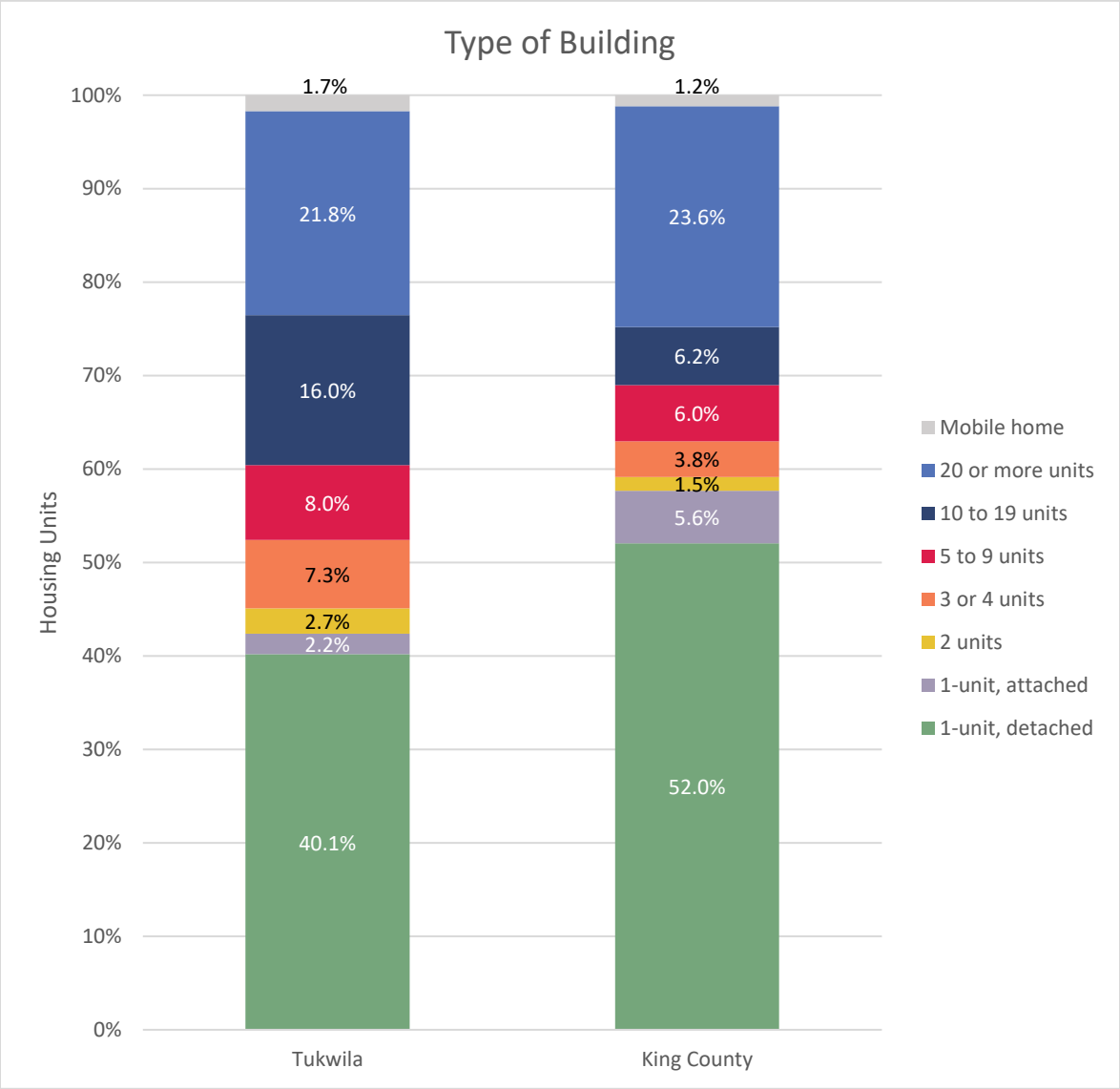
Jobs by NAICS Industry Sector	Tukwila Share	King County Share
Manufacturing	18.8%	7.8%
Retail Trade	16.5%	8.6%
Wholesale Trade	8.8%	5.0%
Accommodation and Food Services	8.2%	7.4%
Health Care and Social Assistance	7.5%	12.0%
Construction	6.6%	5.5%
Transportation and Warehousing	6.3%	4.7%
Administration & Support, Waste Management and Remediation	4.7%	5.5%
Finance and Insurance	3.9%	3.2%
Professional, Scientific, and Technical Services	3.7%	10.1%
Real Estate and Rental and Leasing	3.6%	2.2%
Management of Companies and Enterprises	2.7%	2.8%
Arts, Entertainment, and Recreation	2.5%	1.9%
Information	1.9%	9.1%
Other Services (excluding Public Administration)	1.8%	3.5%
Educational Services	1.5%	7.1%
Public Administration	1.1%	2.8%
Other	0.0%	0.4%

Section 3 – Housing Inventory

Total Housing Units

According to OFM, Tukwila has 9,231 housing units as of 2024. The approximate breakdown of unit types is shown below in Figure 15. Tukwila has a lower proportion of housing units that are single-family detached units (40%), compared to the County's proportion of single-family detached units (52%). Tukwila also has a noticeably higher proportion (24%) of middle density (having 5-19 units) multifamily buildings than the County, which only has 12.2% of similar buildings with a total of 5-19 units. In Tukwila, the percentage of 5-19 unit multifamily buildings is actually a slightly higher share of housing structures having more than 20 or more units (21.8%).

Figure 15. Housing Unit Type in Tukwila and King County, 2021

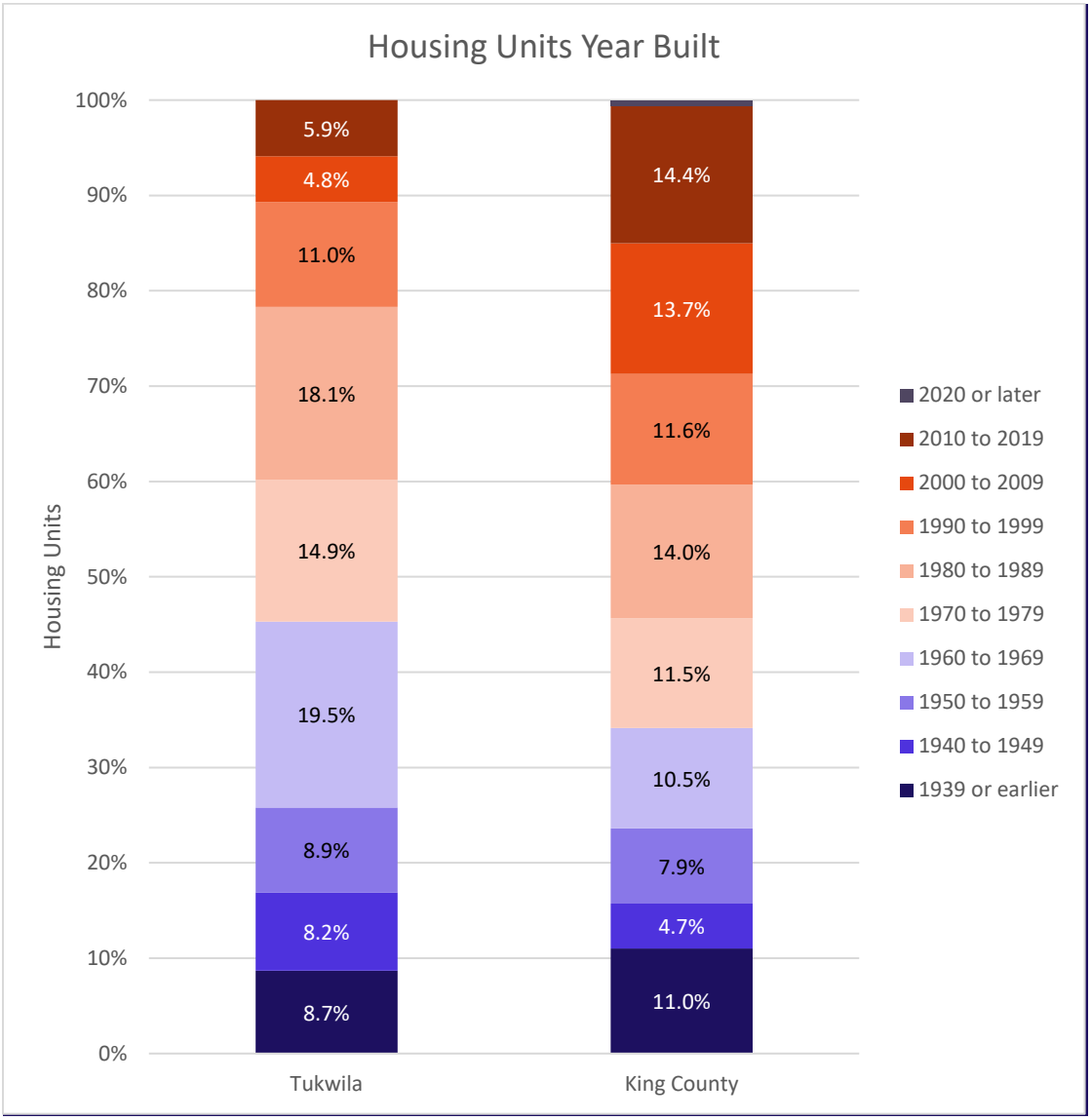


Source: 2021 American Community Survey 5-Year Estimates, Table DP04.

Housing Age and Production

Figure 1 shows the age of the housing stock in Tukwila in comparison to King County, as of 2021. Tukwila generally has an older housing stock than the County. Most of Tukwila's housing stock was built between 1960 and 1989, and 45% is more than fifty years old (compared to 34% of County housing stock). Only about 22% of Tukwila's housing stock has been built in the last 30 years, about half the countywide rate (40%).

Figure 16. Age of Housing in Tukwila and King County, 2021

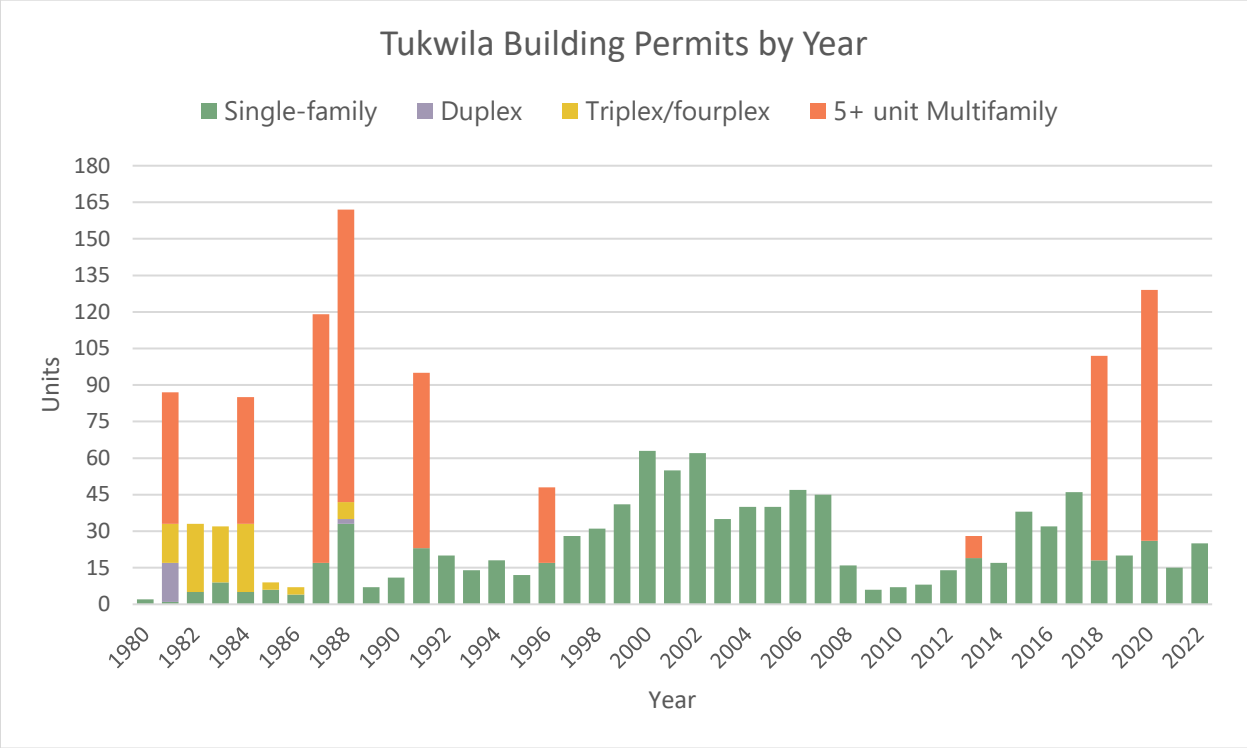


Source: 2021 American Community Survey 5-Year Estimates, Table DP04

Building permit issuance data shown below in Figure 1 captures the 1980s as a period when a higher proportion of Tukwila's housing stock was built. It also shows that most of the recent multifamily development has happened within the last five years, though not all recent multifamily development is captured in the totals. This data shows issued permits, not

completions, so some of the development in the last three years may not be captured in the data.

Figure 17. Tukwila Building Permits Issued by Unit Type, 1980-2022



Source: HUD State of the Cities Data Systems (SOCDS)

Housing Condition

The prevalence of older housing in Tukwila an suggest a greater need for upkeep compared to newer housing. Materials and systems within older homes naturally deteriorate over time, leading to the higher likelihood of needing repairs, replacements, and maintenance. These upgrades are often necessary to maintain a home's value and functionality.

Tukwila has adopted two programs to ensure that Tukwila homeowners and residents have options for ensuring their housing quality.

Minor Home Repair Program

The City administers the Minor Home Repair Program, which provides and promotes the repair and maintenance of housing for low- and moderate- income homeowners. The program is funded through a Community Development Block Grant (CDBG). The City receives approximately $25,000 in annual funding.

This program is a valuable resource for residents, however Tukwila Human Services estimates the program meets a fraction of the existing need for home repair and maintenance. Additional

funding and partnerships can help to improve the look and quality of housing throughout the City.

Rental Housing Inspection Program

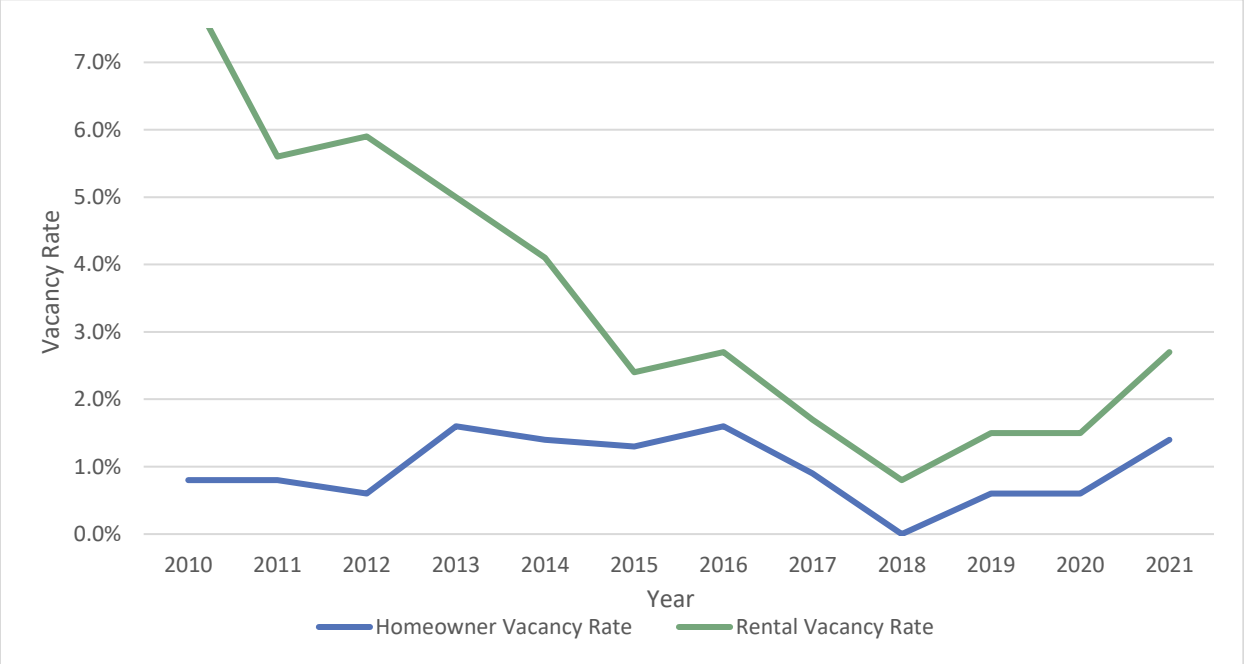
Implemented in 2011, the Tukwila Residential Rental Licensing and Inspection Program requires all rental unit owners to obtain an annual residential rental business license and complete an inspection every four years. The inspection may be conducted by a City inspector or a pre-approved private inspector. Rental units must meet code standards, and violations must be addressed within 30 days. The program seeks to improve substandard and unsanitary residential buildings that do not meet State and local housing and technical codes.

As of November 2023, 114 rental licenses (895 rental units) were due for inspection; in 2024, 180 rental licenses (1,570 units) are due.

Vacancy Rates

Tukwila's vacancy rate for rental and ownership properties are shown in Figure 18. In 2021, the rental vacancy rate was 1.3%, a rate that has decreased drastically over the last decade, dropping from 7.3% in 2010. A rental vacancy rate of 5% is considered healthy, allowing units to turn over and offering renters choice among available stock. The ownership vacancy rate was 1.4% in 2021, and that rate has stayed mostly stable over the course of the last decade.

Figure 18. Vacancy Rates in Tukwila, 2010-2021



Source: 2021 American Community Survey 5-Year Estimates, Table DP04

Affordable Housing - Subsidized

Affordable housing is a term that is used in different ways in different contexts. "Subsidized affordable housing" is housing supported by government or private subsidy and reserved for people earning below a certain income (other interrelated terms include low-income housing, subsidized housing, public housing, or rent-restricted housing). "Naturally occurring affordable housing (NOAH)" refers to market-rate housing, often in older buildings, having low rents. This section addresses subsidized affordable housing in Tukwila and will refer to it as affordable housing within this section.

Affordable housing properties may be reserved for people meeting a range of criteria, such as families with children, seniors, people with physical or intellectual disabilities, or people with substance abuse disorders. Affordable housing is important to support community members who face barriers in the private housing market, especially those who are on the edge of, or transitioning out of, homelessness. This type housing is subsidized and mostly operated by government or nonprofit organizations.

The main affordable housing provider in Tukwila is King County Housing Authority (KCHA), a government agency that provides housing assistance for families who need affordable alternatives to the private market. KCHA operates countywide. In Tukwila, King County Housing Authority's portfolio includes 283 housing units across three properties.

In addition, Homestead Community Land Trust, a nonprofit, is building 11 subsidized housing units for low-to-moderate-income buyers as part of an 18-unit housing development. Other nonprofits including, Bellwether Housing, and Sustainable Housing for Ageless Generations (SHAG) have built 100 and 235 housing units, respectively, in Tukwila.

Table 5. Tukwila Affordable Housing Inventory (King County Housing Authority)

Property Name	Units	Housing Type	Resident Criteria
King County Housing Authority			
Riverton Terrace	60	Multifamily	Subsidized housing; Open to families, seniors 55+, and disabled persons
Villages at South Station	191	Multifamily	Moderate-income housing
Pacific Court	32	Multifamily	Persons exiting homelessness (PSH)
Homestead Community Land Trust			
The Southard*	11	Semi-attached cottages	Subsidized housing for sale
Bellwether			
Confluence	103	Multifamily	Subsidized housing; Income qualified residents
Sustainable Housing for Ageless Generations – SHAG			
Tukwila Village	235	Multifamily	Subsidized housing; Open to seniors 55+ and disabled persons
Other Providers			
Miscellaneous	165	Middle Housing & Multifamily	Varied

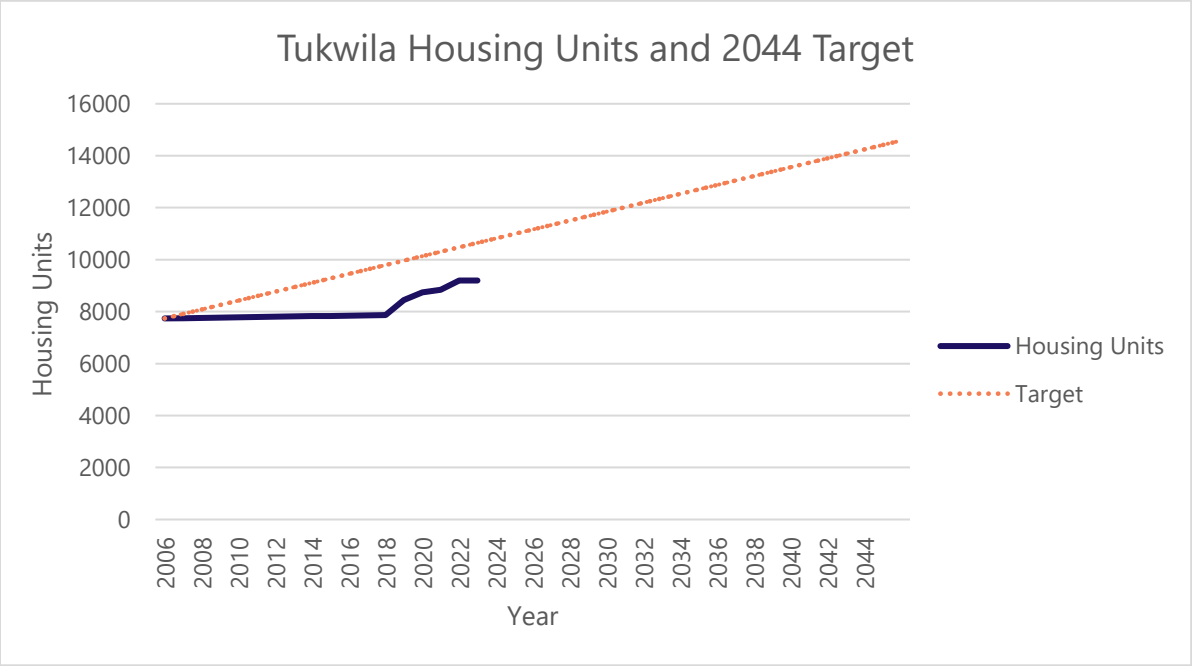
Note: (*) The Southard is currently under construction and is not occupied as of the completion of this report.

Section 4 – Housing Needs

Market Rate Housing

Per the King County Countywide Planning Policies, Tukwila has a 2044 housing growth target of 6,500 units above the 2018 level of 7,739 to reach a total of 14,239 units. As of 2023, Tukwila has 9,231 housing units, so 5,045 units of the target remain. To achieve this target by 2044, it will require that roughly 240 net additional units be built per year. If met, Tukwila's population would increase to approximately 36,000 residents in 2044 based on current OFM assumptions for persons per household.

Figure 19. Tukwila Housing Units and 2044 Growth Target



Source: OFM, 2023 and 2021 King County Urban Growth Center Report.

As a result of the limited past progress that occurred between 2006 and 2018 in meeting the previous 2035 housing target, Tukwila has been recommended to adopt "reasonable measures" to increase growth of both housing and employment. The 2021 King County Urban Growth Capacity Report recommended the following broad measures:

- Action(s) to encourage and/or incentivize residential development
- Action(s) to encourage and/or incentivize non-residential development

The past several years have seen a significant increase in housing production in Tukwila, however, measures to ensure continued production are still warranted. The Housing element recommends changes to residential zones to encourage development of denser multifamily and middle housing.

Collaboration with Community around Housing Needs

In the interest of better understanding the housing needs for Tukwila Community members most disproportionately impacted by housing cost, City Staff emphasized multiple strategies to better reach impacted groups that may not have been as likely to participate in policy decisions. Some of these strategies included focusing more in-person outreach opportunities closer to concentrations of these populations, such as along Tukwila International Boulevard, and providing translation services and food at said events. Staff also coordinated with community groups and leaders to better reach certain communities. This included contracting with community groups such as the Somali Health Board and African Community Housing & Development, to hear their housing challenges and experiences firsthand. During the comprehensive plan update the City also signed on as a member of the Black Home Initiative.

Cost-Burdened Households & Income Bands

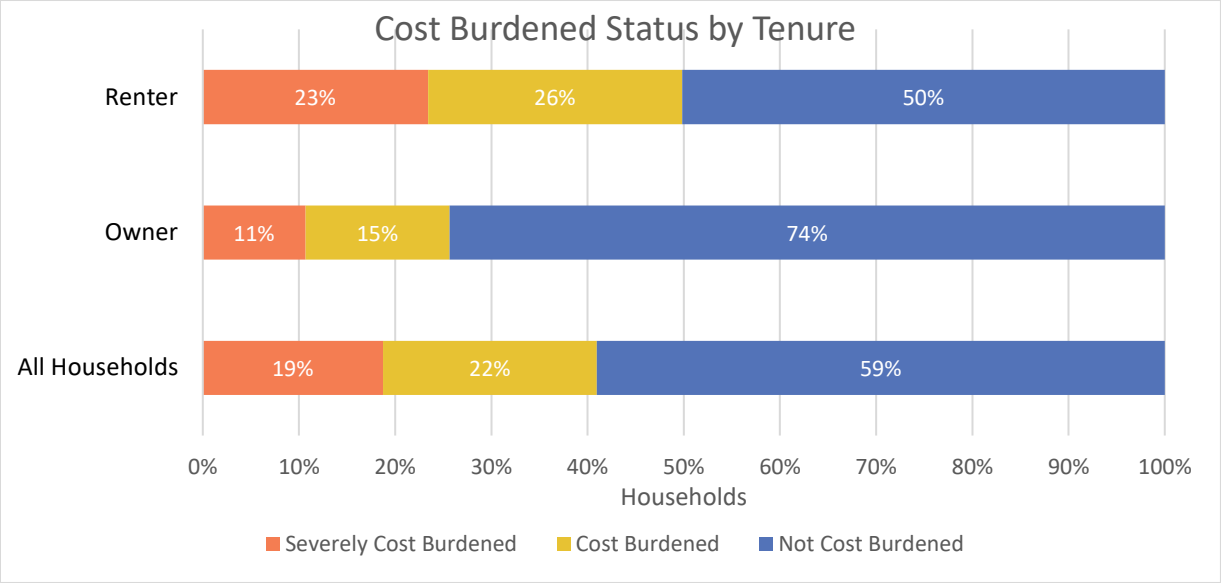
HUD uses a measurement of "cost burden" to further determine which subset of a community's residents are most in need of housing support or most at risk of displacement or housing hardship.

A household is considered to be "cost-burdened" if they are spending more than 30% of monthly income on housing costs (including rent/mortgage and utilities). A "severely cost-burdened" household spends more than 50% of their monthly income on housing costs.

Figure 20 shows a breakdown of Tukwila's households by tenure and cost burden status. Overall, about 41% of Tukwila's households are considered cost-burdened. Half of all renter-occupied households are considered cost-burdened, while one quarter of owner-occupied households are considered cost-burdened.

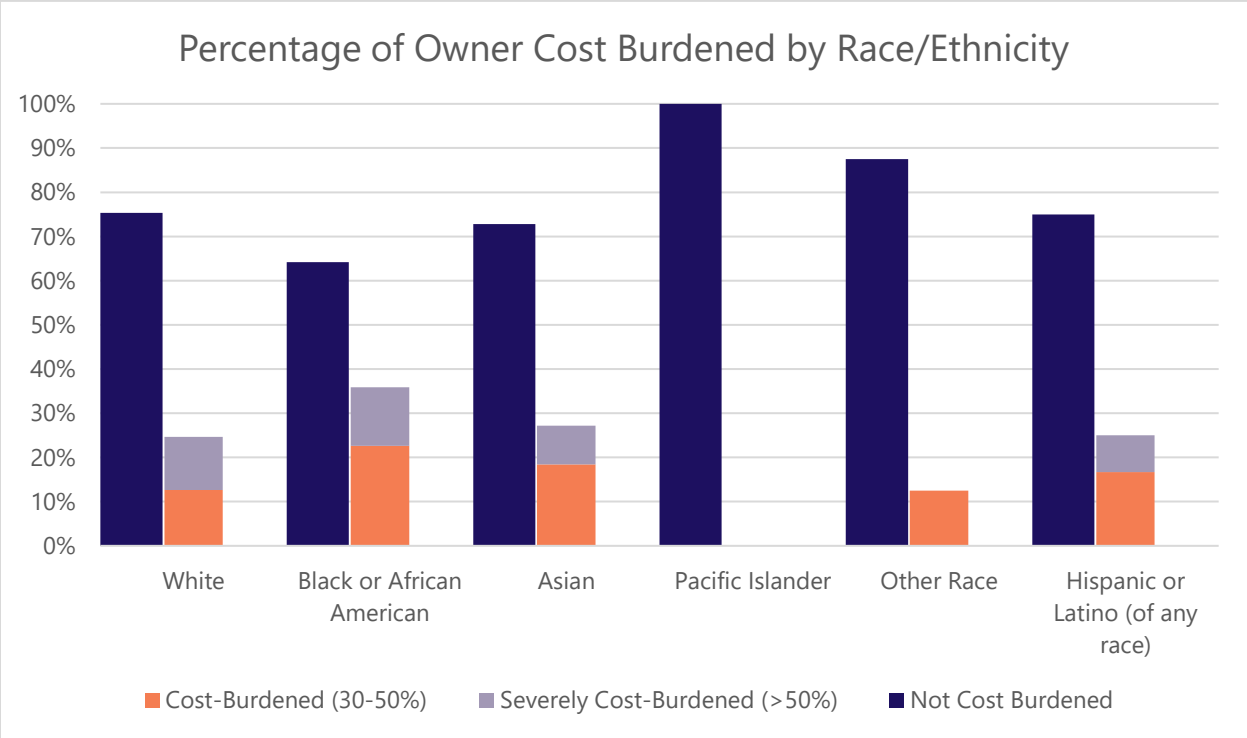
As is the case nationwide, renters are significantly more at risk of economic hardship and displacement than homeowners. With rental rates increasing dramatically in recent years and income growth failing to keep up, it appears that renters are suffering the consequences in terms of cost burden. There is a clear need for more rental housing that is affordable to all income levels.

Figure 20. Household Tenure by Cost Burden in the City of Tukwila, 2020. Source: HUD CHAS 2016-2020



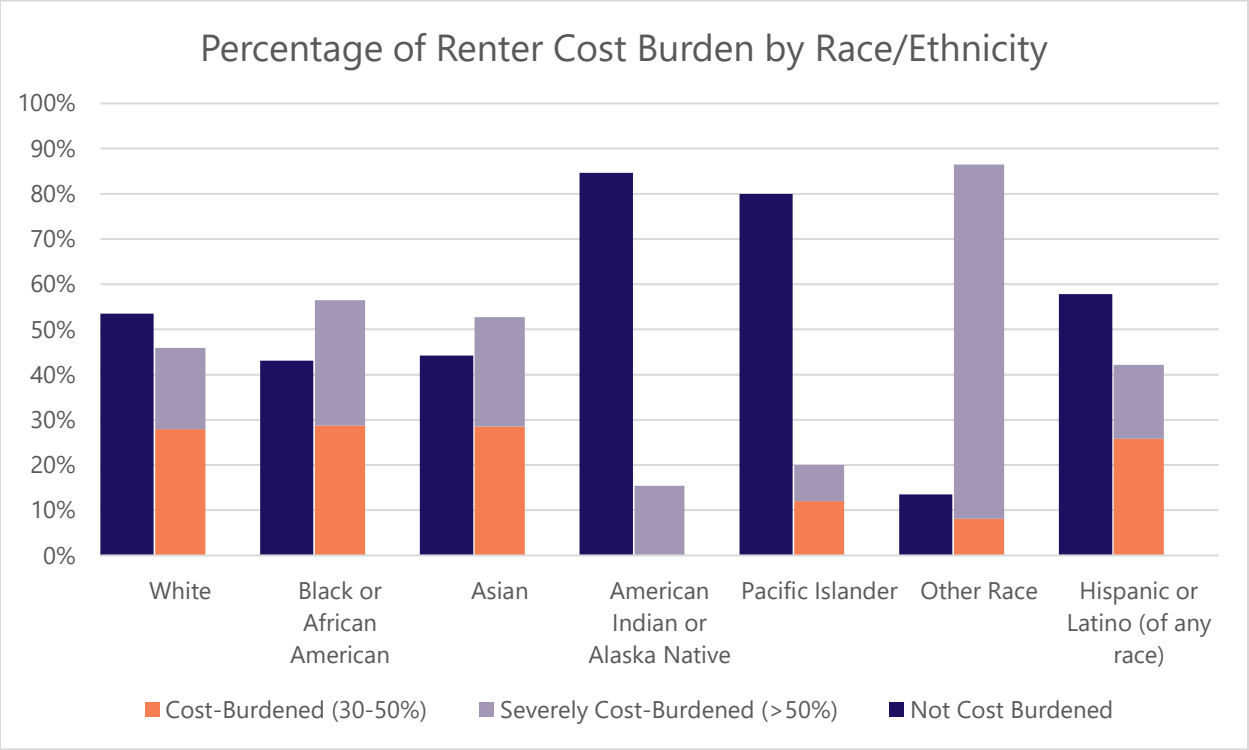
When analyzing by race/ethnicity and by tenure, further discrepancies were revealed as shown in Figures 21, 22 and 23. White Tukwila households are far more likely to not be cost burdened compared to households of color, and particularly Black Households.

Figure 20. Race/Ethnicity by Owner Cost Burden in the City of Tukwila, 2019.



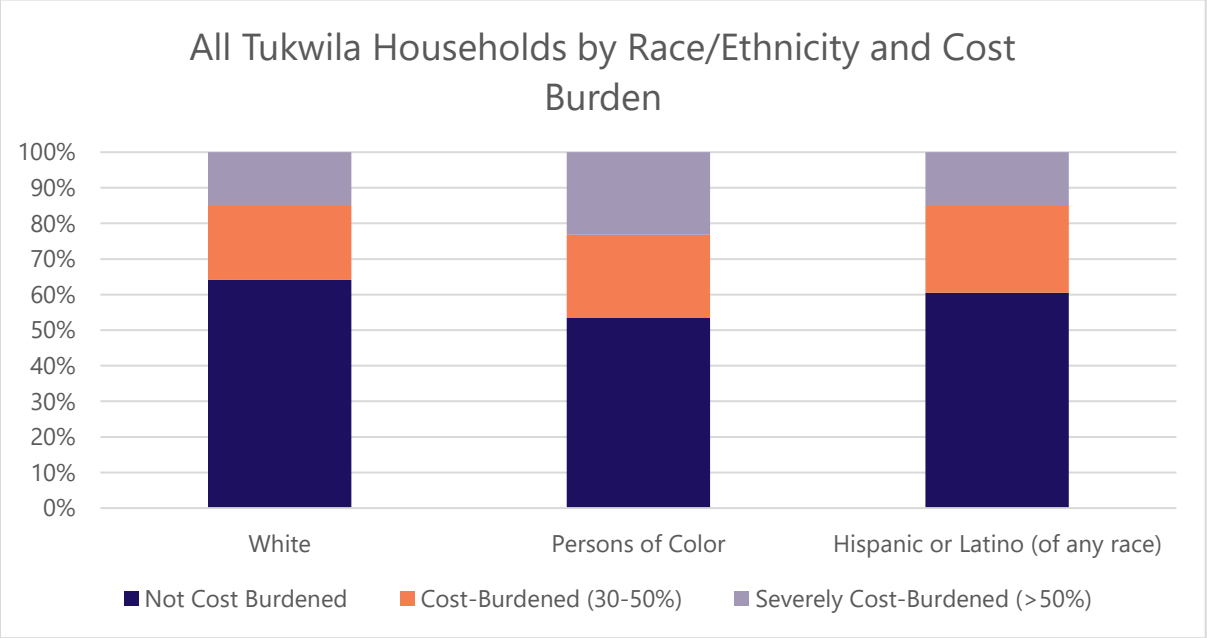
Source: HUD CHAS 2015-2019

Figure 21. Race/Ethnicity by Renter Cost Burden in the City of Tukwila, 2019.



Source: HUD CHAS 2015-2019

Figure 22. Race/Ethnicity by Cost Burden in the City of Tukwila, 2019



Source: HUD CHAS 2015-2019

As amended by HB 1220 in 2021, RCW 36.70A.070 requires that cities planning under the Growth Management Act (GMA) inventory and analyze projected housing needs for specific sectors of the population based on income. King County countywide planning policy H-1 establishes county level housing targets. From the targets provided to King County by the Washington Department of Commerce, King County produced city-specific targets. The targets for Tukwila are shown below.

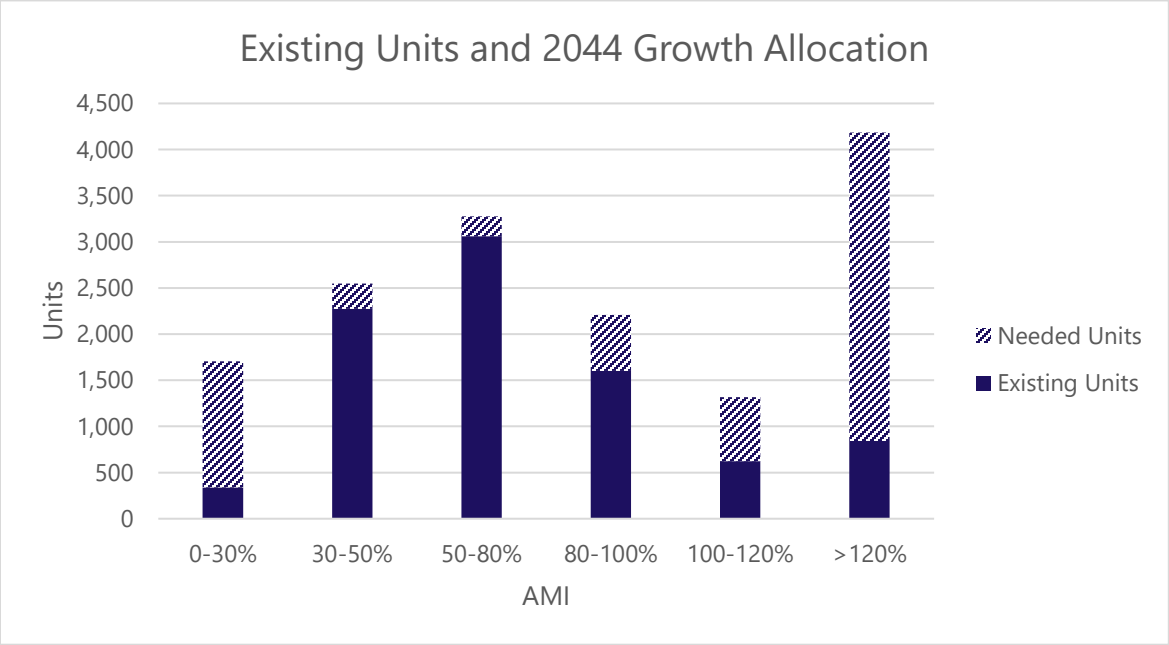
Table 6. Tukwila Housing Target Allocations by Income Band

Income Band	Share of Existing Households by AMI	Share of Existing Unit Affordability by AMI	Needed (2019-2044) Units	Share of Target Units (2019-2044)
Extremely low (0-30% AMI)	23%	4%	1367*	21%
Very low (30-50% AMI)	19%	26%	274	4%
Low (50-80% AMI)	16%	35%	214	3%
Moderate (80-100% AMI)	12%	18%	610	19%
Higher (100-120% AMI)	30%	10%	692	11%
High (>120% AMI)		7%	3,343	51%

** Includes 471 permanent supportive housing units*

Source: King County Housing Needs Dashboard

Figure 23. Tukwila Existing Housing Units and 2044 Growth Allocation



Source: Existing units by income band from Housing for All Planning Tool (HAPT) by Washington State Department of Commerce, Growth Management Services. Needed units from King County Housing Needs

These allocations place the bulk (51%) of housing growth in the highest income range, 120% AMI and above. This would represent a significant departure from the affordability of existing housing stock, and indicates a desire to more evenly distribute lower- and higher-income housing throughout the County. With a significant supply of relatively affordable market-rate housing already present in Tukwila, the City is already contributing significantly to countywide affordability. It is important to note that, at present, market-rate rental housing produced in Tukwila is priced for affordability, around 80 – 120% AMI, and county staff have indicated that the >120% AMI category is intended to be flexible; if newly developed units come in at more affordable levels, city growth targets will still be satisfied.

Emergency Housing and Emergency Shelter

The Low Income Housing Institute (LIHI) operates a 28-unit tiny house shelter program at Miracle Temple Church of God in Christ, and a 20-unit tiny house shelter program at Riverton Park United Methodist Church. The two tiny house shelters provide shelter for approximately 35 people at Miracle Temple Church of God and 40 people at Riverton Park United Methodist Church.

Per King County Planning policies and county growth allocations, Tukwila is required to demonstrate capacity for 1,242 emergency shelter beds.

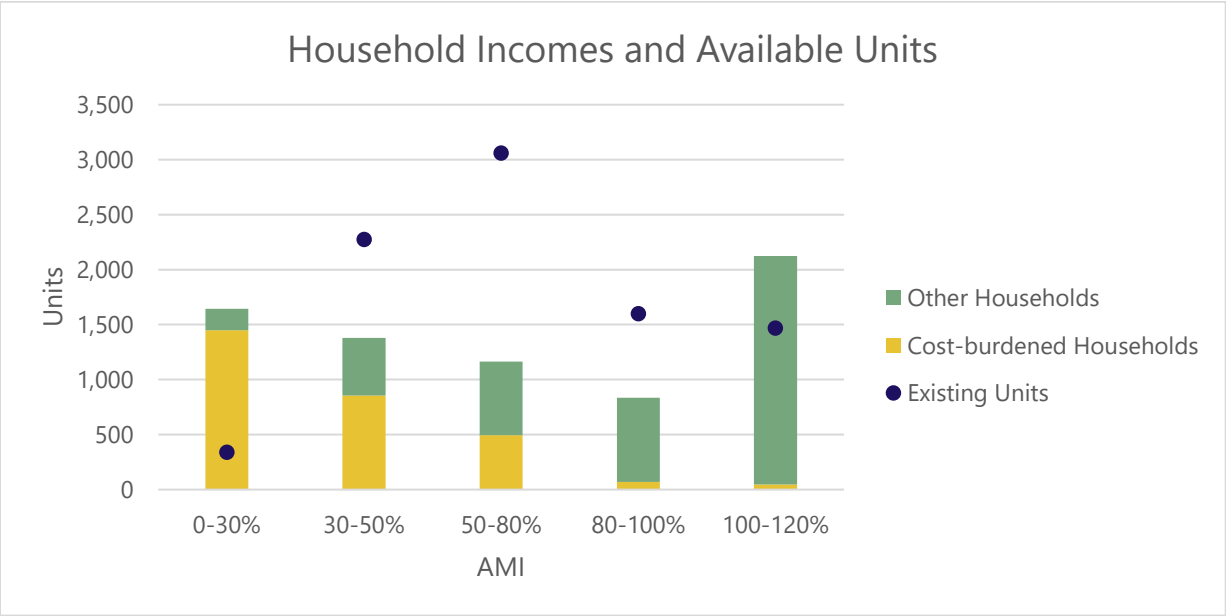
Gap Analysis

Available Housing Units by Income Bracket

While Tukwila households area spread between different incomes bands, the City's housing stock is clustered in the 50-80% AMI range. This creates a mismatch between household incomes and units available, and forces many households to pay for housing they can't easily afford. Almost 90% of extremely low-income households in Tukwila are cost-burdened.

In addition to cost-burdened households, some higher income households occupy housing much cheaper than what they could afford to pay. This creates the opportunity for new, market rate housing to move higher income households out of affordable units, reducing competition on more affordable older units.

Figure 24. Household Incomes and Available Units



Source: Households and cost-burden from HUD CHAS 2016-2020. Existing units by income band from Housing for All Planning Tool (HAPT) 2022 by Washington State Department of Commerce, Growth Management Services

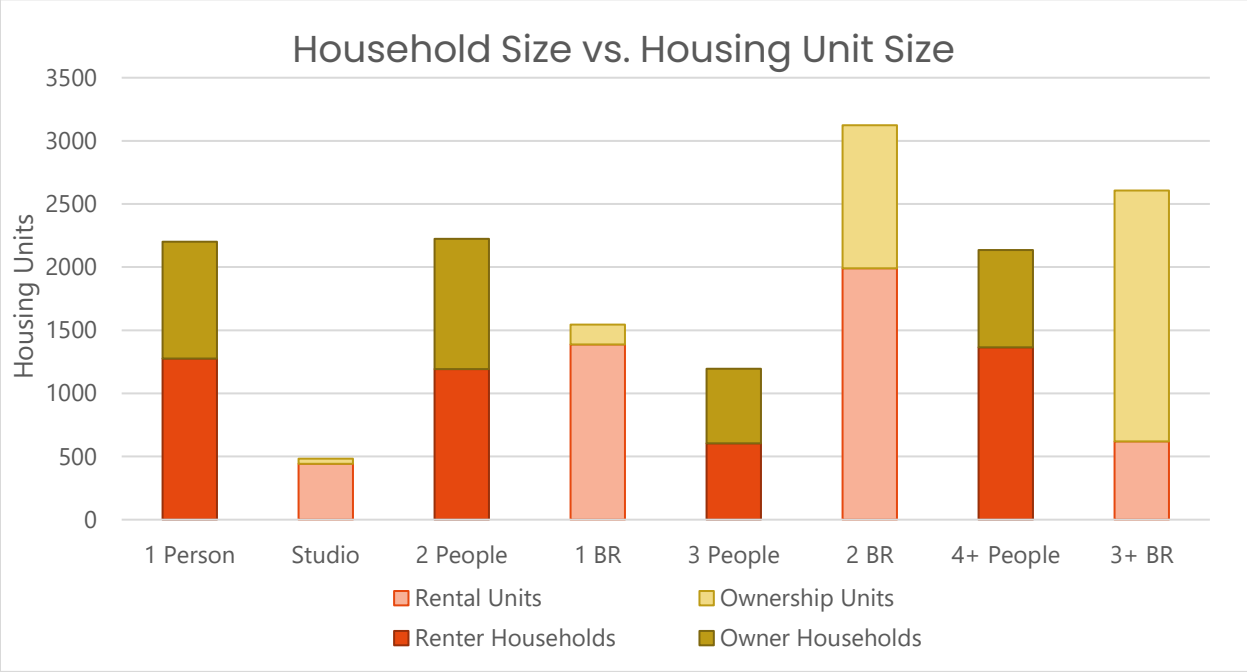
Permanent Supportive Housing

There are very few, if any, units of permanent supportive housing available in Tukwila.

Alignment of household size to housing unit size

Although overall household sizes are roughly in alignment with available housing units in Tukwila, there is a significant gap when compared by tenure (renter vs owner). Renter households tend to be significantly larger than owner households in Tukwila, for instance almost twice as many four-plus-person households rent, versus own, their home. By contrast, units on the ownership market tend to be significantly larger than units available to rent.

Figure 25. Household Size and Housing Unit Size



Source: 2021 American Community Survey 5-Year Estimates, Table B25042 and S2501

Barriers to Align Housing with Income Bracket

There are several barriers to align housing with income brackets in Tukwila. Housing development below 80% AMI is extremely unlikely to occur in Tukwila as a market rate development. High land and construction costs are a barrier to adding low- and very low-income housing; a subsidy would encourage affordable housing providers to build housing that serves this income bracket. Overly restrictive residential zoning standards are also a barrier to housing development, which can be remedied with residential zoning code updates. Lastly, a reputation for long permitting timelines due to inconsistent staffing and poor coordination between departments has discouraged housing development in Tukwila. Simplifying codes, removing unnecessary political steps in the permitting process, investing in adequate staffing, and streamlining process will help remove this barrier.

Racially Disparate Impacts

Policy Review

Review of 2015 Comprehensive Plan Policies related to housing, displacement or exclusion found 17 polices supportive, 5 approaching support, and 14 that challenge the goals of racial inclusion. In a more holistic review of whether goals and policies address all housing needs of the community, and equitably distribute burdens and benefits, a number of necessary changes emerged, including:

- Limit or remove references to exclusively single-family neighborhoods.

- Increase specificity, or remove references to new development blending with existing development, whether through ambiguous references to design, neighborhood character, views or overall quality. Current references do not comply with state law updates in design review and could easily be used as a vague criteria to restrict future development.
- Update housing requirements associated with new housing targets and HB 1220 requirements for income levels and types of housing.
- Consider disproportionate impacts based on clusters of racial, cultural, religious or socioeconomic groups, which are currently only hinted at in a few areas of the housing element.

These changes were incorporated into the periodic update of housing goals and policies.

Racially Disparate Impacts

Staff identified at least six racially restrictive covenants that directly restricted BIPOC homeownership within the City of Tukwila[2]. However, this does not confirm there were not additional racially restrictive covenants that have not been documented. Informal racially restrictive practices are also likely to have taken place in the areas that are now Tukwila.

Similar to much of south King County, Tukwila has historically had lower incomes and a more diverse population than the rest of the county and region. Due to this, BIPOC communities are naturally more impacted by regional and localized decisions. Areas of previously unincorporated King County subsequently annexed by Tukwila often lack alleys, grid connectivity and frontage improvements, creating lack of walkability, reducing pedestrian safety and overall neighborhood connectivity. Proximity to regional features, such as airports and a superfund site (the Lower Duwamish Waterway) also disproportionately impact health outcomes of BIPOC communities.

Exclusion

Regulatory and development patterns in the City's housing stock have created economic barriers to homeownership. Single-family detached houses on large lots, one of the most expensive housing products, are the only housing type allowed in a significant area of the City. Rapidly rising single-family home prices – up more than 50% over the last five years - has further separated the average Tukwila household from potential homeownership within the City. Limited housing availability raises prices on available homes, increasing cost burdens for lower income households. Since renters are disproportionately people of color, housing instability for the City's BIPOC population is further exacerbated as rent increases occur.

Displacement Risk

Consistent with staff understanding, census tracts, and block groups along Tukwila International Boulevard were identified as most vulnerable to displacement due to a combination of a high proportion of renters, cost-burdened households, lower income households, a proportion of high foreign-born residents, lower educational achievement levels and a lower rate of English proficiency. From these criteria, staff identified the three block groups shown in Figure 27 below as the most susceptible to displacement. Data used to identify block groups most susceptible to displacement can be found in Table 7.

Figure 26. Priority Block Groups of Highest Displacement Risk

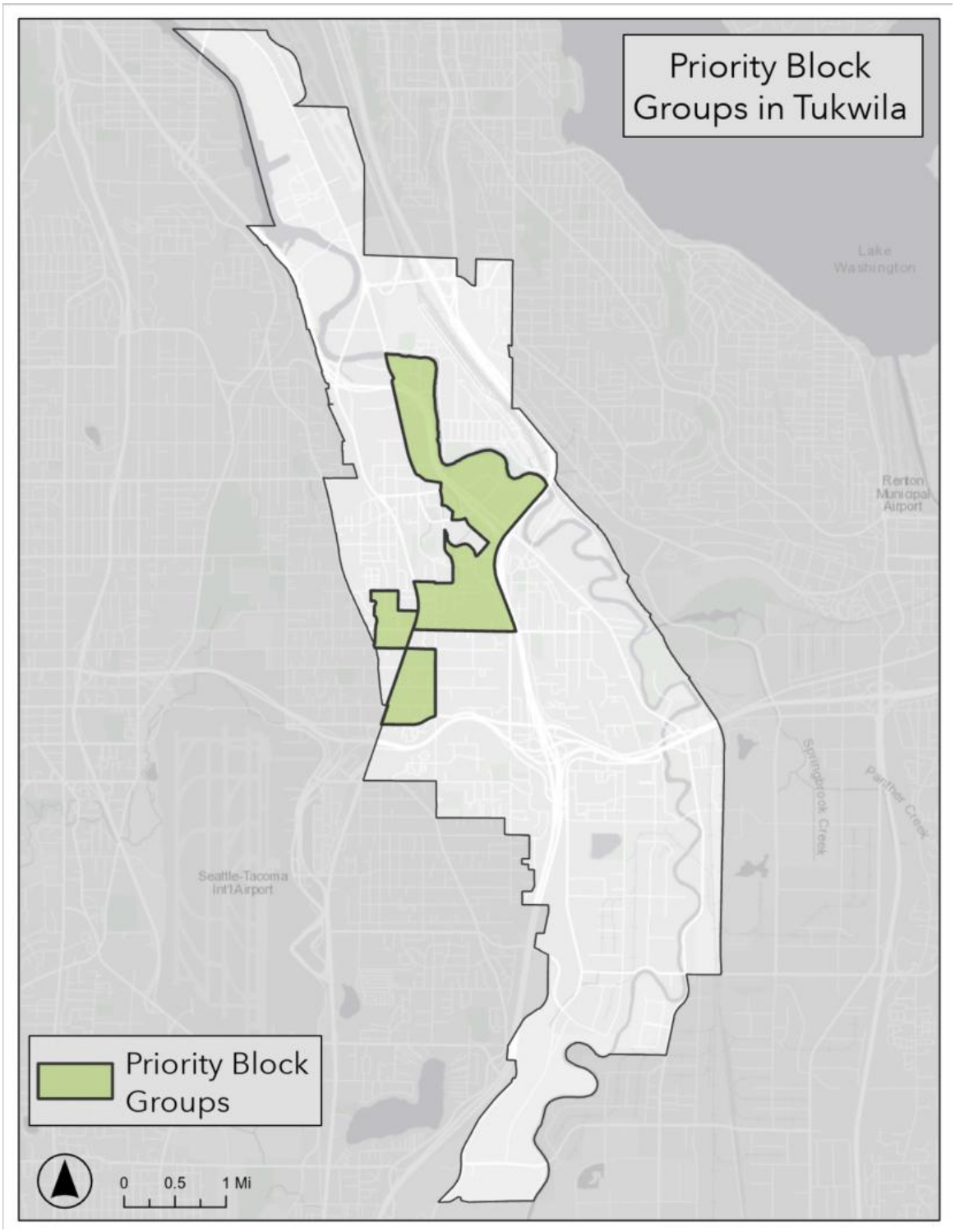


Table 7. Displacement Risk Data

	Data Source, ACS Table	Block Group 2, Census Tract 272	Block Group 2, Census Tract 273	Block Group 3, Census Tract 282
Total Persons		1,104	867	614
Total Households		546	402	307
English Limited Households	**C16002**	26%	54%	13%
No Vehicle Access	**B25045**	9%	15%	11%
% in Poverty	**B17101**	25%	29%	45%
% Foreign Born	**B99051**	49%	77%	47%
Non-White	**B02001**	73%	88%	75%
Educational Attainment	**S1501**			
Less than HS Diploma	**S1501**	22%	60%	26%
HS Diploma or some college, no degree	**S1501**	47%	26%	56%
Associate's Degree	**S1501**	13%	3%	5%
Bachelor's Degree	**S1501**	11%	11%	7%
Master's or Professional Degree	**S1501**	7%	0%	6%
Overcrowded	**B25014**	10%	59%	8%
Severely Overcrowded	**B25015**	1%	39%	0%

Restorative Actions

To begin to correct racially disparate impacts on housing brought by past housing discrimination, staff has identified focus areas for restorative actions the City can influence in its housing policy. While it is difficult to pair specific City actions to racially disparate impacts on housing in Tukwila due to the City's relatively small geography, amount of post-1968 annexations, and lack of strong documentation of formalized housing discrimination with its boundaries, this does not prevent the City from taking actions that can benefit the BIPOC population that currently reside in Tukwila, will reside in the City within the planning period, or the broader regional BIPOC population.

General areas of focus, further outlined in individual Housing Policies and Implementation Strategies, include:

- Amending standards to encourage production of more owner-occupied housing at lower entry points to capitalize on home ownership covenant funds for qualifying buyers to purchase property in Tukwila.

- Preservation of naturally occurring affordable housing through transition to income-restricted housing or other methods.
- Increasing supply of income restricted housing.

Section 5 – Land Capacity Analysis

Land Capacity Analysis

The 2021 King County Buildable Lands Report found that Tukwila had capacity for 5,577 units, with projected pipeline development of 2,642 units. The remaining 2044 target of 5,008 units can be accommodated within existing land based on current zoning, before even taking into account pipeline development. The 2021 King County Urban Growth Capacity Report recommended additional reasonable measure actions be taken to increase housing production, due to historic underproduction of housing.

Table 8. Tukwila Housing Capacity

Zone	Net Acres	Gross Capacity (units)	Existing Units	Net Capacity (units)
LDR	284.1	1449	592	857
MDR	12.8	186	25	161
HDR	10.7	267	27	210
MUO	3.1	45	3	42
RC	28.6	485	3	482
RCC	0.7	8	0	8
NCC	13.4	375	16	358
TUC (all)	126.6	2,714	0	2,714
TVS	50.3	745	0	745
TOTAL	659.6	6,243	666	5,577

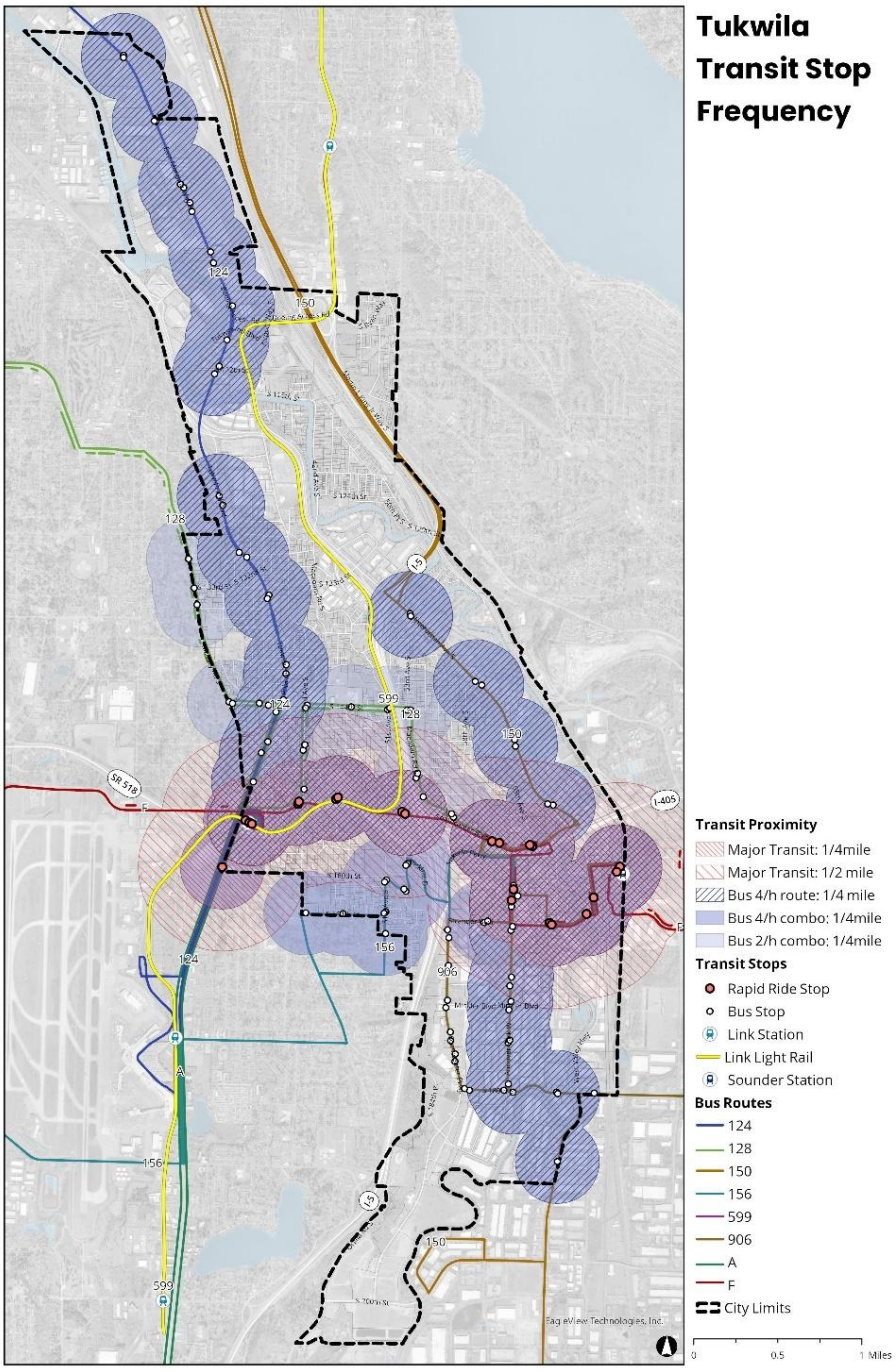
Source: Tukwila 2021 Buildable Lands Report documentation

Land Capacity & Subsidized Housing Near Transit

Due to the significant number of transit routes and stations within the City, much of Tukwila's residential zoned land capacity is within half a mile of at least one high-capacity transit stop. With the exception of portions of the currently LDR zoned properties, and TVS zoned properties, which are currently undeveloped and anticipate greater transit service with development, most all of the capacity within Table 8 is within a half mile buffer of a high-capacity transit stop, as shown in Figure 28.

Of the existing subsidized housing in Tukwila about 650 units, or nearly all of the existing income-restricted housing stock, is within half a mile of a least one high-capacity transit stop.

Figure 27. Proximity to Transit Map



Land Capacity by AMI Level

Without subsidy or forms of income-restriction, significant new housing development is very unlikely to develop at or below 80% AMI in the Tukwila Market, as either rental or ownership

housing products. The City will commit to new policies and strategies to enable greater housing production at 0-80% AMI. Policy and strategy areas intended to enable greater affordable housing production include but are not limited to:

- Increasing density and height allowances, especially in areas within proximity to transit and within LIHTC qualified census tracts
- Combining LDR and MDR zoned land into single comprehensive plan designation and eventual zone to support middle housing updates
- Adopting expanded ADU allowances consistent with HB 1337 over a year and a half ahead of legislative deadline
- Density incentives for affordable housing units
- Reducing restrictive development requirements, including height allowances, massing and parking requirements
- Partnering with nonprofits and developers on income restricted housing development
- Streamlining development and design review processes, and eliminating unnecessary review processes
- Exploring further fee reductions for affordable housing projects

It is acknowledged that achieving market rate housing production at or below 80% AMI is unlikely for the foreseeable future. There is also a lack of funding available at the regional and federal level for affordable housing development that will be vital in producing deeply affordable housing. However, policies and implementation strategies described can support greater housing affordability than the status quo scenario.

Table 9. Market Rate Housing Types Expected by Zoning District

Zone	Net Capacity (units)	New Market Rate Housing Types Expected	Expected Prevailing Market Rate AMI Level for New Housing	Assumed affordability level for capacity analysis
LDR	857	Single-Family and Middle Housing	120%+	120%+
MDR	161	Middle Housing	120%+	120%+
HDR	210	Middle Housing, Low-rise Apartments	80%+	0-80% & 100-120%
MUO	42	Low-rise and Mid-rise Apartments	80%+	0-80%
RC	482	Mid-rise Apartments	80%+	0-80%
RCC	8	Middle Housing	80%+	100%+
NCC	358	Mid-rise Apartments	80%+	0-80%
TUC (all)	2,714	Mid-rise Apartments and High Rise	80%+	0-120%
TVS	745	Mid-rise Apartments	80%+	0-80%

As displayed in Table 9, all residential and mixed use zoning districts currently allow at least middle housing types, or will do so after middle housing requirements are adopted in the case of the Low Density Residential (LDR) zone. The City has already adopted accessory dwelling unit allowances consistent with HB 1337, across all residential zones.

With the implementation of aforementioned strategies greater variety of housing production is expected to increase capacity for additional housing production at lower AMI levels. However, significant challenges exist especially in producing housing at and below 50% AMI. As referenced in Figure 2, only select census tracts within the City qualify for projects financed using the low income tax credit (LIHTC). As the prevailing catalyst for extremely low income and very low income new housing development, this lack of LIHTC eligibility in the TUC and TVS zones greatly reduces the likelihood of producing 0-50% AMI new housing across the Southern portion of the City, which currently hold the majority of perceived housing capacity, without significant alternative subsidy. Strategies such as affordable housing density bonuses and fee reductions will be considered to attempt to further facilitate deeply affordable development outside of LIHTC eligible census tracts.

Using guidance provided by the Department of Commerce for housing types and income levels served in higher-cost communities was used to create capacity by AMI seen in Figure 35, while Figure 36 provides an provides an estimation of capacity for housing development at different AMI ranges with staff observations and assumptions based on market conditions integrated. Key assumptions integrated into the assessment of AMI capacity include:

- Only a very small subset of studio units are expected to be produced at or below 80% AMI. All other market rate development is expected to be produced above 80% AMI.
- Projects utilizing the twelve year multifamily tax exemption will produce some units within the 50-80% AMI range.
- Due to the TUC and TVS zoned parcels not existing within LIHTC qualified Census Tracts, little to no housing unit production between 0-50% AMI in these zones.

Table 10. Housing Capacity by AMI Range by Commerce Guidance

Zoning	Units by AMI Capacity (Commerce Guidance)						
	0-30% PSH	0-30% non-PSH	30-50%	50-80%	80-100%	100-120%	120+%
LDR	0	0	0	0	0	0	856
MDR	0	0	0	0	0	0	161
HDR	16	37	26	26	0	53	52
MUO	6	15	10	11	0	0	0
RC	72	169	120	121	0	0	0
RCC	0	0	0	0	0	4	4
NCC	54	126	90	89	0	0	0
TUC (all)	204	475	339	339	679	678	0
TVS	112	261	186	186	0	0	0
Total Unit Capacity	464	1,083	771	772	679	735	1,073

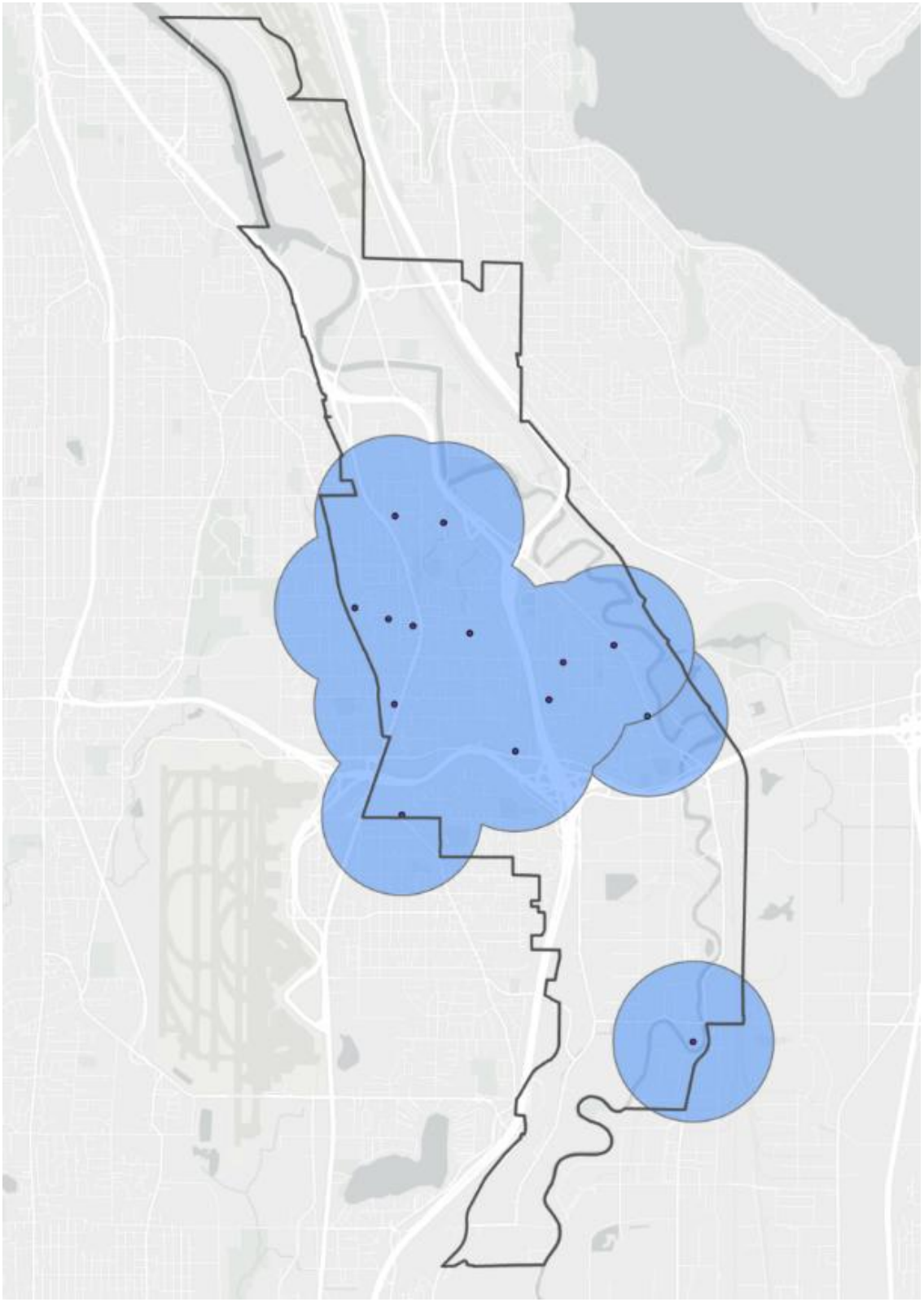
Table 11. Housing Capacity by AMI Range with anticipated market conditions

Zoning	Units by AMI Capacity with (Market Conditions)						
	0-30% PSH	0-30% non-PSH	30-50%	50-80%	80-100%	100-120%	120+%
LDR	0	0	0	0	86	86	685
MDR	0	0	0	0	0	32	129
HDR	15	15	0	0	60	60	60
MUO	0	0	0	0	4	38	0
RC	70	120	51	24	0	157	60
RCC	0	0	0	0	0	0	8
NCC	45	45	90	0	0	179	0
TUC (all)	271	0	0	136	541	810	948
TVS	74	0	0	75	112	210	274
Total Unit Capacity	475	223	141	235	760	1,572	2,164

Emergency Housing

Currently the City lacks adequate capacity to accommodate its target of emergency shelter and emergency housing space for 1,242 persons. Currently, regulations prohibit emergency facilities housing greater than 45 individuals per site, and place a restriction on non-religiously affiliated facilities operating within half a mile of another emergency housing facility. It is estimated that Tukwila's current capacity is 300-400 beds. Policies and associated implementation strategies in the Housing Element will rectify the gap in capacity.

Figure 28. Half mile buffer from existing religious facilities



Development Since 2019

Between 2019 and 2022 according to the Office of Financial Management, a total of 1,248 units were added to the housing supply. Notably, this includes the Tukwila Village mixed-use development, the high-rise Interurban Hotel building, and the Mariblu at Southcenter podium building totaling 941 units between those developments.

Table 12. Tukwila housing development 2019-2022

Single Family Detached Units	Accessory Dwelling Units	Townhouse Units	Multifamily Units	Units Demolished	Net New Units
94	8	13	1,167	34	**1,248**

Source: OFM, 2022

The substantial residential development experienced from 2019 to present is not accounted for in the King County Urban Growth Capacity Report or associated targets set for Tukwila. Below is an update of housing targets integrating recent residential development into housing allocation targets by AMI.

Table 13. Updated Tukwila Housing Target Allocations by Income Band

Income band	Target Units (2019-2044)	Share of Target Units (2019-2044)	Net New Units (2019-2022)	Target Units (2023-2044)	Share of Target Units (2023-2044)
Extremely low (0-30% AMI)*	1367	21%	0	1367	25%
Very low (30-50% AMI)	274	4%	120	154	3%
Low (50-80% AMI)	214	3%	372	-158	0%
Moderate (80-100% AMI)	610	19%	76	534	10%
Higher (100-120% AMI)	692	11%	385	307	6%
High (>120% AMI)	3,343	51%	332	3011	56%

** Includes 471 permanent supportive housing units*

Source: King County Housing Needs Dashboard, rental listings

Figure 40 displays the final estimated capacity by AMI range with recent housing development incorporated. Policies and implementation strategies seen in the housing element will work to address the capacity deficit seen within the 0-30% AMI non-PSH and 0-50% AMI housing targets.

Table 14. Tukwila AMI Capacity & Targets including Recent Development

AMI Range	0-30% PSH	0-30% non-PSH	30-50%	50-80%	80-100%	100-120%	120+%
Total Unit Capacity	464	1083	771	772	679	735	1073
Development 2019-2022	0	0	120	372	76	385	332
Growth Targets	471	896	274	214	610	692	3343
Capacity beyond growth targets	-7	187	617	930	145	428	-1,938

[1] Source: U.S. Census Bureau, Subject Definitions.
[2] Racial Restrictive Covenants - Seattle Civil Rights and Labor History Project (washington.edu)

Appendix B: Adequate provisions checklists

This appendix provides checklists to use in documenting barriers and programs and actions to achieve housing availability (RCW 36.70A.070(2)(d)). These checklists include the following:

- Exhibit B1: Moderate Density housing barrier review checklist
- Exhibit B2: Low-Rise or Mid-Rise housing barrier review checklist
- Exhibit B3: Supplemental barrier review checklist for PSH and emergency housing
- Exhibit B4: Accessory dwelling unit barrier review checklist
- Exhibit B5: Checklist for local option tools for addressing affordable housing funding gaps

Documentation of the barriers to housing availability and the programs or actions needed to overcome these barriers must be in a public document and typically should be included as an appendix to the comprehensive plan housing element.

Barrier review checklists

Exhibit B1: Moderate Density housing barrier review checklist

Barrier	Is this barrier likely to affect housing production? (yes or no)	Why or why not? Provide evidence.	Actions needed to address barrier.
DEVELOPMENT REGULATIONS			
Unclear development regulations	Yes	Hidden limitations such as parking location restrictions, upper story setbacks are confusing and limit actual development potential.	Update and remove unnecessary limitations on site development in CR zone.
Prohibiting some moderate density housing types, such as: ○ **Duplexes** ○ **Triplexes** ○ **Four/five/six-plexes** ○ **Townhomes** ○ **Cottage housing** ○ **Live-work units** ○ **Manufactured home parks**	Yes	Medium Density Residential (MDR) zoning district only permits duplexes, triplexes, fourplexes and small townhomes, Low Density Residential (LDR) zoning district does not permit any of these housing types.	Consolidate LDR and MDR into new Community Residential (CR) zoning district and expand housing type allowances with middle housing update.
High minimum lot sizes	Yes	Minimum lot sizes of 6,500 sqft and 8,000 sqft in LDR and MDR respectively leave many existing legal lots of record nonconforming and increase difficulty of development through high land prices and	Reduce minimum lot size for CR zone to 5,000 sqft.

Barrier	Is this barrier likely to affect housing production? (yes or no)	Why or why not? Provide evidence.	Actions needed to address barrier.
		square footage per unit requirements.	
Low maximum densities or low maximum FAR	Yes	LDR properties only currently allow a single dwelling unit and two ADUs, while MDR properties require 3,000 sqft of lot area per unit.	Create standards in CR zone to have a baseline of multiple units per parcel, with density increases for parcels above the minimum lot size.
Low maximum building heights	Yes	30' height restriction severely curtails ability to construct third floor.	Update maximum building height in CR zone to 35', and coordinate with fire and other departments to produce education materials on additional requirements for structures above 30'.
Large setback requirements	Yes	Large front yard setbacks and upper story setbacks restrict development footprints, and many types of housing forms.	Reduce front yard setbacks and expand allowed intrusions in setbacks with middle housing update.
High off-street parking requirements	Yes	High parking minimums, coupled with lack of nuance by unit type/size and flexibility of parking locations creates significant site area which must be dedicated to parking.	Reduce middle housing parking requirements to one per unit, or none if within proximity to transit per HB 1110.

Appendix B: Adequate provisions checklists

Barrier	Is this barrier likely to affect housing production? (yes or no)	Why or why not? Provide evidence.	Actions needed to address barrier.
High impervious coverage limits	No	Building lot coverage and impervious coverage limits are high and unlikely to prevent development.	
Lack of alignment between building codes and development codes	No	No known issues	Guidance will be updated to provide better direction with implementation of middle housing regulations.
Other (for example: complex design standards, tree retention regulations, historic preservation requirements)	No	N/A	
PROCESS OBSTACLES			
Conditional use permit process	No	Moderate density zones do not require CUPs for housing development.	
Design review	Yes	Design review has been changed to a fully administrative process, but standards are still ambiguous.	Update residential design review regulations to be compliant with HB 1293 for clear and objective design standards.
Lack of clear and accessible information about process and fees[1]	No	Fee information is openly available on the City's online permit webpage and	

[1] For example: guidance resources are unclear or difficult to find, no digital permit tracking system, staff do not provide fee estimates or permitting time estimates are unavailable or inaccurate.

Appendix B: Adequate provisions checklists

Barrier	Is this barrier likely to affect housing production? (yes or no)	Why or why not? Provide evidence.	Actions needed to address barrier.
		staff with available to discuss any questions from the public.	
Permit fees, impact fees and utility connection fees	Yes	Impact and connection fees do not reflect proportionate impacts of different scales of residential development.	Update fire, parks and transportation impact fees to comply with SB 5258, and ensure internal and external utility districts are updating connection fees for compliance as well.
Processing times and staffing challenges	No	Timelines have been updated comply with SB 5290, and all permitting is conduct online through the digital permit portal.	
SEPA process	No	Flexible exemption thresholds have been updated to be SEPA exempt for most projects up 200 housing units.	
LIMITED LAND AVAILABILITY AND ENVIRONMENTAL CONSTRAINTS			
Lack of large parcels for infill development	Yes	Most desirable development sites in LDR and MDR zones have already been short platted and developed at lower densities in the last few decades.	Reduce minimum lot size for CR zoned parcels.

Appendix B: Adequate provisions checklists

Barrier	Is this barrier likely to affect housing production? (yes or no)	Why or why not? Provide evidence.	Actions needed to address barrier.
Environmental constraints	Yes	Many of the large undeveloped parcels within the LDR and MDR zoning contain streams, wetlands, steep slopes or other significant critical areas that limit site development potential.	?

Exhibit B2: Low-Rise or Mid-Rise housing barrier review checklist

Barrier	Is this barrier likely to affect housing production? (yes or no)	Why or why not? Provide evidence.	Actions needed to address barrier.
DEVELOPMENT REGULATIONS			
Unclear development regulations	Yes (HDR, NCC, RCC, RC, MUO, RCM)	Hidden limitations such as parking location restrictions, upper story setbacks are confusing and limit actual development potential.	Remove unnecessary regulations such as upper story setbacks, and additional separation from lower density zones.
High minimum lot sizes	No	Minimum lot sizes are not exceptionally high, though the per unit density is a restrictive factor.	
Low maximum densities or low maximum FAR	Yes	Many zones in question require 2,000 sqft of lot area or more.	Consolidate unnecessary zone redundancy and increase density allowances for these zones.
Low maximum building heights	Yes	Low building height maximums of three to four stories limit development potential, even before factoring in other constraining factors.	Increase heights to at least four to five stories with bonuses for affordable housing and ground floor commercial.
Large setback requirements	Yes	Large front yard setbacks and upper story setbacks, and additional separation requirements from lower density zones restrict development footprints, and many types of housing forms.	Reduce front yard setbacks and remove additional upper story setbacks and separations from lower density zones.

Barrier	Is this barrier likely to affect housing production? (yes or no)	Why or why not? Provide evidence.	Actions needed to address barrier.
High off-street parking requirements	Yes	High parking minimums, coupled with lack of nuance by unit type/size and flexibility of parking locations creates significant site area which must be dedicated to parking.	Reduce parking requirements based on unit size, and proximity to transit.
High impervious coverage limits			
Lack of alignment between building and development codes	No	No known issues.	
Other (for example: ground floor retail requirements, open space requirements, complex design standards, tree retention regulations, historic preservation requirements)	N/A		
PROCESS OBSTACLES			
Conditional use permit process	No		
Design review	Yes	Design review has been changed to a fully administrative process, but standards are still ambiguous.	Update residential design review regulations to be compliant with HB 1293 for clear and objective design standards.
Lack of clear and accessible information about process and fees	No	Fee information is openly available on the City's online permit webpage and staff with available to discuss any questions from the public.	
Permit fees, impact fees and utility connection fees	Yes	Impact and connection fees do not reflect proportionate	Update fire, parks and transportation impact fees to comply with SB 5258, and ensure internal

Barrier	Is this barrier likely to affect housing production? (yes or no)	Why or why not? Provide evidence.	Actions needed to address barrier.
		impacts of different scales of residential development.	and external utility districts are updating connection fees for compliance as well.
Process times and staffing challenges	No	Staff has adopted code updates to comply with 5290 timelines.	
SEPA process	No	Flexible exemption thresholds have been updated to be SEPA exempt for most projects up 200 housing units.	
LIMITED LAND AVAILABILITY AND ENVIRONMENTAL CONSTRAINTS			
Lack of large parcels for infill development	No	N/A	
Environmental constraints	Yes	Many undeveloped and underdeveloped parcels in zones allowing low-rise and mid-rise are constrained by various critical areas.	?

Exhibit B3: Supplementary barrier review checklist for PSH and emergency housing

Barrier	Is this barrier likely to affect housing production? (yes or no)	Why or why not? Provide evidence.	Actions needed to address barriers.
DEVELOPMENT REGULATIONS			
Spacing requirements (for example, minimum distance from parks, schools or other emergency/PSH housing facilities)[2]	Yes	Minimum distance from transit requirement for emergency housing and PSH,, and minimum space distance between emergency housing, PSH and Transitional Housing facilities.	
Parking requirements	No	N/A	
On-site recreation and open space requirements	No	N/A	
Restrictions on support spaces, such as office space, within a transitional or PSH building in a residential zone	No	N/A	
Arbitrary limits on number of occupants (in conflict with RCW 35A.21.314)	Yes	Currently limited to 45 occupants for emergency housing and shelters and 15-45 occupants for PSH and transitional housing.	
Requirements for PSH or emergency housing that are different than the requirements imposed on housing developments generally (in conflict with RCW 36.130.020)	Yes	Additional requirements for security and on-site services at emergency housing, PSH and transitional housing not	

[2] Note that RCW 35A.21.430 expressly states requirements on occupancy, spacing, and intensity of use may not prevent the siting of a sufficient number of permanent supportive housing, transitional housing, indoor emergency housing or indoor emergency shelters necessary to accommodate each code city's projected need for such housing and shelter under RCW 36.70A.070(2)(a)(ii). The restrictions on these uses must be to protect public health and safety.

Barrier	Is this barrier likely to affect housing production? (yes or no)	Why or why not? Provide evidence.	Actions needed to address barriers.
		required for other housing types.	
Other restrictions specific to emergency shelters, emergency housing, transitional housing and permanent supportive housing	No	Other criteria, such as good neighbor agreement are minor and have flexibility.	

Appendix B: Adequate provisions checklists

Exhibit B4: Accessory dwelling unit barrier review checklist

Barrier	Is this barrier likely to affect housing production? (yes or no)	Why or why not? Provide evidence.	Actions needed to address barriers.
DEVELOPMENT REGULATIONS			
Consistent with HB 1337 (2023) • Must allow two ADUs on each lot in urban growth areas; • May not require the owner to occupy the property, and may not prohibit sale as independent units, but may restrict the use of ADUs as short term rentals; • Must allow an ADU of at least 1,000 square feet; • Must set parking requirements based on distance from transit and lot size; • May not charge more than 50% of the impact fees charged for the principal unit; • Must permit ADUs in structures detached from the principal unit; • May not restrict roof heights of ADUs to less than 24 feet, unless that limitation applies to the principal unit; • May not impose setback requirements, yard coverage limits, tree retention mandates, restrictions on entry door locations, aesthetic requirements, or requirements for design review for ADUs that are more restrictive than those for principal units; • Must allow an ADUs on any lot that meets the minimum lot size required for the principal unit; • Must allow detached ADUs to be sited at a lot line if the lot line abuts a public alley, unless the city or county routinely plows snow on the public alley; • Must allow conversions from existing structures, even if they violate current code requirements for setbacks or lot coverage; and • May not require public street improvements as a condition of permitting ADUs.	Largely	Not consistent with impact fees, but consistent with all other criteria with Fall 2023 update.	Need transportation and park impact fees to be updated to comply.
Unclear development regulations	No	Have updated regulations and posted ADU guidance on City's permitting website.	
Large setback requirements	Yes	Frontage yard setback of 20' makes ADU development difficult for many sites.	Reduce front yard setback to 10'.

Barrier	Is this barrier likely to affect housing production? (yes or no)	Why or why not? Provide evidence.	Actions needed to address barriers.
Off-street parking requirements	No	Parking requirements consistent with maximum requirements per HB 1337	
Other (for example: burdensome design standards, tree retention regulations, historic preservation requirements, open space requirements, etc.)	No	N/A	
PROCESS OBSTACLES			
Lack of clear and accessible information about process and fees	No	Fee information is openly available on the City's online permit webpage and staff with available to discuss any questions from the public.	
Permit fees, impact fees and utility connection fees that are not proportionate to impact	Yes	Impact and connection fees do not reflect proportionate impacts of different scales of residential development.	Update fire, parks and transportation impact fees to comply with SB 5258, and ensure internal and external utility districts are updating connection fees for compliance as well.
Processing times and staffing challenges	No	Staff has adopted code updates to comply with 5290 timelines.	

Exhibit B5: Checklist for local option tools for addressing affordable housing funding gaps

Local option tools for addressing affordable housing funding gaps*	Implementation status	Plans for implementation
Housing and related services sales tax (RCW 82.14.530)	No	
Affordable housing property tax levy (RCW 84.52.105)	No	Not planned at this time.
REET 2 (RCW 82.46.035) – GMA jurisdictions only and only available through 2025	No	
Affordable Housing Sales Tax Credit (RCW 82.14.540) – was only available to jurisdictions through July 2020	No	
Lodging Tax (RCW 67.28.150 and RCW 67.28.160) to repay general obligation bonds or revenue bonds	No	
Mental Illness and Drug Dependency Tax (RCW 82.14.460) – jurisdictions with a population over 30,000	N/A	Population unlikely to exceed 30,000 for some time.
Donating surplus public lands for affordable housing projects (RCW 39.33.015)	No	No immediate plans for adoption of policy to donate surplus public lands for affordable housing.
Impact fee waivers for affordable housing projects (RCW 82.02.060)	No	There are currently fee reductions, but not waivers for affordable housing projects.
Application fee waivers or other benefits for affordable housing projects (RCW 36.70A.540)	Yes	There are currently permit reductions for affordable housing projects.
Multifamily Tax Exemption (MFTE) with affordable housing requirement (RCW 84.14)	Yes	8 and 12 year MFTEs are offered in limited areas of the City with caps on the maximum number of units that can received MFTEs, and various eligibility criteria. Expansion of the MFTE program with other multifamily updates in another area of the

Local option tools for addressing affordable housing funding gaps*	Implementation status	Plans for implementation
		City would likely be needed to increase housing growth in those areas.
General funds (including levy lid lifts to increase funds available)	No	

* Some tools may be unavailable for certain jurisdictions. For example, only GMA jurisdictions can use REET 2, or the surrounding county may have already implemented the housing and related services sales tax. See MRSC's summary of Affordable Housing Funding Sources for more details and the Association of Washington Cities (AWC)/MRSC booklet on Homelessness & housing toolkit for cities (2022).

Appendix B: Adequate provisions checklists

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CITY OF TUKWILA

COMPREHENSIVE LAND USE PLAN

NATURAL ENVIRONMENT CHAPTER BACKGROUND REPORT

2024 GROWTH MANAGEMENT ACT

UPDATE TO THE COMPREHENSIVE PLAN

Planning Commission Draft

December 2024

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I INTRODUCTION

This background report for the Natural Environment Element provides a summary of the key regulatory provisions and policies that apply to the management of the natural environment and expands on the discussion of water quality in the Green/Duwamish River, and Tukwila's streams and wetlands.

II ENVIRONMENTALLY CRITICAL AREAS

This Section describes the various regulations and policies that are applicable to critical areas management.

Growth Management Act Requirements

The Washington State Growth Management Act (GMA) requires counties and cities to designate and adopt policies and development regulations to protect critical areas (RCW 36.70A.050; WAC 365-190). Under the Act, critical areas are defined as: wetlands; fish and wildlife habitat; aquifer recharge areas (where groundwater is used for potable water supply); frequently flooded areas; and geologically hazardous areas. The application of best available science (BAS) must be considered in adopting regulations to protect the functions of critical areas, giving special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries.

The Natural Environment Chapter provides the policy direction for the City's Critical Areas Regulations, originally adopted in June1991 and amended in 2004, 2010, and 2020. It also provides the basis for the critical areas regulations that form part of the Shoreline Master Program.

Tukwila's critical areas regulations are designed to protect wetlands, watercourses, and fish and wildlife habitat areas from impacts, and to require mitigation sequencing for proposed impacts, beginning avoidance. While it is the primary responsibility of property owners to declare Critical Areas, the approximate locations and classifications of these critical areas have been denoted in iMap, and are updated as information is obtained, and City resources allow for site assessments.

Under all of the Critical Areas regulations, Tukwila's wetlands have been defined using the State definition [RCW 36.70A.030(48)] and Tukwila's watercourse classifications are consistent with the Washington State Department of Natural Resources (DNR)'s stream typing system. Tukwila has designated and protected several fish and wildlife habitat conservation areas – including Tukwila Pond and several restored habitat areas on the Duwamish River (designated under the Shoreline Master Program). The designated fish and wildlife habitat conservation areas are publicly owned and managed and those in the shoreline jurisdiction have been especially developed for salmonid rearing and resting habitat.

Tukwila's critical areas regulations also define and map geologically hazardous areas and coal mine hazard areas and require geotechnical evaluations and corresponding design requirements to reduce risks created by development in such areas. These critical areas are shown on the City's iMap GIS system, and the Washington Department of Natural Resources has developed an interactive database that can serve as a resource for identifying geologic information: Geologic Information Portal / WA-DNR.

Watercourses and wetlands form part of the City's surface water drainage system and provide important flood storage and conveyance functions and are therefore protected under the Critical Area regulations. However, flood management issues on the Green/Duwamish River are dealt with under different regulations and procedures (as described in Section IV). Frequently flooded areas associated with streams are dealt with through the City's Comprehensive Surface Water Management Plan and individual basin plans, which identify problem flooding areas and prioritize action for managing them.

Tukwila does not have aquifers that are used for water supply, therefore, this type of GMA critical area, is not addressed in this Element.

The Growth Management Act also requires the protection of resource lands - those lands that have "long-term commercial significance" for agriculture, fisheries, timber production and mineral extraction. Since Tukwila does not have lands used by resource-based industries, goals and policies for these types of lands are intentionally absent from this chapter. Any areas of the City that may have been in agricultural use in the past have all been designated for future urban uses.

The Growth Management Act allows the use of non-regulatory measures to protect or enhance the functions and values of critical areas. These may include public education, stewardship programs, pursuing grant opportunities, joint planning with other jurisdictions and non-profit organizations, and stream and wetland restoration activities. Tukwila has been employing all of these measures and the updated Chapter contains goals and policies addressing them.

State and Federal Regulations and Guidance for Wetlands

Most wetlands and watercourses are regulated under the federal Clean Water Act, and both the U. S. Environmental Protection Agency (EPA) and the U. S. Army Corps of Engineers (Corps) have regulations related to their management. Permits for filling or dredging "waters of the US" are required by the Corps of Engineers and EPA and the Washington Department of Ecology (Section 401 of the Clean Water Act) have review authority over permits and can require additional conditions on the permit. Mitigation sequencing and compensatory mitigation is required for impacts in order to achieve no net loss of ecological function.

In 2021 the Department of Ecology, Corps and EPA published Guidance on Wetland Mitigation in Washington State, based on BAS, to guide local jurisdictions' decisions on wetland management and mitigation. The Tukwila's Critical Areas Ordinance was updated in 2020, and includes language that adopts Ecology-approved amendments to this guidance. One of the key modifications in Tukwila's regulations was the adoption of state and federal methods used to classify wetlands, which are based on wetland functions. Another key modification was the adoption of mitigation ratios consistent with the guidance, which vary based on the classification of the wetlands and the type of mitigation proposed, requiring a greater amount of mitigation for impacts to higher functioning wetlands. Monitoring and maintenance periods for installed mitigation were also increased to better ensure its success.

In May of 2010, the US Army Corps of Engineers issued a regional supplement to its Wetlands Delineation Manual, which modified the delineation process. Tukwila's Critical Areas regulations require use of these federal requirements for wetland delineations.

While off-site mitigation is permissible, it is not the preferred mitigation choice for projects in the City. The City's adopted goals prioritize preservation of the unique ecological site functions that are performed by wetlands in Tukwila, and off-site mitigation is supported only if it is a last resort. Mitigation in the same drainage basin as the proposed impacts is preferred, as described in in the Tukwila Municipal Code 18.45, Environmentally Critical Areas.

King County County-wide Planning Policies

The update of this chapter is consistent with the King County Countywide Planning Policies related to critical areas. The County policies state that local governments should incorporate environmental protection and restoration efforts into their comprehensive plans to ensure that the quality of the natural environment and its contributions to human health and vitality are sustained now and for future generations. In addition, local governments should coordinate approaches and standards for defining and protecting critical areas, especially where such areas and impacts to them cross jurisdictional boundaries. Also, the County encourages basin-wide approaches to wetland protection, emphasizing preservation and enhancement of the highest quality wetlands and wetland systems.

In 2021, the Countywide Planning Policies were expanded to issues of Climate Change, equity of access to outdoor amenities, environmental pollution, and environmental justice. These priorities have been integrated into the Plan goals and policies.

Tukwila's Critical Areas regulations are consistent with state and federal guidance, which favor preservation of the highest quality wetlands. Tukwila's regulations also allow for a watershed approach to wetland mitigation. The City has designated several publicly owned wetland systems where mitigation projects could increase wetland functions. This Chapter also contains policies for exploring use of or establishment of in-lieu-fee programs for wetland mitigation.

III ENDANGERED SPECIES AND PRIORITY HABITATS

The Federal government regulates endangered, threatened and sensitive wildlife species under the Endangered Species Act (ESA). Federal agencies involved in implementing the Act are the National Marine Fisheries Service (NMFS) and the US Fish and Wildlife Service (USFS). Marine mammals are also protected under the Marine Mammal Act.

Tukwila is considering membership in the ESA 4(d) rule group known as the Regional Road Maintenance Program.

The Growth Management Act requires that the Comprehensive Plan contain policies guiding decisions related to anadromous fisheries or fish and wildlife listed under the federal ESA. In Tukwila, Chinook Salmon and Bull Trout in the Green/Duwamish River have been listed as threatened under the ESA. Tukwila's Shoreline Master Program contains specific policies and regulations to protect these species and ensure no net loss of shoreline ecological function. In addition, the Master Program includes a plan to prioritize and direct restoration activities to promote ecological function and restore habitat for salmon and other fish and wildlife along the river. Tukwila is a party to the Water Resource Inventory Area (WRIA) 9 Salmon Habitat Enhancement Plan, along with King County and other local jurisdictions in the watershed. This plan identifies programs and restoration projects to foster recovery of Chinook salmon,

which will also benefit bull trout and other fish. Tukwila is actively supporting restoration activities under both this plan and the restoration plan adopted as part of the Shoreline Master Program.

The Washington Department of Fish and Wildlife (WDFW) identifies priority species (which include all listed species under the ESA, as well as species of state significance) and maps their habitats, to provide guidance to local jurisdictions in considering the impacts of proposed development and in protecting them. WDFW also regulates any work in rivers or streams that requires a Hydraulics Permit Authorization (HPA) and mitigation/restoration to reduce the impacts of the work.

New policies have been incorporated into the Natural Environment Chapter to ensure that all new developments consider potential impacts to fish and wildlife, identify if there are priority species, and aim for state and federal requirements to be met. WDFW Priority Habitats, along with Tribal input, should be considered when making land-use decisions such as allowing impacts, rezones, etc.

IV FLOOD MANAGEMENT

Flood control is regulated and managed by several levels of government:

- The Federal Emergency Management Agency (FEMA) maps flood plains and operates the National Flood Insurance Program (NFIP). In Tukwila, which is an NFIP participating community, this program covers the urban center, part of Tukwila South, a small area just north of Strander and Fort Dent Park.
- The US Army Corps of Engineers permits, certifies and in some cases operates federally-constructed levees for flood control. Tukwila has a federally certified levee on the left bank of the Green River between SR-405 and South 190th.
- The King County Flood Control District is a special purpose government charged with funding, policy development and construction projects to improve flood control structures throughout the County. Tukwila has an interlocal agreement with the Flood Control District for levee maintenance services. Tukwila's Comprehensive Plan includes goals, policies and implementation strategies that are consistent with King County's policies related to flood management:
- The City has responsibility for localized flooding from streams. Flood control projects are identified and prioritized in its Comprehensive Surface Water Plan and individual stream basin plans.

V WATER QUALITY

The Washington Department of Ecology regulates municipal storm sewer systems under both the State Waste Discharge Law (RCW 90.48) and the National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit Phase II for Western Washington. Tukwila regularly reviews and updates its surface water regulations to implement the requirements of the municipal permit, which renews every 5 years. Key features of the new regulations will include requirements to continue to prefer Low Impact Development techniques for managing urban surface water run-off from new development, utilizing best management practices for Operations and Maintenance of all lands owned including turf and landscaped areas, and Business Source Control inspections amongst dozens of other requirements.

The King County County-wide Planning Policies specify establishment of a multi-jurisdictional approach for funding and monitoring water quality, quantity, biological conditions, and outcome measures and for improving the efficiency and effectiveness of monitoring efforts. The Policies also seek to have all jurisdictions collaborate to implement the Puget Sound Water Quality Management Plan, under the management of the Puget Sound Partnership, to restore and protect the biological health and diversity of the Puget Sound basin. The Puget Sound Partnership was created by the Washington State Legislature as the state agency with the responsibility for assuring the preservation and recovery of Puget Sound and the freshwater systems flowing into the Sound. There are two strategic initiatives in the Puget Sound Partnership's 2022-2026 Action Agenda that apply to Tukwila: 1) prevent pollution from urban stormwater runoff; and 2) protect and restore habitat along rivers and streams.

The City participates in the Surface Water Action Monitoring program regionally. Some water quality monitoring has been done in the past on the Green/Duwamish River and King County has a current monitoring program with a station at Fort Dent in Tukwila. The river is considered by regulatory agencies to be impaired for water quality for several contaminants: dissolved oxygen (too low to support fish in some areas), temperature (too high in much of the Lower Green and upper Duwamish to support salmonids) and fecal coliform in some areas.

The 2022 Tukwila Pond Park Master Plan indicates that the City conducted water quality studies in 1995, 2008, and most recently in 2011. The pond suffers from high levels of phosphorus, high water temperatures and low levels of dissolved oxygen, much of it related to its long history as a cattle producing pastureland and some from stormwater runoff that flows into the pond, natural inputs of phosphorus (decayed vegetation and waterfowl feces) and the shallowness of the pond. These factors work together to produce unsightly algae blooms in the late summer months. Some potentially toxic blue-green algae blooms have been observed.

Some periodic water quality monitoring has been done in Tukwila's streams. Past monitoring in Gilliam Creek showed elevated turbidity during storm events and high levels of copper and zinc. Riverton Creek has exhibited high levels of fecal coliform bacteria, phosphorus, turbidity, total suspended solids, and copper. High turbidity and fecal coliform have also been measured in Southgate Creek. High phosphorus and fecal coliform were also measured in Johnson Creek, possibly due to the agricultural activities in the vicinity at the time the water samples were collected.

This Comprehensive Plan is consistent with the strategies of the Countywide policies and the Puget Sound Action Agenda, as it contains goals, policies, and implementation strategies for improving surface water

quality, monitoring water quality and restoring riparian habitat. In addition, the 2020 update of Tukwila's Critical Areas regulations strengthened requirements for protecting and restoring watercourses and their buffers. The Shoreline Chapter also has policies for no net loss of shoreline ecological functions and restoration of riparian habitat on the Green/Duwamish River.

VI AIR QUALITY

The Puget Sound Clean Air Agency regulates emissions and monitors air quality in King and other Puget Sound counties. This agency focuses its efforts on reducing air pollutants that pose the greatest health risks to our region – which include criteria air pollutants, air toxics and greenhouse gases. It requires permits from businesses with regulated air emissions and from construction projects and regulates open burning and burning in fireplaces and wood stoves. Emissions from vehicles are monitored and controlled by the State Department of Ecology. The agency also has growth management policies for promoting clean air that relate to promoting development policies that improve air quality and address climate change.

King County also has several county-wide policies related to air quality and climate change including policies for reducing green-house gases, directing development to existing urban centers and facilitating modes of transportation other than single-occupancy vehicles. In addition, policies address the need for including environmental justice considerations in land use decisions.

Tukwila, along with all other communities in the region, has experienced the impacts of climate change in the form of reduced air quality from wildfires. Such events have created air quality concerns as harmful chemicals and tiny particles suspended in the air create health issues for the public, especially active children and adults, elderly people, and people with respiratory diseases (e.g., asthma). During these periods of smoke exposure, the City follows the guidance of regional, state, and national health, emergency management, and air quality partners in providing public education and community response options.

Tukwila benefits from the significant transportation corridors within the City that support commerce, however those corridors and their associated uses can have an impact on the community health. Major roads extending through the City include Washington 599, and Washington 518, as well as Interstates 5 and 405. A study completed by the Puget Sound Clean Air Agency (PSCAA) documented air quality in proximity to major roadways by placing measuring stations throughout King, Pierce, Snohomish, and Kitsap counties. That analysis identified the "Tukwila/Allentown" area being the most impacted of the "Highly Impacted Communities", and the "Tukwila/Kent" region being third worst. Much of this impact comes from diesel pollution, as well as industrial source pollution.

HIGHLY IMPACTED COMMUNITIES		
Rank	**Score**	**Community**
1	20.7	Tukwila/Allentown
2	19.5	South Tacoma
3	19.3	Tukwila/Kent (Midway)
4	19.0	Tacoma South End
5	18.7	Greater Duwamish
6	18.5*	Algona/Auburn
6	18.5*	Des Moines
6	18.5*	International District
6	18.5*	SeaTac
10	18.3	South Everett
11	18.2	Southeast Seattle
12	17.7*	Parkland
12	17.7*	Kent
12	17.7*	Central District
15	16.8	Downtown Everett
16	16.3*	Lynnwood
16	16.3*	Northgate

Source: Park, Tania Tam, Puget Sound Clean Air Agency, "Highly Impacted Communities: PS Ckean Air Committee Recommendations", September 14, 2014.

The City has a role in improving air quality through the environmental review process for new development projects. It also manages a commute trip reduction program for businesses, which indirectly contributes to improving air quality by reducing the number of vehicle trips. Further, the City can implement energy efficiency strategies in its buildings and City vehicles. These air-quality and climate change issues are addressed in the transportation, land use, and utilities chapters of the Comprehensive Plan.

VII TREES/URBAN FORESTRY REGULATIONS

In 2008 the State Legislature passed the Evergreen Communities Act, which requires that local jurisdictions develop urban forestry management programs in order to be eligible for state funding and provides technical assistance to local communities in developing and implementing the plans. The Act is not currently in force, because no funding was appropriated to carry it out, however the requirements may be enforced in the future.

The Washington Department of Natural Resources (DNR), through its Urban Forestry Program, provides education, technical assistance and some funding to local jurisdictions for urban forestry management. Funding supports such efforts as tree inventories, urban canopy studies, urban forestry plans, and on-the-ground projects. If the Evergreen Communities Act were implemented in the future, DNR would have an important technical role in assisting communities in complying with its requirements.

Planning and management of the urban forest in Tukwila is a shared responsibility between the Department of Community Development (tree removal permits, critical areas protection, shoreline

vegetation protection and restoration), Parks and Recreation (trees and natural areas in parks), Public Works (trees and natural areas on public rights-of-way and public property), and property owners (trees natural areas on private property).

Tukwila has been a “Tree City, USA”, certified by the National Arbor Day Foundation, since 2002 and has tree protection and replacement regulations for all properties, including critical areas and the Green/Duwamish River shoreline. Tukwila’s landscape code also requires tree planting and retention for most new development.

New goals and policies are included in the Natural Environment Chapter of the Comprehensive Plan to formalize and augment Tukwila’s current tree management efforts.

CITY OF TUKWILA COMPREHENSIVE LAND USE PLAN PARKS, RECREATION AND OPEN SPACE BACKGROUND REPORT

2024 GROWTH MANAGEMENT ACT UPDATE

TO THE COMPREHENSIVE PLAN

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I INTRODUCTION AND SUMMARY

The State of Washington's Growth Management Act (GMA) provides comprehensive guidance for land use, development, and public participation throughout the state, including goals specifically for parks and recreation. Listed among the State's 14 growth management goals, the goal for open space and recreation is to: "Retain open space, enhance recreational opportunities, conserve fish and wildlife habitat, increase access to natural resource lands and water, and develop parks and recreation facilities."

A parks and recreation element remains officially optional in GMA comprehensive plans, since the State of Washington did not provide the funding necessary to assist communities in developing the elements at when it was listed in GMA. However, the GMA acknowledges the significance of parks, recreation, and open space and that it is important to plan for these systems.

Tukwila recognizes the importance of parks, recreation, and open space opportunities to the overall well-being of the community, and has chosen to prepare a parks, recreation, and open space element for its Comprehensive Plan. Per the GMA, a jurisdiction's parks and recreation Comprehensive Plan element shall be consistent with the City's capital facilities plan. This element shall include:

- Goals and policies to guide decisions regarding facilities;
- Estimates of park and recreation demand for at least a ten-year period;
- An evaluation of facilities and service needs; and
- An evaluation of intergovernmental coordination opportunities to provide regional approaches for meeting park and recreation demand.

The Parks, Recreation and Open Space Element Background Report supports the state-wide goal and follows related guidance found in the Puget Sound Regional Councils (PSRC) Multi-County Planning Policies, King County's Countywide Planning Policies and other elements of Tukwila's Comprehensive Plan. This Report summarizes conditions facing the existing parks, recreation and open space system. It includes a description of relevant planning policies, the City's park system and a summary of key issues identified through an analysis of the existing system and feedback from the public. Together, this information forms the basis for parks, recreation and open space planning in the Comprehensive Plan's Parks, Recreation and Open Space Element.

The Background Report and Comprehensive Plan Element are largely based on community discussions that occurred during Tukwila's Parks, Recreation and Open Space (PROS) Plan, adopted February 2014 and updated in 2020. The PROS Plan included opportunities for public engagement throughout the planning and update process. This process and its creative forms of discussion encouraged involvement from a wide cross section of the city. These activities reached specific audiences, targeted and broad, and collected ideas from both involved citizens, and those who have been outside of past planning efforts.

II INTEGRATION WITH OTHER PLANNINGEFFORTS

This Parks, Recreation and Open Space Element supports other related planning efforts including the State's GMA, Vision 2050, King County Countywide Planning Policies and Tukwila's Capital Facilities Element.

The Growth Management Act also requires the protection of resource lands - those lands that have "long- term commercial significance" for agriculture, fisheries, timber production and mineral extraction. Since Tukwila does not have lands used by resource-based industries, goals and policies for these types of lands are intentionally absent from this chapter. Although agricultural activity was historically practiced in the Tukwila South area, the area is being developed for urban uses, and agricultural activity has ceased.

The Growth Management Act allows the use of non-regulatory measures to protect or enhance functions and values of critical areas. These may include public education, stewardship programs, pursuing grant opportunities, joint planning with other jurisdictions and non-profit organizations, and stream and wetland restoration activities. Tukwila has been employing all of these measures and the updated Chapter contains goals and policies addressing them.

Growth Management Act

The Growth Management Act (GMA) requires parks and open space Comprehensive Plan elements to include estimates of park and recreation demand for at least a ten-year period based on adopted levels of service and population growth. Tukwila's Parks, Recreation and Open Space (PROS) Plan, is the primary background source for the Parks, Recreation and Open Space (PROS) element of the Comprehensive Plan. By adopting the Parks, Recreation and Open Space Plan (PROS) Plan, the City assesses recreation demand through an analysis of access to park sites amenities and services throughout the system. Those areas that lack access to the specified facility or feature within the desired distance are considered to have a gap in service. This analysis is based on a typical walking or biking distance to reach parks, generally a 1/4 to 1/2-mile distance or a five-to-ten-minute travel time.

Vision 2050 (Multi-County Planning Policies) and King County County-wide Planning Policies

Vision 2050 (Multi-County Planning Policies) articulates the growth strategy for the Puget Sound region. This direction is reflected in King County's Countywide Planning Policies which, in turn, frame how the comprehensive plans of the County, and all cities and towns within the County, will be developed and coordinated. Policies related to parks, recreation and open space are presented below and inform the overall direction of the Parks, Recreation and Open Space Element.

Open Space

EN-20 Identify and preserve regionally significant open space networks in both Urban and Rural Areas through implementation of the Regional Open Space Conservation Plan. Develop strategies and funding to protect lands that provide the following valuable functions:

- Ecosystem linkages and migratory corridors crossing jurisdictional boundaries;
- Physical or visual separation delineating growth boundaries or providing buffers between incompatible uses;
- Active and passive outdoor recreation opportunities;
- Wildlife habitat and migration corridors that preserve and enhance ecosystem resiliency in the face of urbanization and climate change;
- Preservation of ecologically sensitive, scenic, or cultural resources;

- Urban green space, habitats, and ecosystems;
- Forest resources; and
- Food production potential.

EN-21 Preserve and restore native vegetation and tree canopy, especially where it protects habitat and contributes to overall ecological function.

EN-22 Provide parks, trails, and open space within walking distance of urban residents. Prioritize historically underserved communities for open space improvements and investments.

DP-43 Create and protect systems of green infrastructure, such as urban forests, parks, green roofs, and natural drainage systems, in order to reduce climate-altering pollution and increase resilience of communities to climate change impacts. Prioritize neighborhoods with historical underinvestment in green infrastructure.

Capital Facilities Element

A major concept of the GMA and capital facilities planning is concurrency i.e., that specific public facilities will be available when the impacts of development occur, or within ten years of development. This is achieved through standards and fees. Capital facilities for parks are reviewed, prioritized and funded through the City's regular Capital Improvement Program (CIP) process. The capital facilities policies that are addressed in the Parks, Recreation and Open Space Element include:

- The design of infrastructure improvements shall include conservation of resources, such as water reuse and energy-efficient electric fixtures.
- Minimizing the costs of maintaining, operating and other life cycle costs shall be used as a criterion in the design and funding of any capital facility.
- The design and construction of capital projects shall:
  - Use best practices for a crime free environment;
  - Create high quality built places;
  - Have a strong landscape component;
  - Maximize environmental and economic benefits;
  - Minimize environmental costs; and
  - Promote public health by providing opportunities for safe and convenient daily physical activity.

Ill Existing System and Key Issues

Tukwila has three different types of park land as well as several new sites added to the system since the 2014 PROS Plan. In total, there are 260.7 acres of parks and open space. Appendix X provides a complete inventory of parks and recreation facilities. Figure 1 shows existing parks and open spaces, as well as existing trails. There are 10 developed local parks totaling 47.7 acres. These parks are mostly located in residential areas and range in size from 0.1 acres (Riverton Mini Park) to 10+ acres and provide places to play, gather, and/or experience nature (Table 1).

Table 1: Local Parks

Local Parks	Acres
57th Ave South Park	0.4
Cascade View Community Park	2.4
Crestview Park	10.9
Crystal Springs Park	11.0
Duwamish Park	2.1
Hazelnut Park	0.6
Joseph Foster Memorial/Lee Philips Park	8.9
Riverton Mini Park	0.1
Riverton Park	4.9
Tukwila Park	6.4
Total Local Parks	47.7

Special Use Parks have a single purpose such as the golf course at Foster Golf Links or feature a unique facility or feature that is intended for the entire community, such as Codiga Park or Duwamish Hill Preserve. There are 11 Special Use Parks totaling 182.4 acres. Some sites are owned or operated by other providers such as the school districts.

Table 2: Special Use Parks

Special Use Parks	Acres
Bicentennial Park	1.3
Codiga Park	6.7
Duwamish Gardens	2.2
Duwamish Hill Preserve	8.7
Fort Dent Park (Starfire Sports Complex)	51.3
Foster Golf Links	63.3
Ikawa Park (Japanese Garden)	0.2
Macadam Winter Garden & Wetlands	9.9
Tukwila Community Center	12.7
Tukwila Pond Park	24.8
Tukwila Pool	1.3
Total Special Use Parks	182.4

Tukwila has several small undeveloped parcels, and open space sites of various sizes totaling 30.6 acres that are intended for natural green space preservation, habitat restoration or protection, or similar purpose. For sites that are publicly accessible, open spaces typically allow for nature-based activities and low impact uses such as walking/hiking and wildlife watching.

Table 3: Open Space

Open Space	Acres
Black River Lot	0.3
Christensen Road Property/Riverview Plaza Riverfront	3.0
Interurban Hill Lot	1.7
Lookout Park	0.2
North Wind's Weir	2.6
P-17 Pond	3.6
Siccardi Parcel	0.9
Southgate Park	10.9
TIB Parcel	0.9
Tukwila Hill	1.8
Tukwila Parkway	1.0
Wilcox Drive/Pamela Drive Open Space	0.7
Total Open Space	30.6

The City currently partners with several neighboring jurisdictions, as well as public and private agencies locally and throughout the region to provide recreation opportunities for Tukwila residents. Trails, schools

and recreation sites owned by other providers are part of the system and add to the number of resources available to Tukwila residents, businesses and visitors. Some features such as the Interurban Trail are a regional resource and require collaboration with King County and neighboring jurisdictions. These partnerships are critical to meeting the goals and policies of the Parks, Recreation and Open Space Element.

Key Issues

Several issues will impact Tukwila's park, recreation and open space system over the twenty year planning horizon.

Diverse Community with Changing Needs.

Tukwila's population is constantly changing as families and individuals, including refugees and immigrants from all over the world, enter the United States, begin their new lives in Tukwila, and join existing residents. Almost 40% of the population is foreign born and nearly half (49 percent) of residents speak a language other than English, compared to 27 percent county-wide. Asian and Pacific Islander languages and Spanish are of the top language groups. The dynamic nature of the population brings constantly evolving interests and needs which impact the way parks are used and the types of programs that are desired. Generally speaking, research has shown that cultural and ethnic groups use public spaces differently and experience unique barriers to accessing parks and programs. Many, especially members of the city's diverse language groups, feel that the City should play a larger role in providing services in different languages and that meet varied cultural needs. The language barrier has limited some residents in using parks and programs, or from knowing what resources are available.

Table 1: Top Statewide Recreation Activities by Race/Ethnicity

white	Hispanics	Asians	African Americans
1. Walking – Park or trail setting	1. Walking – Park or trail setting	1. Walking – Park or trail setting	1. Walking – Park or trail setting
2. Visiting rivers or streams	2. Playing	2. Attending an outdoor concert or event	2. Relaxing, reading, hanging out
3. Visiting a beach or tide pools	3. Attending an outdoor concert or event	3. Visiting a beach or tide pools	3. Attending an outdoor concert or event
4. Attending an outdoor concert or event	4. Relaxing, reading, hanging out	4. Day hiking	4. Visiting zoos, gardens, or arboretums
5. Gather or collect things in nature setting	5. Visiting rivers or streams	5. Visiting zoos, gardens, or arboretums	5. Picnicking, BBQ, or cookout

Source: State of Washington 2017 Assessment of Outdoor Recreation Demand Report, Eastern Washington University (July 2017)

Population Growth

Tukwila's population has grown slowly in the past with an average annual growth rate of 0.9% between years 2000 and 2011. This was similar to the county-wide average but only about one-third the rate of growth in the nearby jurisdictions of Renton, Kent and Burien. However, over the past six years there has been a surge in multi-family construction with nearly 1,350 units constructed and more underway. Per King County's adopted Growth Targets, Tukwila and its proposed annexation area shall plan for and accommodate 6,500 net new housing units between 2019 and 2044. In addition to the overall need for housing units jurisdictions must plan for the countywide need for housing affordable to households with low-, very low-, and extremely low-incomes, including those with special needs, at a level that calibrates with the jurisdiction's identified affordability gap for those households.

Lack of Access to Local Parks and Recreation Areas.
The City of Tukwila is committed to providing nearby park and recreation opportunities to the entire community. In coordination with the City's 10-Minute Walk Campaign, the park access analysis provides an assessment of the geographic distribution of parks and recreation facilities.

The Trust for Public Land (TPL) – a partner of the 10-Minute Walk Campaign – provided an assessment of Tukwila's existing parks through its ParkServe program. The ParkServe program evaluates access to parks and provides optimal suggested locations for new parks using a variety of factors. According to the assessment, Tukwila has a higher percentage of residents that live within a 10- minute walk of a park when compared to the national average.

Yet there are several areas outside of a convenient walking distance to an existing park.

- The area along Southcenter Boulevard, between 42nd Avenue and 51st Avenue has a high to very high need for a park (Number 1 in Figure 2);
- The area south of Crystal Springs Park between 51st Avenue and 54th Avenue has a high to very high need for a park (Number 2 in Figure 2); and
- To the north end of the city east of I-5 has a moderate need for a park (Number 3 in Figure 2).

Using the ParkServe results as a starting point, the PROS Plan evaluated Tukwila's park system using a network analysis approach to identify areas where residents live outside of a ¼-to ½-mile distance (10-minute walk) to a developed city park. The network approach determines walkability based on the street network, accounting for significant barriers in walking routes. The analysis did not include open space sites and included both residential and non-residential land uses.

Socio-economic and demographic criteria were added to the analysis to better understand convenient access to parks through an equity lens. These include:

- Overall ¼- ½ -mile distance to a developed park (Map 1: Park Access);
- Park access and areas with a higher percentage of households with a lower median income than the county median income average (Map 2 of Appendix C: Low Median Income);
- Park access and areas with a higher percentage of households with children (Map 3 of Appendix C: Households with Children); and
- Park access and areas with a higher percentage of a nonwhite population (Map 4 of Appendix C: Nonwhite Population).

Based on results of the access analysis, the three ParkServe suggested locations generally align with park gap areas.

Higher poverty level

Affordability is a major issue in the region which impacts quality of life and the ability to live (or stay) in the city. Based on recent estimates, 60 percent of households pay 30 percent or more of their household income on gross rent (considered by the US Census Bureau as housing-cost burden). This is 16 percent higher than King County's share of 44 percent. Tukwila residents—with a median household income of $71,688 (US Census Quick Facts Tukwila WA)—earn significantly less than the King County average of $110,586. Notably, 12.4% of families are below the poverty level. The high poverty level indicates there may be a potential need in Tukwila for the parks and recreation system and programs to play a role in providing "safety net" services. Low income families may have limited transportation choices. Therefore, the

City will need to consider carefully how families in need will gain access to these services, not only through pricing policies but also in choosing locations where the services are provided.

Poor Health Status

Perhaps one of the greatest benefits of parks and recreation is potential to improve health. The Tukwila area (SeaTac and Tukwila) is less active than the county and state average. According to a recent county health profile, residents in the SeaTac/Tukwila area ranked at the top of the list for areas within King County that aren't exercising. The same data source reported that SeaTac/Tukwila also ranks second in the King County area for highest percentage of residents with essential hypertension. A lack of physical activity and poor diet are among the primary factors associated with this condition. These numbers have increased since the previous data in 2012.

Constrained spaces.

Many of the city's developed parks are small and built out. The open spaces are environmentally constrained and there is little land available for expanded or additional parks in or near residential neighborhoods. Some sites, such as Riverton Park and Crestview Park, have the potential to accommodate additional recreation facilities and activities, but many others do not.

Condition of open spaces.

Tukwila's open space lands are a patchwork of small and disconnected spaces found predominantly along the Green/Duwamish River. Collectively, all of these sites hold value for surface water mitigation and water quality, wildlife habitat and scenic and recreation-based benefits and there is a need to manage these spaces as an integrated system

Lack of spaces for social gathering.

Many residents come from cultures that especially value and desire open and welcoming places to gather in small or large groups for socializing and celebrating. There are currently limited areas that can accommodate large public gatherings within Tukwila's park system

Unaffordable and inconvenient recreational opportunities.

Residents feel strongly that recreation services and programs should be more affordable. Many also feel that programs and classes should be more flexible and available at different times and formats. Many of Tukwila's parks, as well as the Tukwila Community Center, are located on the east side of the Green River, or east of 1-5. Due to the poor connectivity, these parks are somewhat inaccessible for residents on the west side of the city.

IV Future Needs

The City's Strategic Plan projects a future population of nearly 36,000 by 2044 King County's Growth Targets require that Tukwila provide the zoned capacity for 6,500 new households by 2044. The City is directing much of this future growth to Tukwila South, as well as redevelopment efforts in the Southcenter/Tukwila Urban Center area. However, matching the needs of this future population will be challenging due to limited opportunities to add additional acres to the park system.

Approach

Tukwila's approach to meeting future needs is to intensify underdeveloped lands and maximize the potential of existing resources, while partnering with local and regional providers to offset demand. Some existing parks have additional capacity for new recreational facilities, or can be improved to increase use. Based on this approach, the City addresses recreation demand for the planning period through an analysis of park and recreation area access for existing and planned land uses throughout the system. Areas that lack convenient access to these places now and into the next ten years are considered to have a gap in service. The City identifies "convenient access" as the typical walking or biking distance most people are willing to travel to reach a park. This is generally a '/- to ?-mile distance.

In addition to having access to local parks and schools and recreational programming, residents desire the following five close-to-home recreational activities: 1) walking and biking; 2) social gathering; 3) organized sports; 4) unstructured play; and 5) river access. Management and protection of open space is another need identified in this Report and the Parks, Recreation and Open Space Element. The analysis used GIS and the City's street system and trail network data to simulate the path of travel for pedestrians and bicyclists. It takes into account physical barriers to access, including incomplete or disconnected street networks and the Green/Duwamish River, as well as lack of park access points to give a more realistic assessment of the park system that is based on the way people actually get to parks.

The following discussion provides an overview of needs and recreation demand over the planning period. Identified gap areas indicate the general location where demand for parks and recreation activities are greatest. Figures illustrate the general geographic location of the gap areas graphically, as well as the summary of the future system concept.

Nearby Access to Local Parks and Schools

Parks in general provide benefits to residents and visitors and contribute to overall quality of life, positively impact property values and make Tukwila more attractive for business. However, local parks and schools provide a wider range of recreation opportunities than special use parks and open spaces give, offering more comprehensive park benefits for residents.

Five locations in the city are greater than a /‹- to '/-mile service area distance to local parks and schools These locations indicate where improved access is needed over the next ten years. (Figure 2)

- P2: Rail lines and the hillside cut off this location in the Ryan Hill neighborhood from the rest of Tukwila. The gap is close to Seattle's Kubota Garden Park—however, there are no public school sites nearby.

- P5: There are no local parks near this location in the Foster neighborhood, but Foster High School and Showalter Middle School are in close proximity and provide sports fields, courts and playgrounds. Tukwila Pool is also nearby but does not offer the types of amenities available at local parks.

- P7: Crystal Springs Park is a local park close to this McMicken location, but there is no public access to its western parcel from the west side. There are also no public schools in close proximity.

- P8: This Tukwila Hill location has a higher than average density of housing but lacks convenient access to any local parks or schools. Tukwila Park is the closest local park, but it is not within the desired '/- to '/2-mile distance. The multi-purpose fields and playground at Tukwila Elementary School are nearby, but they lack direct access from this location.

- P10: Tukwila South has potential to accommodate a range of different land uses, including residential development. There are currently no parks or schools to serve this area.

Recreational Programming

The Tukwila Community Center provides the majority of public recreation programming and support services in the city. Along with City-sponsored programs, neighboring communities, public schools, private providers and non-profits expand the number of park and recreation related benefits available to Tukwila residents.

There is a need for expanded recreation programming and services in several locations using a combination of mobile programming with classes and activities held at City-owned and school-owned locations. Environmental education, community gardening and skill-building programs can all occur within parks. In particular, the City should focus attention on the following seven focus areas. (Figure 3)

- PG1: Continue to offer programming at the Tukwila Community Center.
- PG2: Consider adding programming at Cascade View Elementary School.
- PG3: Consider partnering with Tukwila's Metropolitan Park District (MPD) to add non-aquatic programs at Tukwila Pool, and partner with schools to provide programming at school-owned property during non-school hours.
- PG4: Partner with Thorndyke Elementary School to consider adding programming during non-school hours.
- PG5: Consider offering mobile programming in nearby parks to meet the needs of this area.
- PG6: Partner with Tukwila Elementary School to consider adding programming during non-school hours.
- PG7: Demand for programming and public services in the Southcenter/Tukwila Urban Center area will continue to increase in the future as new residential growth occurs. Consider traditional place-based offerings, such as programming at a park or building, as well as alternative options such as mobile programming, to meet the needs of this area.

Walking and Biking

Walking and biking are among the most popular and desired activities in Tukwila. Tukwila’s Green River Trail is the City’s primary trail system, providing a north/south connection along the Green/Duwamish River. The Interurban Trail provides access to neighboring cities. Several railways and rail branches have potential for future use as trails. However, busy streets, the Green/Duwamish River, and steep slopes create safety barriers to pedestrians and cyclists in reaching parks. In addition, there are few east/west cross city connections.

There are ten areas where convenient and safe walking and biking access is needed over the planning period. (Figure 4) These broad locations are greater than ¼ to ½ -mile from the Green River Trail. They also highlight connections-- identified in the Tukwila's Walk and Roll Plan and supported by public demand -- that could greatly improve access for walking and biking connectivity.

- WB1: Connect the Tukwila Community Center from the south and west through a modification to the Allentown Bridge, or new pedestrian/bicycle bridge.
- WB2: Cross Tukwila International Boulevard to access Southgate Park.
- WB3: Cross South 144" Street and connect north/south to improve access to Cascade View Community Park.
- WB4: Connect opposite sides of State Highway 518.
- WB5: Cross 1-5 and connect east/west.
- WB6: Cross 1-5 near the Southcenter Mall
- WB7: Connect the Southcenter Mall and Southcenter Transit Center with the Green River, Interurban, and Lake to Sound trails. This linkage will connect with the Sounder Commuter Rail Station and the City of Renton via a pedestrian walkway and bridge over the Green River.

Social Gathering

Opportunities and places that allow for socializing and gathering strengthen the social fabric. Many residents feel that these activities are central to a sense of community and overall feeling of well-being. Tukwila's diverse cultural groups also desire both formal and informal settings to meet, celebrate and socialize. Places and programs that offer youth sports are some of the most needed types of offerings. Five areas have a greater need for nearby places for social gathering or to hold community events. A combination of picnic areas and shelters, plazas and other supporting amenities should be added to these areas to meet this identified need. (Figure 5)

- SG1: Add picnic areas and/or an open lawn when developing Ryan Hill Park.
- SG2: Partner with Cascade View Elementary School to provide space for public gathering during non school hours.
- SG3: Create a small "parklet" or seating area along public street frontage.
- SG4: Improve access to Tukwila Elementary School to accommodate this type of activity.
- SG5: Improve access to the picnic tables and shelter at Tukwila Pond Park as called for in planned improvements to the site.

Organized Sports

Most parks do not offer the variety of organized sports facilities, such as sport fields and ball courts, required to meet the needs of nearby residents. Residents desire open and available soccer fields, with a decrease in interest for fee-based leagues. Services and programs for children and places to play nearby are especially needed in Tukwila. Residents—particularly area youth—seek affordable places to play.

There is unmet demand for sports such as indoor/outdoor soccer and basketball throughout Tukwila. With limited space to add new facilities, the City should continue to partner with organizations such as school districts and Starfire Sports for providing access to sports facilities and programs. Special attention should be placed on two focus areas that currently have the least amount of access to organized sports. (Figure 6)

- OS1: Partner with Rainier View Elementary School to allow public use of school facilities during non-school hours.
- OS2: Improve access to Tukwila Elementary School, and partner with the district for use of school facilities during non- school hours. Programming at Starfire Sports would also be convenient to this location.

Play

There is unmet demand for unstructured play throughout the city. The City should create more places for safe, unstructured play through new features and partnerships in areas that lack convenient access. (Figure 7)

- U1: Add a nature play area with development of Ryan Hill Park.
- U2: Partner with McMicken Heights Elementary School for use of school facilities during non school hours.
- U3: Improve access to Crystal Springs Park and add a nature play feature to this park.
- U4: Improve access to Tukwila Elementary School to allow for use of school facilities during non-school hours.

River Access

Tukwila residents have a strong connection with the Green/Duwamish River and desire expanded opportunities to access and enjoy the river. In some ways, Tukwila is defined by the Green/Duwamish River which runs the entire length of the city. Many of the City's parks and historic sites are located on or adjacent to this waterway. The Southcenter Subarea Plan calls for increased access and connectivity to the river. It calls out a bridge to connect with the Sounder Station and future park near this location on the east bank of the river.

Over the planning period, the following general locations will need greater connectivity to the river. (Figure 8)

- R1: Work with willing property owners to identify opportunities to connect to the river in this general location west of Starfire Sports/Fort Dent Park.
- R2: Implement planned trail within this general area east of SR 99 to increase connectivity to the river.

Open Space

The State of Washington requires that all cities planning under the Growth Management Act (GMA) identify "open space corridors" useful for recreation, wildlife habitat, trails, and connection of critical areas (or, as defined in Tukwila, sensitive areas). The word "corridors" tends to imply a passageway, whereas

Tukwila recognizes that movement through the entire open space corridor is not necessary. The City, therefore, chooses to identify an "open space network" that consists of public and privately owned lands.

A network of open space is a concept that comes from the State's Growth Management Act, and was developed through the Tukwila Tomorrow process that developed the 1995 Comprehensive Plan. The presence of a high quality natural system — interconnected and accessible for recreation, where appropriate — is part of the overall quality of life goal for the City of Tukwila and is a county-wide goal for all urban areas within Puget Sound.

Based on these requirements and in alignment with community priorities, an interconnected open space network is needed in Tukwila. The City should identify properties that would increase greenway and/or habitat and park land connectivity through inventory of desirable properties and through conversations with willing property owners and/or partnering with other land managers.

Of the most defining features of this network is the Green/Duwamish River. In keeping with the goals of the open space network, a separate corridor management plan is needed to enhance and protect the Green/Duwamish River Corridor. The plan should provide direction for integrating trails, street and river crossings and riverfront parks along the corridor, as well as a prototype design for public and private spaces along the river. Locations and recommendations specified in the Shoreline Master Program should be included in development of this vision.[1]

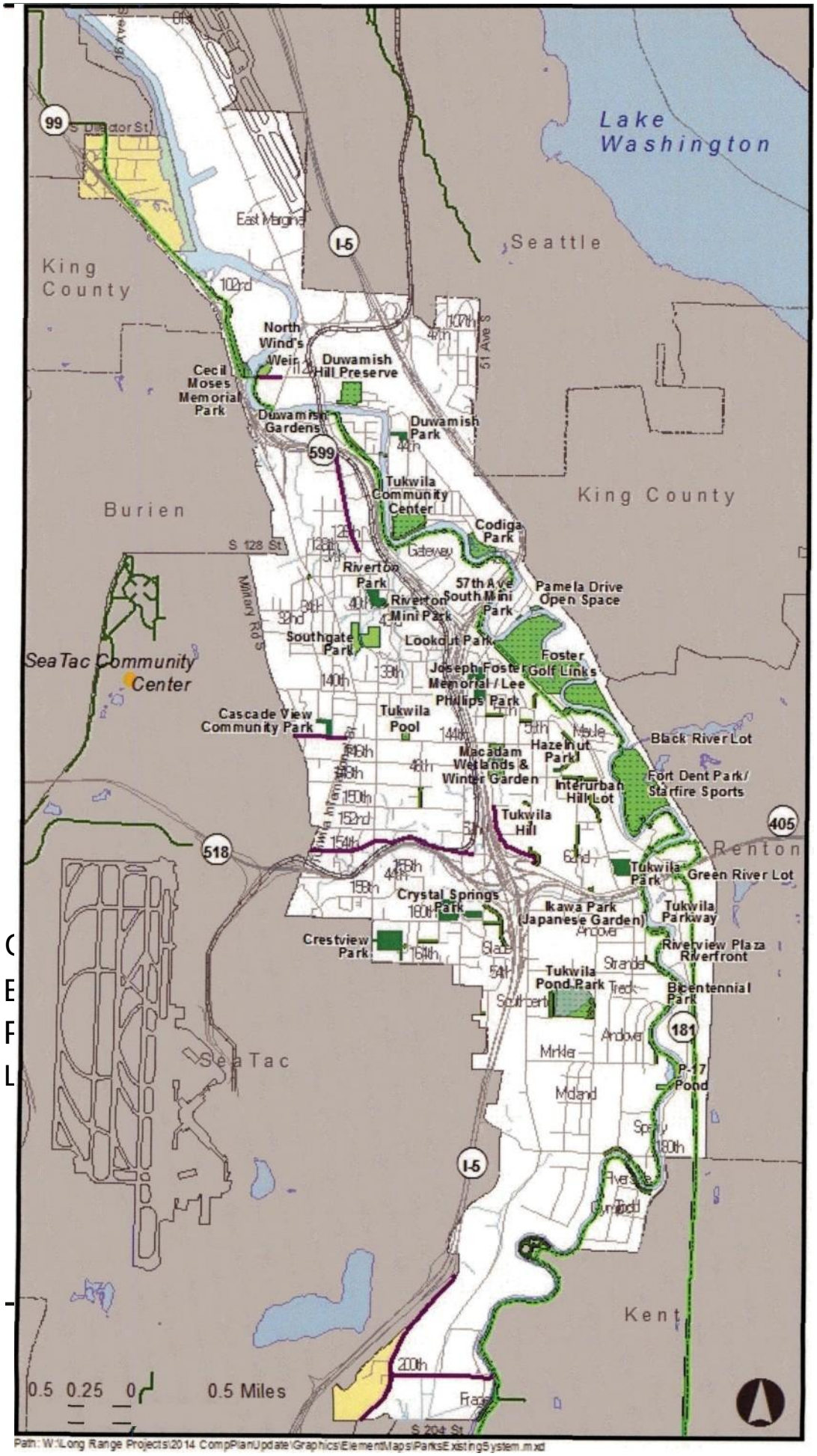
Future Concept

A summary graphic shows the Parks, Recreation and Open Space system concept map, and incorporates the preceding discussion of future needs. (Figure 9)

[1] Identification of lands as part of the open space network does not restrict the use of the land to public recreation. Identification means that these lands have value to the network. Private use would preserve that value whether it's an environmentally critical area (as defined by the State), has an identified public access function, or has a significant vegetative/topographic function. In addition, land identified within the network shall have high priority for future public purchase of lands for recreation/open space.

V APPENDIX

[The following maps will be updated]



PROS Existing System Map

Figure 1

Legend

Existing Trails

Special Use Park

Roads

Roads

River / SPeams

kg Annexaéon

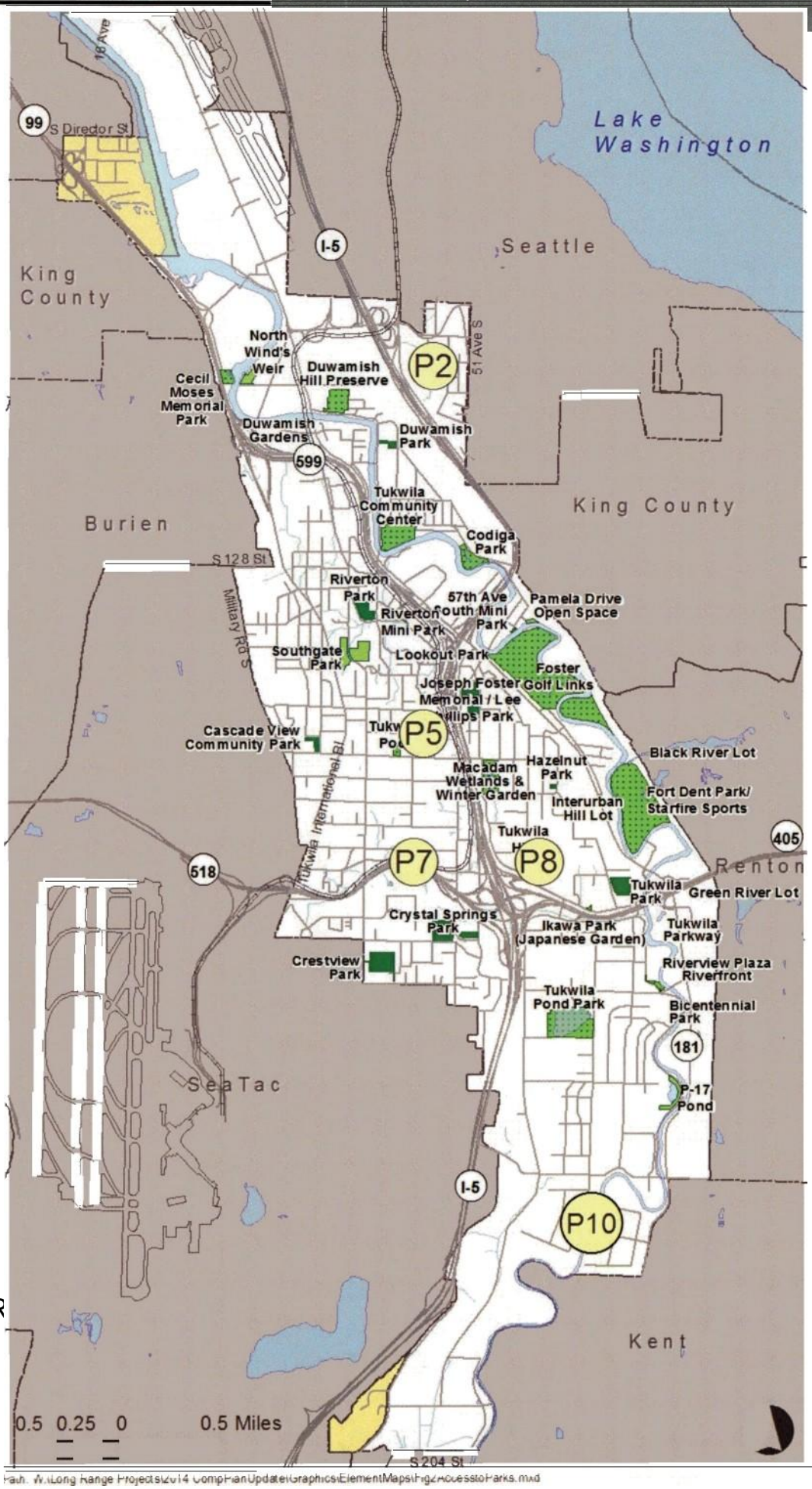


Figure 2

Legend

Parks

- Local Park
- Open Space
- Special Use Park

Roads

- Roads

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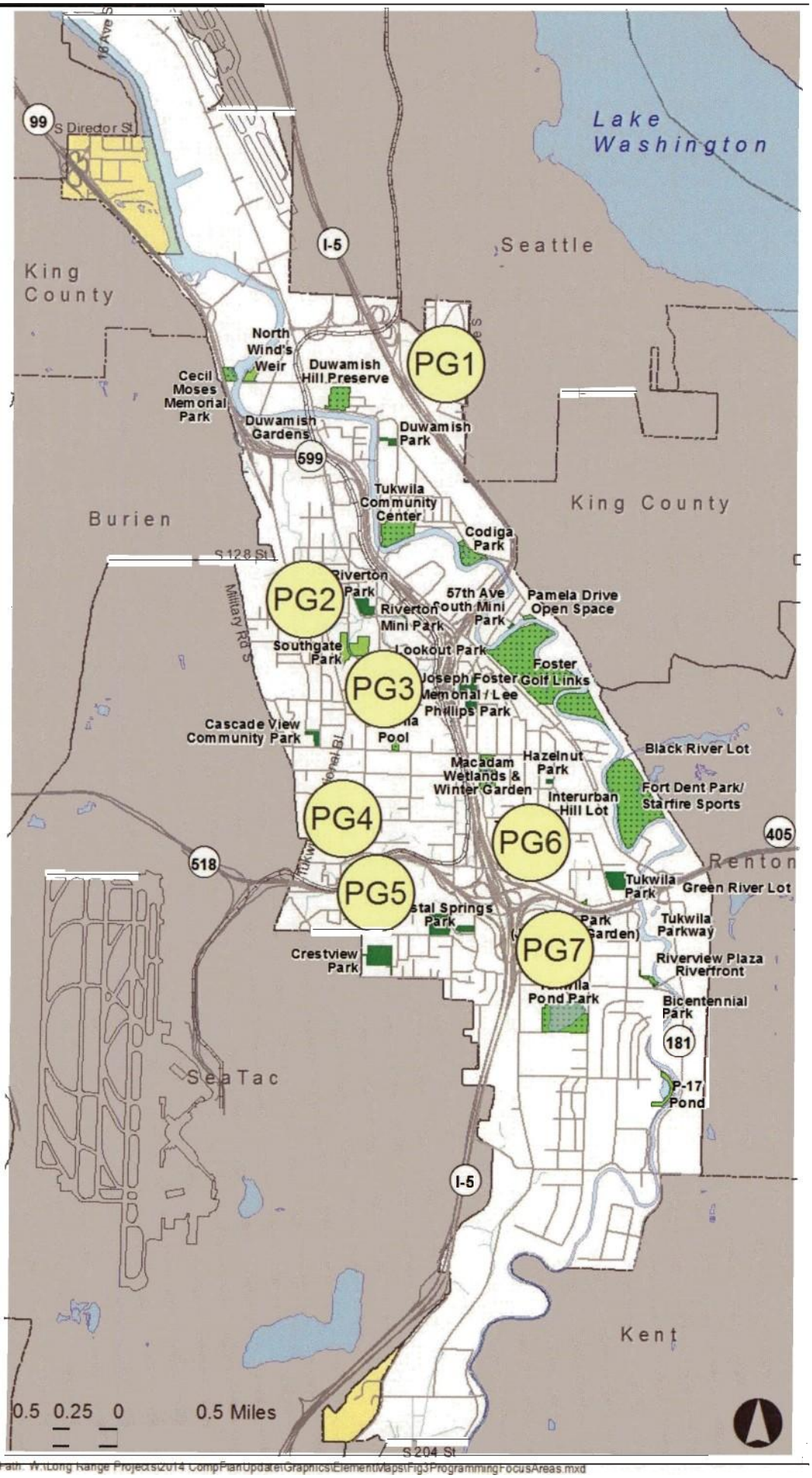


Figure 3

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Parks

- Local Park
- Open Space
- Special Use Park

- Roads
- River / Streams
- Annexation

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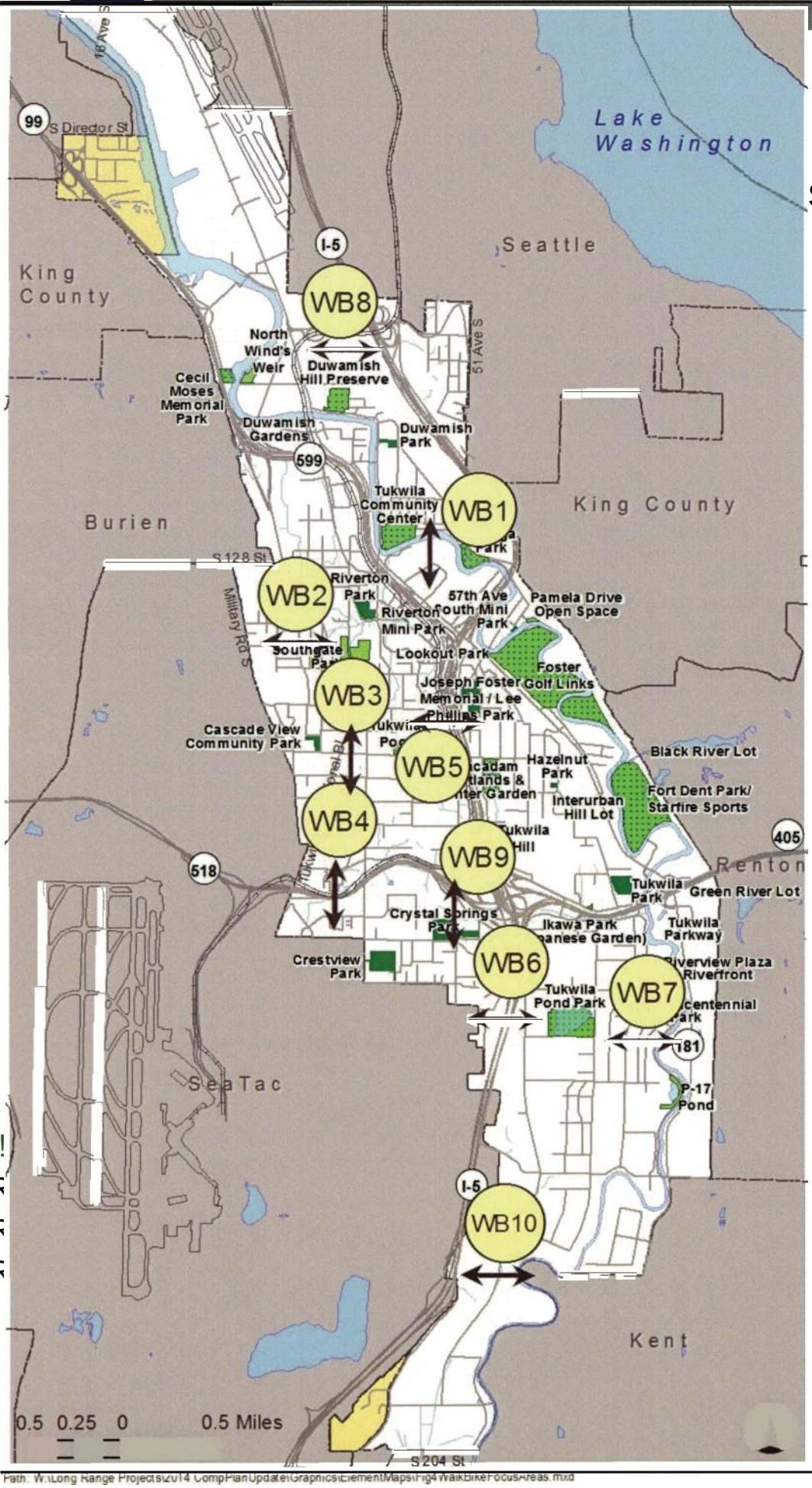


Figure 4

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Parks

Local Park

[j] Open Space

Special Use Park

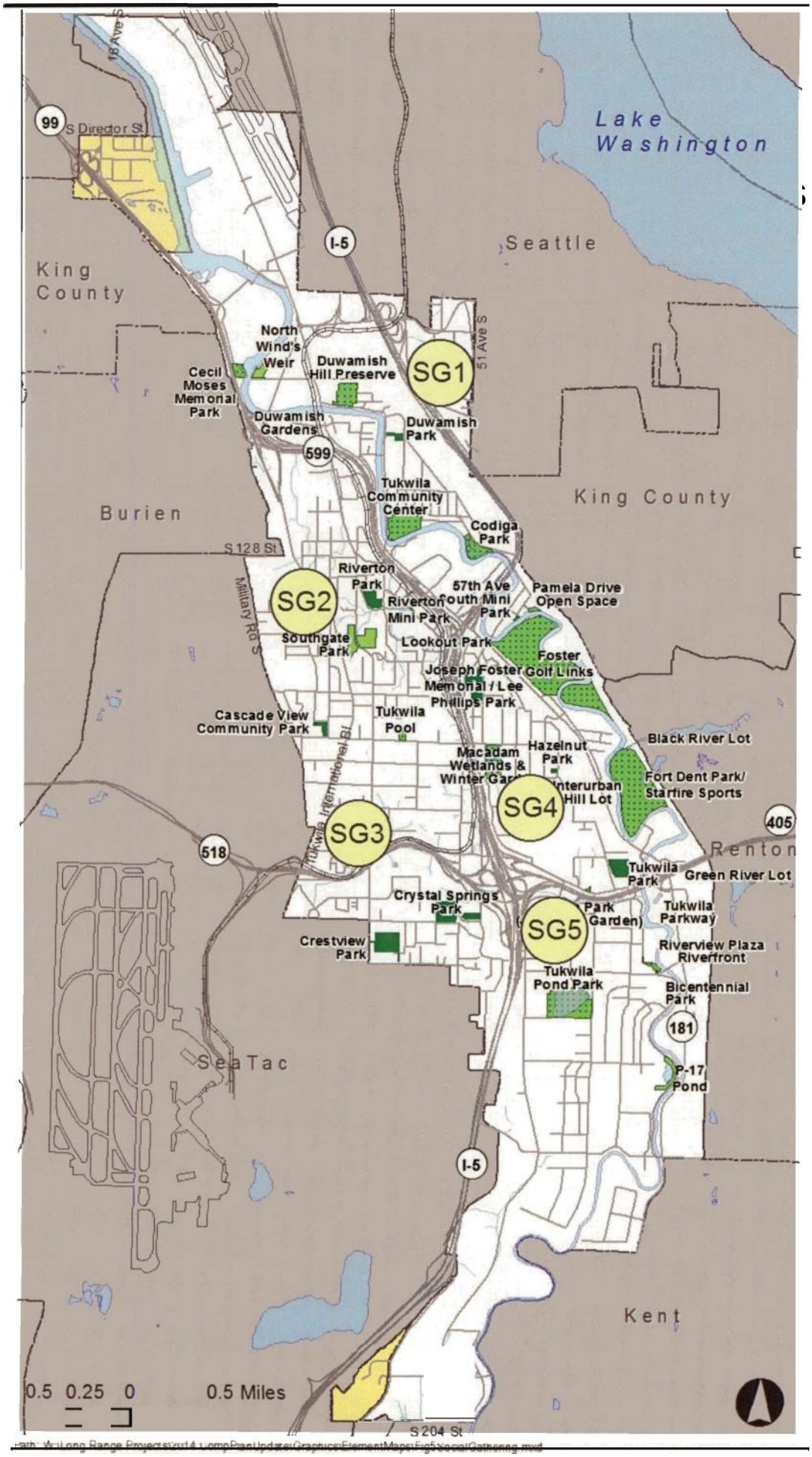


Figure 5

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Parks

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- Open Space
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Roads

- Roads
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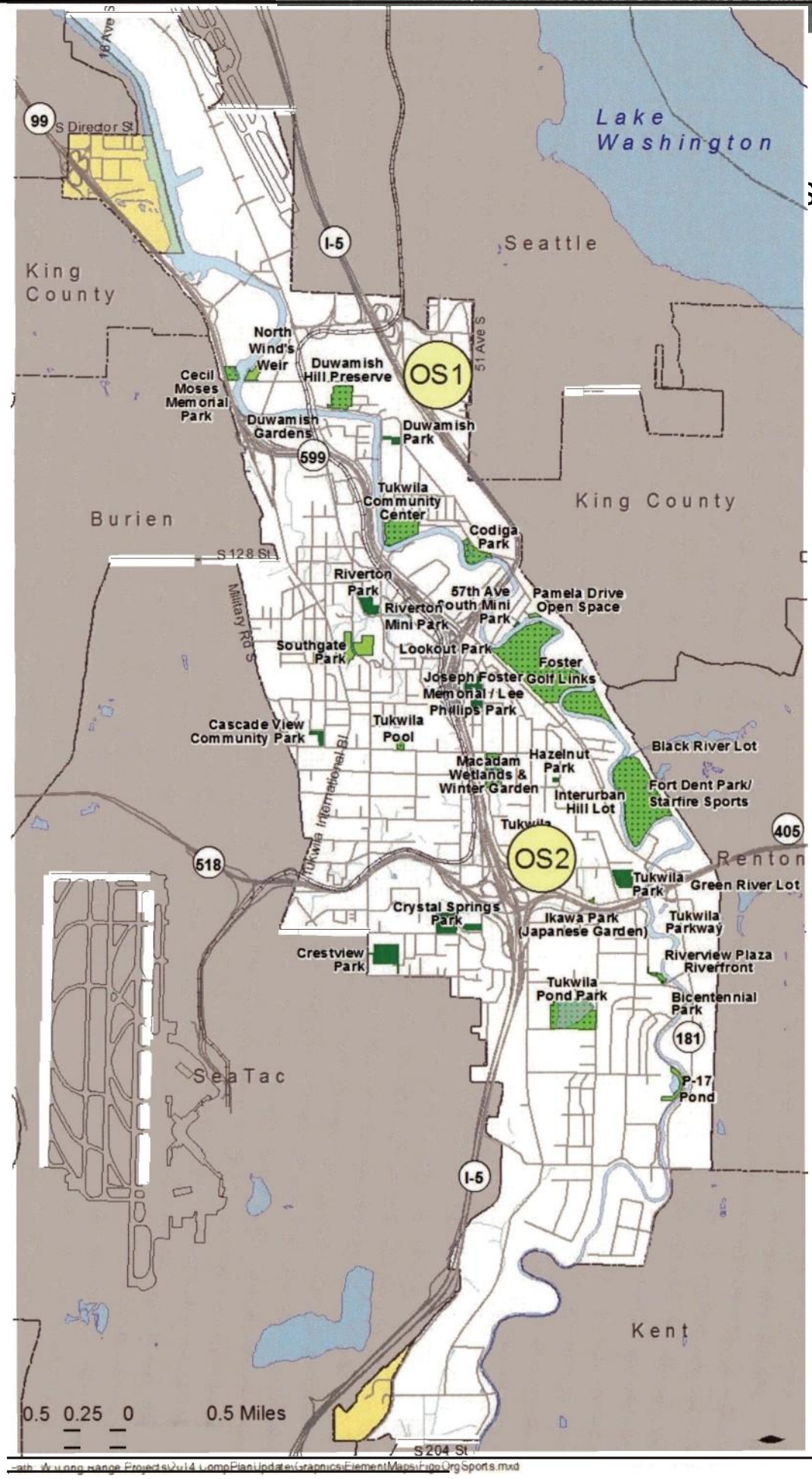


Figure 6

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Parks

Local Park

US] OpenSpace

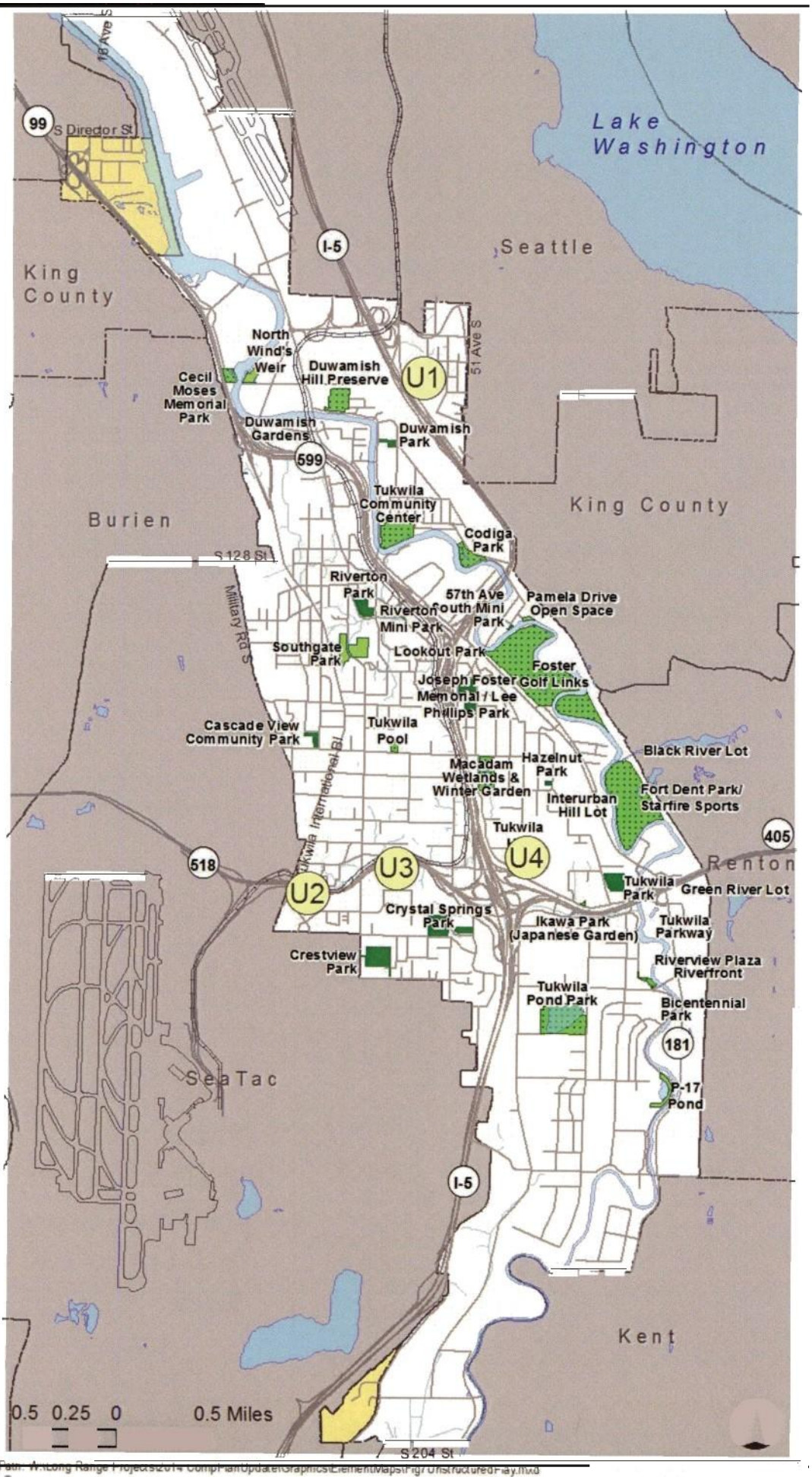
Special Use Park

Roads

Roads

River / Streams

Annexation



Unstructured Play Focus Areas

Figure 7

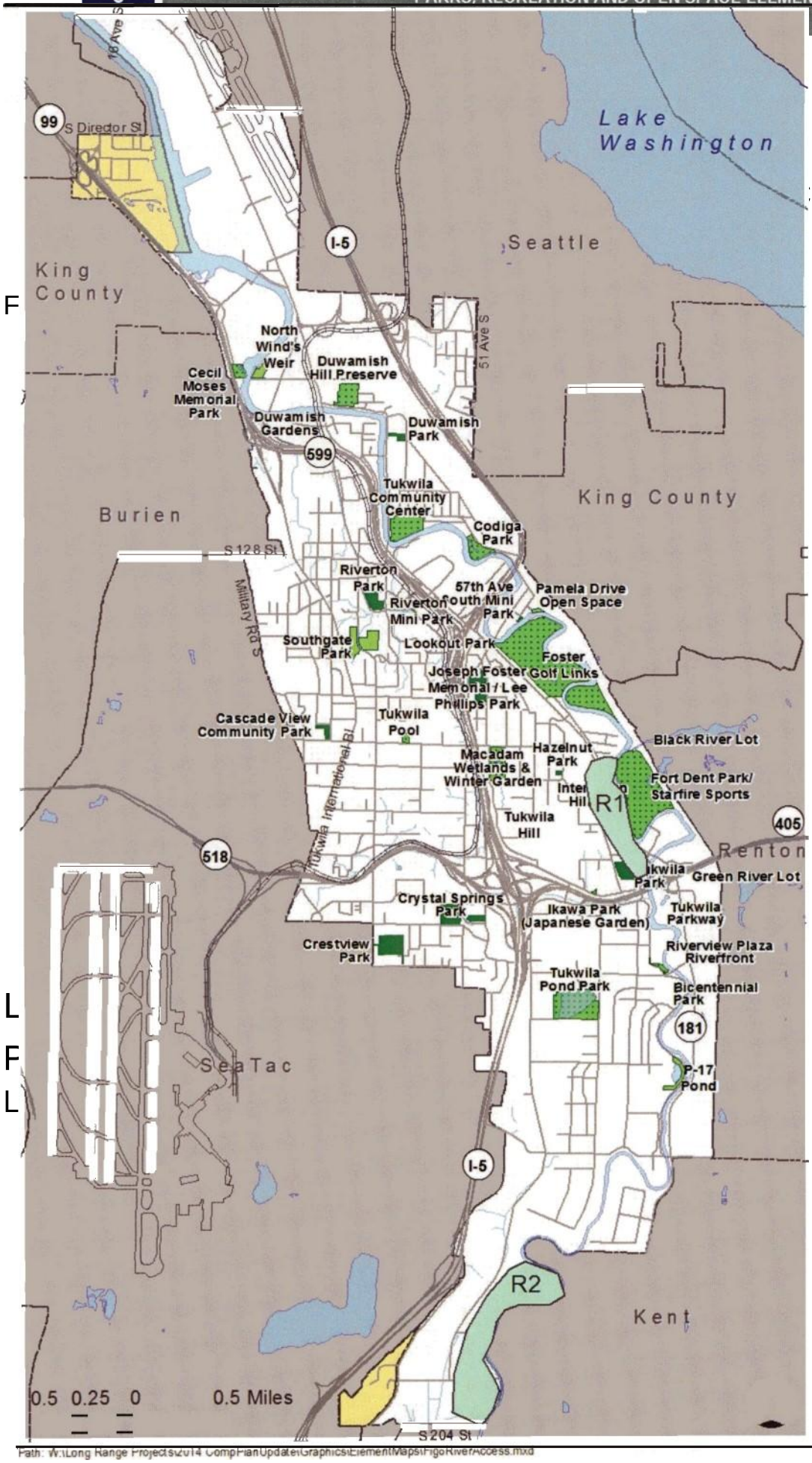
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. Special Use Park

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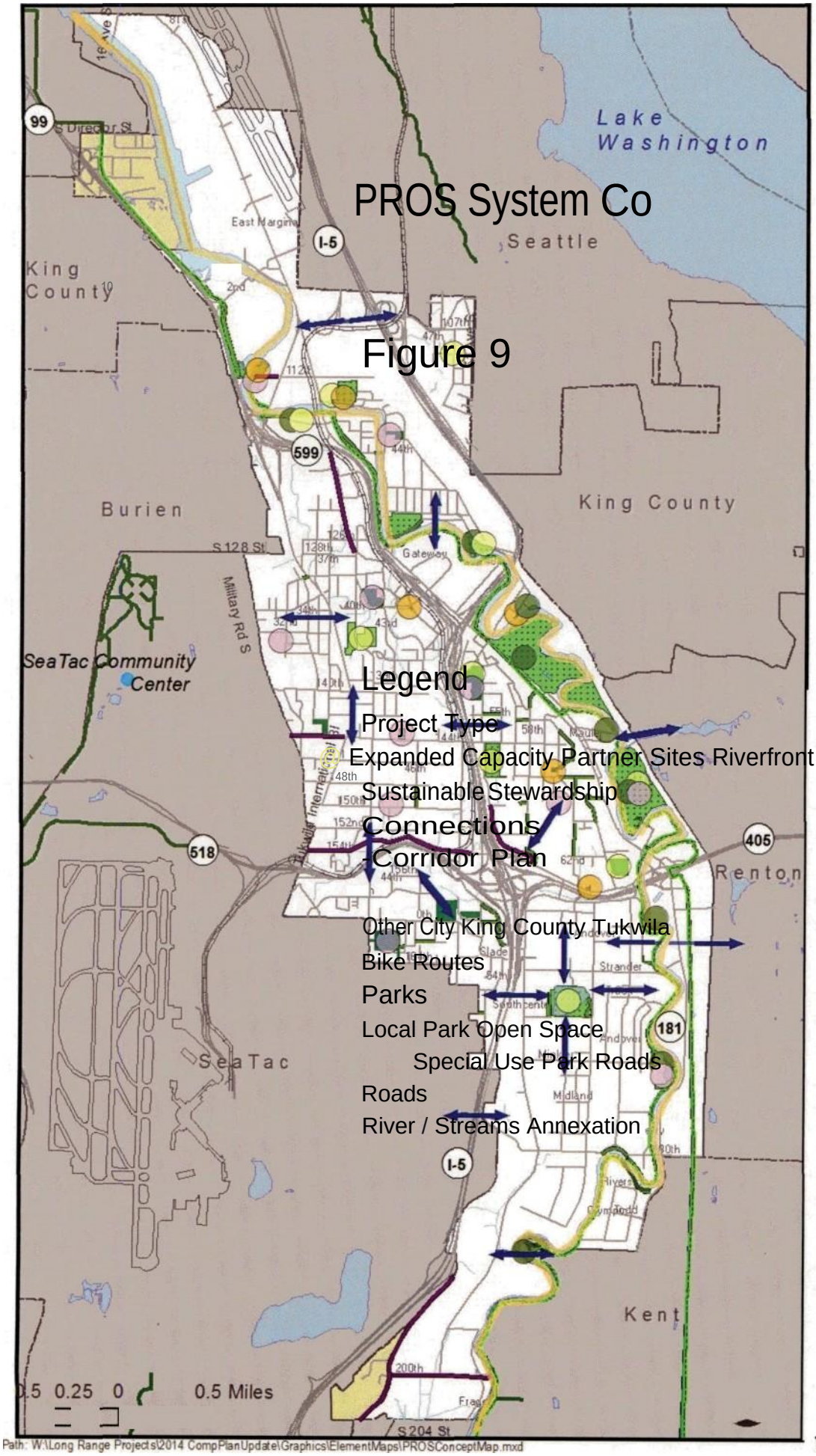
River / Streams

Annexation

PROS System Co

ncept Map

Figure 9



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DRAFT Transportation Background Report

City of Tukwila

November 2024

Tukwila Transportation Element

Executive Summary

Tukwila is a vibrant community with diverse residents, businesses, and regional attractions, connected by various transportation options to local and regional destinations. Since incorporating in 1908, Tukwila has grown to a community with a population of 20,265 residents (2020)[1]. In addition to serving its residents, Tukwila is home to jobs from a wide range of sectors such as manufacturing, industry, local businesses, and retail. Tukwila's major shopping area, Southcenter, draws in shoppers from across the Puget Sound region.

In recent years, Tukwila has sought to address traffic congestion and improve multimodal connectivity, especially near Tukwila International Boulevard and in Southcenter. Tukwila also maintains two major regional trails: the Green River Trail and the Interurban Trail. These trails allow people to walk, roll, scooter, and bike throughout the city and to neighboring communities.

There have been several major transit-related transportation investments in the City of Tukwila, including Tukwila International Boulevard Link Station (TIBS), the Southcenter Transit Center, and the Tukwila Sounder Station. The TIBS station boasts high usage and provides much needed transit connections to Tukwila International Boulevard, which has undergone several pedestrian access improvements in recent years. Sound Transit is also planning to add an additional light rail infill station on the north side of the City, near Boeing Access Road. Sound Transit also maintains a Sounder S Line station in Tukwila. The Sounder S Line is a commuter rail that extends from Seattle to Lakewood/Tacoma and provides service during typical peak period hours on weekdays. In addition to rail service, King County Metro and Sound Transit both provide bus routes serving the Tukwila area. The Southcenter Transit Center has improved transit connectivity and ridership increases, especially on the Rapid Ride F Line, have exceeded growth rate expectations.

This Transportation Background Report seeks to proactively build on these investments to support Tukwila's continued evolution over the next 20 years. Tukwila's Comprehensive Plan (The Plan) integrates previous planning efforts and emphasizes multimodal connections, safety, and equity. This Transportation Background Report, including the transportation project list, was

[1] 2016-2020 American Community Survey, U.S. Census Bureau's American Community Survey Office. Table S0101 https://www.census.gov/

developed in coordination with the community, who helped identify long-term vision for transportation in Tukwila.

The following five goals were developed with input from the Tukwila community and guide the investment decisions outlined in this Transportation Background Report:

EQUITY 	**Eliminate systemic barriers to ensure fair access to healthy, affordable, reliable transportation options, livable places, and jobs.**
SAFETY 	**Provide a safe transportation system and placemaking to emphasize Tukwila as a welcoming place, particularly for historically marginalized and vulnerable populations.**
CONNECTIVITY 	**Maintain, expand, and enhance Tukwila's multimodal network, particularly walk, bike, roll, and transit, to increase mobility options where needs are greatest.**
ADAPTABILITY 	**Anticipate and plan for the community's evolving needs, new technologies, and opportunities for mobility.**
ENVIRONMENT 	**Plan, design, and construct transportation projects that reduce greenhouse gas emissions, improve community health, and protect the natural environment.**

Plan Overview

The Tukwila Transportation Background Report sets a framework for understanding, prioritizing, measuring, and constructing a multimodal transportation network that furthers Tukwila's goals. This document includes seven chapters:

Chapter 1: Introduction

Describes the purpose of the Transportation Background Report and the planning requirements it needs to address. This chapter provides information about Tukwila's history, position in the region, current demographics, and existing land uses.

Chapter 2: Transportation Inventory and Needs Assessment

Describes conditions for all travel modes in the existing transportation system. This chapter also gives an overview of needs identified by the community, opportunities, and challenges.

Chapter 3: Public Outreach

Describes the extensive community outreach that included online engagement, focus groups, pop-ups at public events, and public meetings. The overarching principle of the public outreach was to develop a transportation background report that reflects the diverse perspectives and transportation needs of the community.

Chapter 4: Transportation Vision

Describes Tukwila's layered network approach, which focuses on how the City's transportation network can function, to meet the needs of all users. This chapter introduces the priority networks for each mode, describes the City's vision for how those modes are served, and describes the types of infrastructure that would be needed to achieve that vision. This chapter includes level of service performance standards for streets and intersections, and planning guidance to accommodate transit, biking, and walking.

Chapter 5: Transportation Project List

Describes the Transportation Background Report's prioritized project list, which would provide a safer and more connected multimodal system over the coming decades. This

chapter also describes further transportation investments that could be pursued if additional funding opportunities arise.

Chapter 6: Funding

Describes the City's path to implementation, including how the City plans to fund transportation over the life of the plan, strategies that the City will employ to optimize use of its transportation network, and how Tukwila can monitor progress of the Transportation Background Report over time to realize the overarching goals that guided the development of this Background Report.

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Index of Key Terms

TE	Transportation Element
CSAP	Comprehensive Safety Action Plan
LOS	Level of Service
LTS	Level of Traffic Stress
FHWA	Federal Highway Administration
ITE	Institute of Transportation Engineers
KSI	Killed or Severe Injury crashes
LRSP	Local Roadway Safety Plan
RRFB	Rectangular Rapid-Flashing Beacon
SS4A	Safe Streets for All program (USDOT)
SRTS	Safe Routes to School
USDOT	US Department of Transportation
WSDOT	Washington State Department of Transportation
VMT	Vehicle Miles Traveled

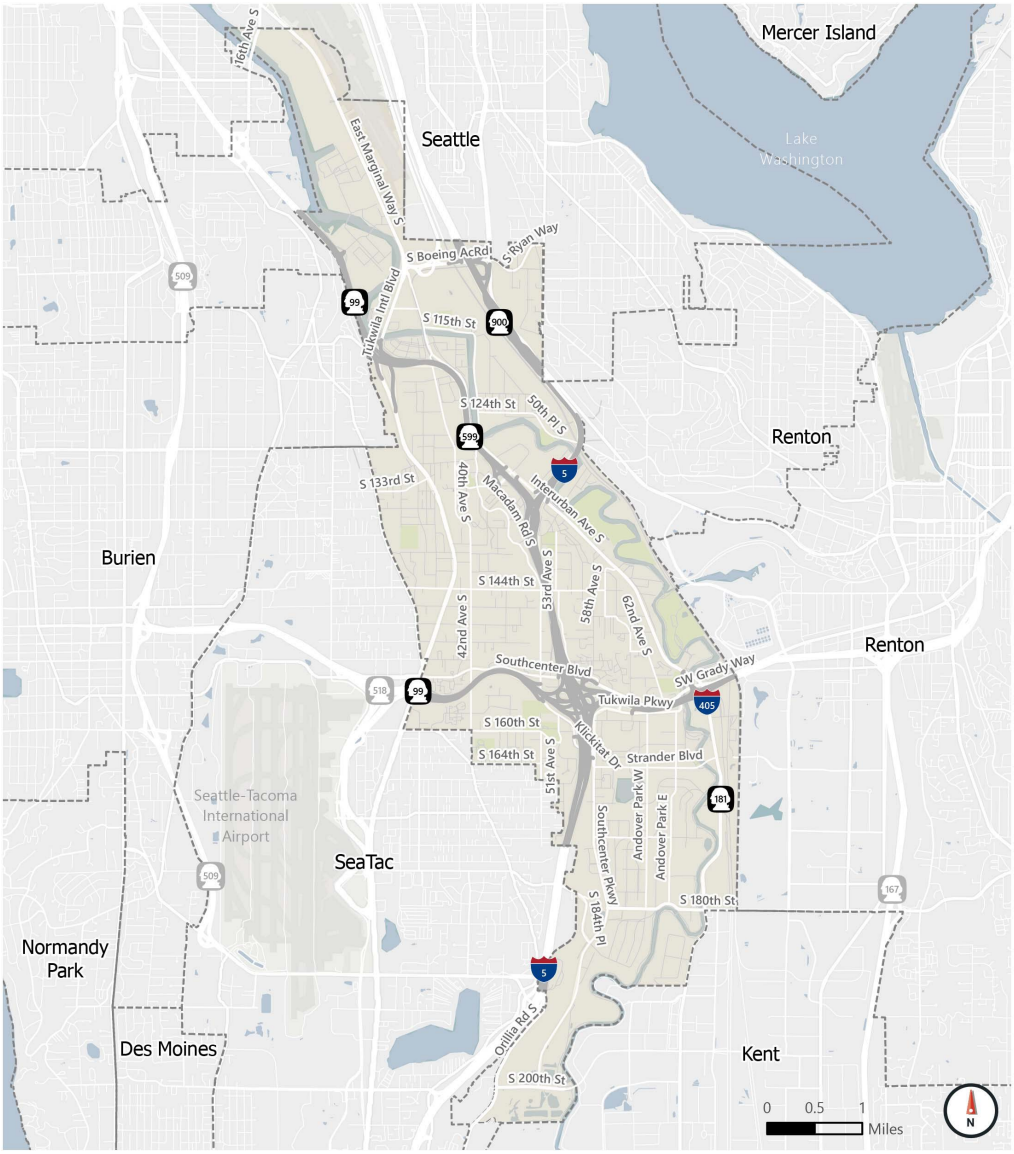
Chapter 1: Introduction

The City of Tukwila's Transportation Background Report (Background Report) provides a framework for transportation investments over the next 20 years and beyond, guided by the community's transportation and mobility priorities. The Background Report was developed through close collaboration between City staff, elected officials, community representatives, and the public at-large to help improve mobility and quality of life in Tukwila. It combines the insights gained from this collaboration with detailed technical analysis to identify transportation investments that will help the City improve mobility for everyone who utilizes transportation systems in Tukwila.

Tukwila Profile

Centered at the crossroads of rivers, trails, highways, and railroads, Tukwila is a suburban city in King County with 12 unique neighborhoods. Tukwila covers approximately 10 square miles of land area and is bordered on the north, south, east, and west by Seattle, Kent, Renton, and SeaTac and Burien, respectively as well as several pockets of unincorporated King County. The City boundary is shown in **Figure 1**. Tukwila was incorporated as a city in 1908 and has evolved into a local leader in retail and commercial sales, warehousing, and distribution of goods and manufacturing. The current Comprehensive Plan, adopted in 2015, highlights the chronology of Tukwila's willingness to grow and change while diligently preserving its strong community values.

Figure 1. City of Tukwila Boundary



City of Tukwila Boundary

Demographics

In 2020, Tukwila had an estimated population of 20,265 residents. Tukwila residents are primarily concentrated in the City's west and east quadrants, consisting of multiple neighborhoods, including Thorndyke, Cascade View, Riverton, Allentown, McMicken, Tukwila Hill, and Foster. Age ranges for residents are relatively balanced, with a median age estimated to be 36 years, 12 percent 65 years or older and 21 percent under 18 years old.[2] Tukwila's population is diverse in multiple aspects, namely in terms of race, ethnicity, spoken languages, and educational attainment.[2] This section highlights various demographic statistics that make Tukwila unique.

The three most common racial identities represented in Tukwila are White, Asian, and Black constituting 31 percent, 26 percent, and 21 percent of the City's overall population, respectively.[2] The diversity of Tukwila is notable in comparison to the same statistics on a national level. Of the nationwide population, those identifying as "White Alone" comprise 70 percent, those identifying as "Asian Alone" comprise six percent, and those identifying as "Black Alone" comprise 13 percent. Additionally, 18 percent of Tukwila residents identify as "Hispanic or Latino," which is comparable to 18 percent nationwide.[2] Tukwila has a high percentage of foreign-born residents; approximately 42 percent of Tukwila residents were born outside of the United States. Of residents born outside of the United States, 54 percent are United States citizens.[2] Slightly over half of the population in Tukwila speak a language other than English at home, with the other dominant languages including Spanish and Vietnamese. About 55 percent of this population subset speak English less than "very well".[2]

The Tukwila community includes people with diverse educational backgrounds. Approximately 28 percent of Tukwila residents over the age of 25 have an educational attainment of a high school diploma (including equivalency). Additionally, 24 percent of Tukwila residents have an educational attainment of a bachelor's degree or higher.[2] About nine percent of Tukwila residents identify as living with a disability.[2] This statistic is important to consider when planning for the transportation needs of all residents. Fourteen percent of Tukwila residents reported an

[2] 2016-2020 American Community Survey, U.S. Census Bureau's American Community Survey Office. Table S0101 https://www.census.gov/
Note: ACS data was used for consistency among data sources within the Demographics section and Appendix A. The Decennial Census has limited data on population characteristics other than the population sum. To present a wide range of population characteristics with a consistent source, all data in the Transportation Background Report uses ACS 2020 5-year estimates.

income level in the past 12 months that is below the national poverty level.[2] Detailed population characteristics of the City of Tukwila are tabulated in **Appendix A**.

Existing Land Use

The City of Tukwila is comprised of 21 zoning districts that prioritize specific land uses within its land area of approximately 10 square miles. **Figure 2** displays the City's Zoning Map.

Tukwila's 12 residential neighborhoods **(Figure 3)** are a mix of smaller-lot, built-out residential areas predominately built before World War II, large multi-family apartment complexes built in the 1960s, 70s, and 80s, and newer neighborhoods characterized by larger houses.

Tukwila has a wide range of popular destinations, including the regional Southcenter shopping area, the Starfire soccer complex, and several park spaces with multiple trails, shown in **Figure 4**. Notably, the Tukwila Community Center along the Duwamish River hosts a variety of activities and resources for seniors, adults, teens, and young children, including fitness, recreation, and wellness programs, as well as a preschool. Although not located within City boundaries, the Seattle-Tacoma International Airport is located just west of Tukwila in the City of SeaTac. Given the close proximity of the major airport, the City of Tukwila coordinates with SeaTac, the Port of Seattle, and WSDOT to address any planned projects near the airport.

Figure 2. City of Tukwila Existing Zoning Map

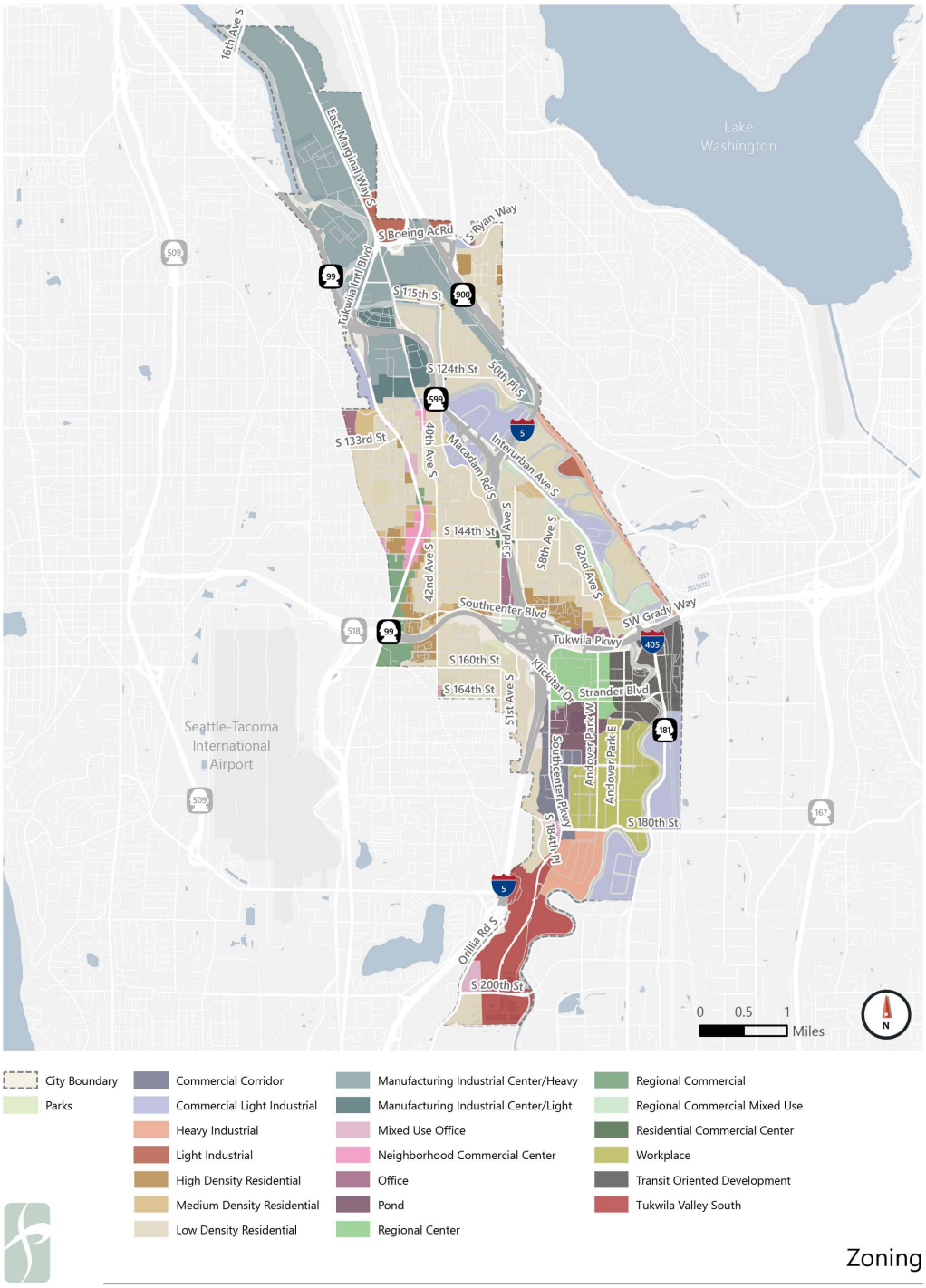
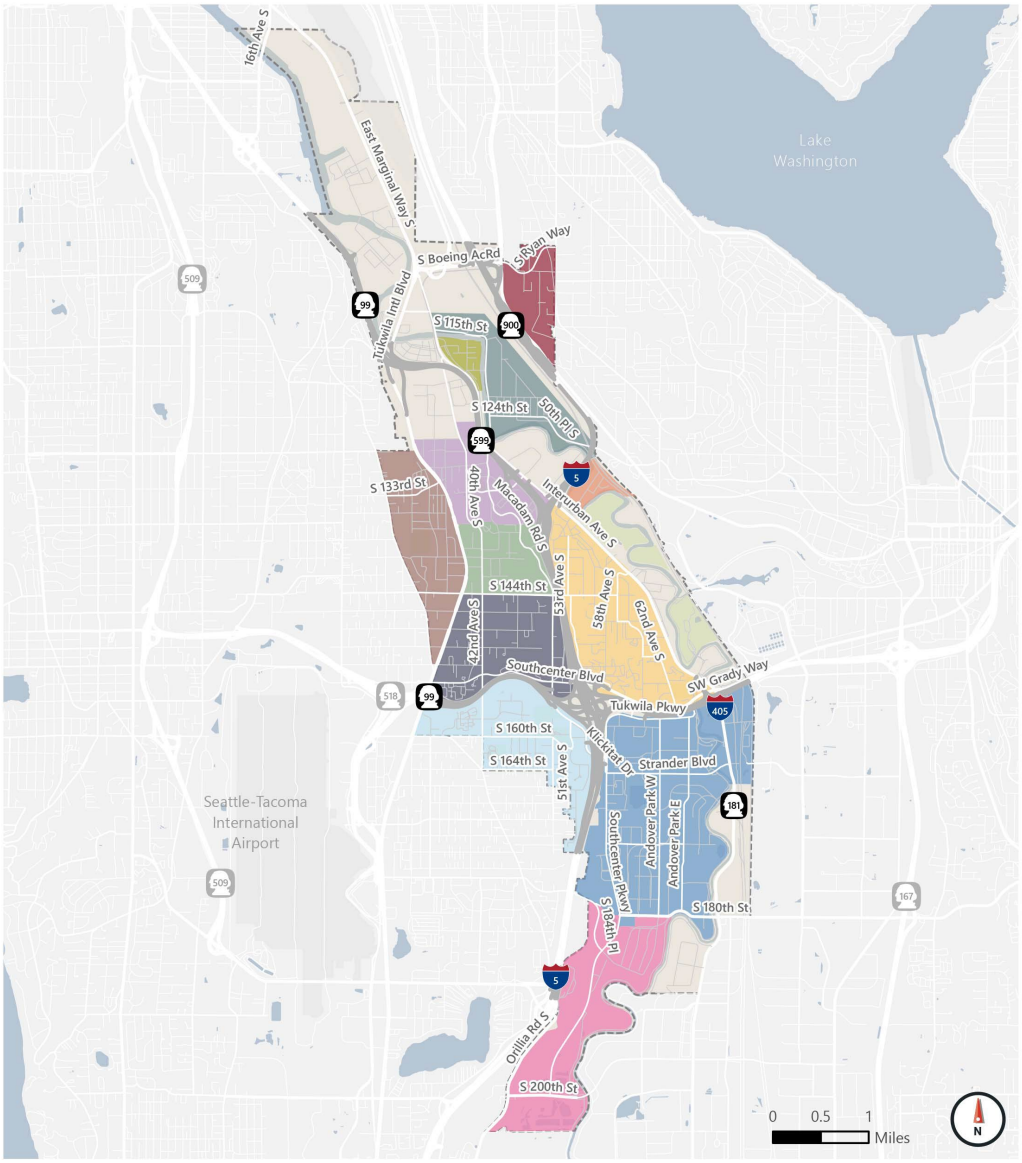
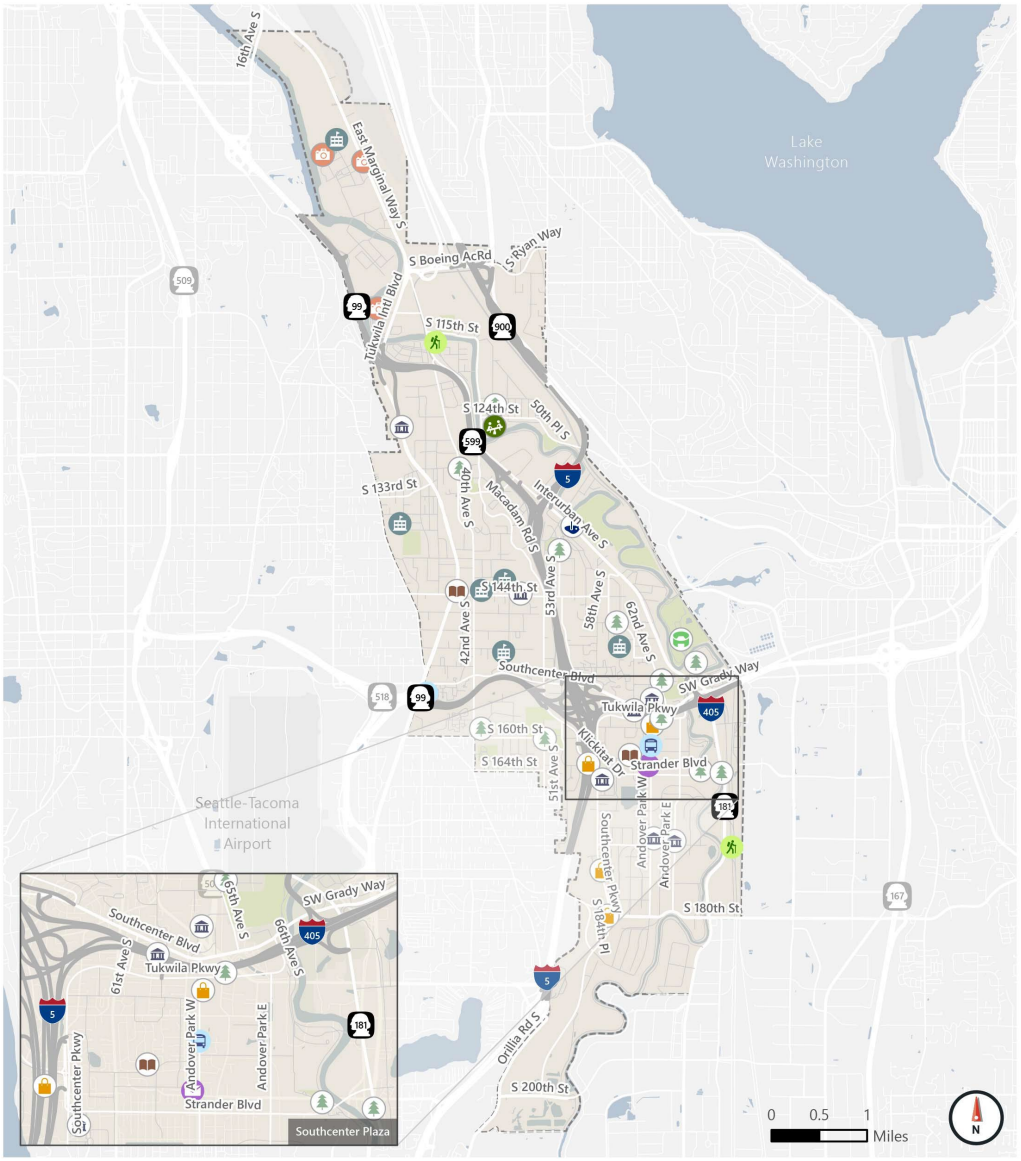


Figure 3. City of Tukwila Neighborhoods



City of Tukwila Neighborhoods

Figure 4. City of Tukwila Key Destinations



City of Tukwila Key Destinations

Local Planning Context

The City of Tukwila has several plans and policies that guide future development in Tukwila. Some of these plans, such as the Ryan Hill Neighborhood Study, Southcenter Subarea Plan, and Tukwila International Boulevard Neighborhood Plan, focus on development in certain areas or corridors within the City. The 2015 Comprehensive Plan has been the guiding document for City staff and elected officials in making decisions regarding transportation capital project funding, development regulations, and guiding principles for growth in Tukwila through 2035. Each of the plans described below have been reviewed and incorporated into the Transportation Element and Background Report.

City of Tukwila Comprehensive Plan Transportation Element (2015)

The City of Tukwila's Comprehensive Plan adopted in 2015 laid out the City's 20-year vision, derived from the City's core values: respect for the past and present, compassion and support for individuals and families, pride of place, and quality opportunities for working, living, and community involvement. The plan touched on many aspects of community life and development, from the character of neighborhoods and urban design standards to the development of vibrant centers of economic life and the revitalization of residential areas.[3] The plan provided goals and policies for achieving the City's vision through the allocation of jobs and services, housing, parks and recreational opportunities, transportation network investments, and sustainable funding.

Transportation Element (TE) Update (2024)

Tukwila is updating its Comprehensive Plan, including the TE, in 2024. This involved changes to the plan to meet new regional and statewide requirements and ensure that the plan is aligned with the vision for the City.

How is this Background Report related to the TE?

The Background Report serves as an appendix to the TE. The TE outlines policies and actions that the City will take and it refers back to Background Report for more detail on the analysis and plan development process. The TE and the Background Report work together to outline the plan for the City of Tukwila over the next 20 years.

[3] City of Tukwila. City of Tukwila Comprehensive Plan. 2015 https://www.tukwilawa.gov/wp-content/uploads/DCD-Comprehensive-Plan.pdf

Ryan Hill Neighborhood Study (2018)

In 2018, development interest within the Ryan Hill neighborhood, resulting from the area's limited infrastructure and sensitive features, prompted a comprehensive look at the needed land use changes and the types of infrastructure improvements required to support potential redevelopment.[4] The study's primary objectives were to ensure that any development decisions work collectively to achieve neighborhood-driven goals and that development-driven infrastructure improvements, such as sewer, water, and roadways, are coordinated and maximized. More information is available in the plan document on the City's **website**.

Southcenter Subarea Plan (2014)

The City of Tukwila developed the award-winning Southcenter Subarea Plan as a strategy for change and regulatory policy to guide and govern future development within Tukwila's urban center. The Southcenter Subarea Plan outlines the community's aspirations and support strategies for Southcenter as well as the physical outcomes intended to be implemented as new investments create change. Some of Tukwila's industrial uses have already shifted to retail uses, as evidenced by Costco, Lowe's Home Improvement, and Home Depot, all located in former warehouse buildings. In addition, this plan also identifies an initial set of recommended actions and investments that the City can take to accelerate redevelopment strategies. More information is available in the plan document on the City's **website**.

Local Road Safety Plan (LRSP) Development (2025)

Tukwila is in the process of developing an LRSP to address transportation safety in the City. The LRSP, to be adopted in 2025, includes an analysis of existing conditions and systemic safety concerns that feed into a set of safety-related projects on Tukwila streets.

How is this Background Report related to the LRSP?

The Background Report, TE, and LRSP all work together to address transportation needs in Tukwila. The LRSP development informed safety policies in the TE and is integrated in the Safety section of the Background Report. Recommended projects from the LRSP can be found in the LRSP document.

[4] City of Tukwila. Ryan Hill Neighborhood Study. 2018
https://www.tukwilawa.gov/wp-content/uploads/Ryan-Hill-Neighborhood-Study-03.06.18.pdf

Tukwila International Boulevard Neighborhood Plan (2017)

In 2015, Tukwila City Council adopted goals and policies in the Tukwila International Boulevard (TIB) Element of the Tukwila Comprehensive Plan, calling for a transformation of the neighborhood into a more walkable, safer, and attractive destination with TIB as a "main street". In 2017, the TIB Neighborhood Plan was developed to explore strategies for implementing the City's adopted goals and policies for the TIB neighborhood. The City partnered with the Congress for New Urbanism (CNU) to identify recommendations which included: reducing the number of through-lanes on TIB by replacing them with on-street parking and bike lanes; and revising the zoning regulations for new development to allow new land uses and development patterns that are consistent with the walkable vision for TIB[5].

Between 2017 and 2020, there have been various efforts to support the TIB Neighborhood Plan, including[6]:

- Interim zoning code revisions to restrict certain auto-oriented and lodging uses
- Development of preliminary rechannelization alternatives for TIB, including potential impacts, mitigation, cost, and the extent to which they achieve the goals for the TIB District

More information is available in the plan document on the City's **website**.

Tukwila Growth and Transportation Efficiency Center Program (2007)

Under the Washington State Commute Trip Reduction (CTR) Efficiency Act, the City of Tukwila was given the option of developing a Growth and Transportation Efficiency Center (GTEC) program to expand CTR efforts to additional employers and residential groups within a defined area.

[5] City of Tukwila. Tukwila International Boulevard CNU Legacy Project. 2017 https://indd.adobe.com/view/30a631e0-ee3c-45f4-8f76-a9c83850446a

[6] City of Tukwila. Tukwila International Boulevard Neighborhood Planning. 2020 https://www.tukwilawa.gov/departments/community-development/community-planning/tukwila-international-boulevard-neighborhood-planning/

In 2007, the City developed a GTEC for the Tukwila Urban Center (TUC), a designated regional growth center, through extensive involvement by employers, organizations, and individuals from throughout the City who helped identify strategies to achieve the program's goals. The vision of the TUC GTEC program was based on two primary objectives[7]:

- Bolster the TUC's market position as a regional shopping center by creating an attractive central destination offering housing, shopping, entertainment, and recreation. Connect dispersed retail activities and provide a convenient, walkable, enjoyable, and varied shopping environment.
- Use the (then) planned commuter rail station, Tukwila Transit Center, and other transportation investments as a catalyst to shift development patterns, provide amenities, and create a true center and focal point for the community.

More information is available in the plan document: on the City's **website**.

Tukwila Transit Plan Update (2016)

Last updated in 2016, Tukwila's Transit Plan was targeted to provide clear guidance for transit planning over ten years by outlining recommendations for short-term actions. The developed recommendations were based on public outreach, thorough analyses of demographic data, planning documents, travel demand, and transit service in Tukwila. This plan recommended the following:

- A new express route between Tukwila and Bellevue before the I-405 BRT is implemented, targeting both Tukwila residents as well as Sounder riders.
- Frequency improvements to bus routes serving Tukwila including Rt-124, Rt-150, Rt-128, RapidRide F-Line and A-Line, Rt-156, Rt-906, and Rt-154.
- Maintenance of the Hyde Shuttle which serves seniors (55 and over) and people with disabilities.
- The provision of options to connect Allentown and Tukwila Community Center. Documented options include shuttle service, subsidized taxi/ transportation network companies (TNC) programs, and a community van program.

[7] City of Tukwila. Tukwila Urban Center Growth and Transportation Efficiency Center Program. 2007 https://www.tukwilawa.gov/wp-content/uploads/DCD-CompPlan-Tukwila_GTEC_Plan.pdf

- Long-term transit services changes, transit priority corridors, transportation demand management and outreach to diverse communities, and a few capital recommendations.

More information is available in the plan document on the City's **website**.

Americans with Disabilities Act (ADA) Transition Plan (2016)

The City of Tukwila established its ongoing commitment as an all-inclusive community, providing equal access for all, through the ADA Self-Evaluation and Transition Plan.

As documented in the 2016 draft Plan, the City of Tukwila anticipated the removal of the highest priority barriers within the first two years of the plan's adoption. This is based on the self-assessment, planning-level cost estimates, and available financial resources. The Capital Improvement Program (CIP), allocated $200,000 for 2017 and 2018, but budget constraints in 2019 and 2020 reduced the annual budget to $50,000 per year. The budget was further reduced in 2021 through 2023 due to the impacts of the Covid-19 pandemic on City revenues. In 2024, the annual budget was increased to $100,000, half of the annual recommended budget. For 2025-2026, it is estimated that an annual budget of $61,000 will be available towards ADA improvements and working to ADA compliance of all capital improvements projects and other City-funded construction. An updated ADA Transition Plan is needed to address the existing needs in light of the funding challenges over the recent years, and to plan to meet the City's objective of addressing all known deficiencies within 20 years.[8] Incorporation of the ADA Transition plan is expected by 2029. More information is available in the plan document on the City's **website**.

City of Tukwila's Non-Motorized Walk and Roll Plan (2009)

In 2009, the City developed Tukwila's first pedestrian and bike planning document, "The Walk and Roll Plan" to implement goals of the Comprehensive Plan and adopt a complete streets approach. The Walk and Roll Plan[9] was targeted to ensure that all Tukwila residents know the joy of wandering through the community using trails and sidewalks while also able to experience the sense of accomplishment and freedom associated with the ability to walk or bike

[8] City of Tukwila. ADA Transition Plan. 2016
https://www.tukwilawa.gov/wp-content/uploads/PW-ADA-Draft-ADA-Transition-Plan.pdf
[9] City of Tukwila. City of Tukwila's Non-Motorized Plan. 2009
https://www.tukwilawa.gov/wp-content/uploads/DCD-Walk-and-Roll-Program.pdf

to school, to work, to the store, and the library. The following recommendations were outlined in the Plan:

- Adoption of bike and pedestrian infrastructure designs
- Designation and adoption of "Bike Friendly Routes"
- Continue construction of neighborhood links
- More than the minimum for pedestrian safety
- Railbanking for the future
- Promotion of and participation in biking and walking programs
- Identify and fund Walk and Roll projects in the Capital Improvement Program (CIP)

More information is available in the plan document on the City's **website**.

Regional Planning Context

VISION 2050 (2020)

By 2050, the region's population is anticipated to reach 5.8 million. VISION 2050 sets the stage for updates to countywide planning policies and local comprehensive plans, developed by the region's cities and counties, as illustrated in **Figure 5**.[10] The key themes highlighted in VISION 2050 include:

- Provide opportunities for all
- Increase housing choices and affordability
- Sustain a strong economy
- Significantly reduce greenhouse gas emissions
- Keep the region moving
- Restore the health of the Puget Sound
- Protect a network of open space
- Growth in centers and near transit

Figure 5. Washington State Planning Framework



[10] Puget Sound Regional Council. VISION 2050. 2020
https://www.psrc.org/sites/default/files/2022-02/vision-2050-plan%20%281%29.pdf

- Act collaboratively and support local efforts

More information is available in the plan document on PSRC's **website**.

King County Countywide Planning Policies (2021)

The Countywide Planning Policies (CPPs) implement VISION 2050 by guiding how King County jurisdictions work together and plan for growth. The comprehensive plan for King County and the comprehensive plans for cities and towns in King County are developed from the framework that the CPPs establish.

The 2021 CPPs were designed to provide guidance in advance of the 2024 statutory update of comprehensive plans to incorporate changes to the regional policy framework and to reflect new priorities addressing equity and social justice within communities[11]. The 2021 CPPs update was based on the following:

- 2012 Countywide Planning Policies
- Centering social equity and health
- Integrating regional policy and legislative changes
- Providing clear, concise, and actionable direction for comprehensive plans
- Implementing the Regional Growth Strategy with 2044 growth targets that form the land use basis for periodic comprehensive plan updates

More information is available in the plan document on King County's **website**.

Washington State Growth Management Act

The State's Growth Management Act (GMA) of 1990 requires communities to prepare a transportation plan that ties directly to the City's land use decisions and financial planning. The updated Transportation Element and Background Report support this GMA mandate for the next 20-year planning cycle.

[11] King County. 2021 King County Countywide Planning Policies. 2021 https://kingcounty.gov/~/media/depts/executive/performance-strategy-budget/regional-planning/CPPs/2021-CPPs-Adopted-and-Ratified.ashx?la=en

Chapter 2: Transportation Inventory and Needs Assessment

The subsequent sections document the existing transportation networks within the City and discuss identified opportunities for improvement. The Tukwila transportation network accommodates various modes of getting around, including walking, rolling, scootering, biking, riding public transit, driving, and freight and goods movement

Street Network

Tukwila's street network is comprised of roadways with varying vehicle capacities intended to accommodate various modes of transportation and connect users to local and regional facilities. Streets in Tukwila serve as the foundation of the transportation system, as roadways shape how residents and visitors experience the City. **Table 1** and **Figure 6** describe and map the functional classification of roadways in Tukwila, respectively. **Figure 7** presents posted speed limits on the City's roadway facilities.

The City is dedicated to maintaining healthy roadway conditions along its street network through various rehabilitation investments. Based on a pavement condition assessment conducted in 2020 for more than 200 lane miles of City-owned asphalt roadways, Tukwila's roadway network is generally in good condition. The City's roadway network has an average Pavement Condition Index (PCI) of 68 and a backlog (roads rated below a PCI of 40) one of 5.8 percent of the overall network. Notably, the average PCI for Tukwila streets is slightly above the national average of 60-65.[12]

Because Tukwila's street network is also comprised of state-owned facilities, the City collaborates with the Washington State Department of Transportation (WSDOT). State-owned roadways in Tukwila include Interstate 5, Interstate 405, and state routes 99, 181, 518, 599, and 900 depicted in **Figure 6.**

[12] City of Tukwila. Pavement Management Program – Analysis Report. 2020 http://records.tukwilawa.gov/WebLink/1/edoc/332433/TIC%202020-10-05%20Item%202E%20-%20Report%20-%202020%20Pavement%20Management%20Program%20Analysis%20Report.pdf

Table 1. City of Tukwila Street Functional Classifications

Type	Description	Examples	Photo
Principal Arterial	The primary function of principal arterials is to expedite through-traffic between communities and traffic generated by major shopping and employment centers and serve travel between freeways and lesser classified arterials. Principal arterials carry the highest volume within the City, ranging between 10,000 and 50,000 vehicles per weekday. These roadways generally have sidewalks on both sides, and some have bike facilities.	Tukwila International Boulevard, Interurban Avenue S, East Marginal Way S	 *Tukwila International Boulevard*
Minor Arterial	Minor arterials serve inter-community traffic traveling between neighborhoods and principal and collector arterials. These roadways serve smaller geographic areas than principal arterials. Traffic generators served by minor arterials include schools, hospitals, and community business centers. Minor arterial traffic volumes range from 1,500 to 15,000 vehicles per weekday.	Southcenter Boulevard, Southcenter Parkway, Strander Boulevard	 *Southcenter Boulevard*

Type	Description	Examples	Photo
Collector Arterial	Collector arterials are designed to serve traffic traveling between access streets and higher classification arterials and primarily serve local traffic of a neighborhood or commercial/industrial area. Collector arterial traffic volumes are generally less than 10,000 vehicles per day. Some collector arterials provide transit service, sidewalks, and bike facilities, but there are gaps in Tukwila's network.	S 144th Street, Andover Park W, 42nd Avenue S	 *S 144th Street*
Local Access	Local access roadways connect traffic to arterials, accommodate short trips to neighborhood destinations, and provide local access. Many local access roads lack transit service, sidewalks, and/or bike facilities.	S 143rd Street, 56th Avenue S, 40th Avenue S	 *56th Avenue S*

Source: Tukwila Municipal Code, City of Tukwila, Fehr & Peers. Images are courtesy of Google Maps unless otherwise noted.

Figure 6. Existing Street Functional Classification Map

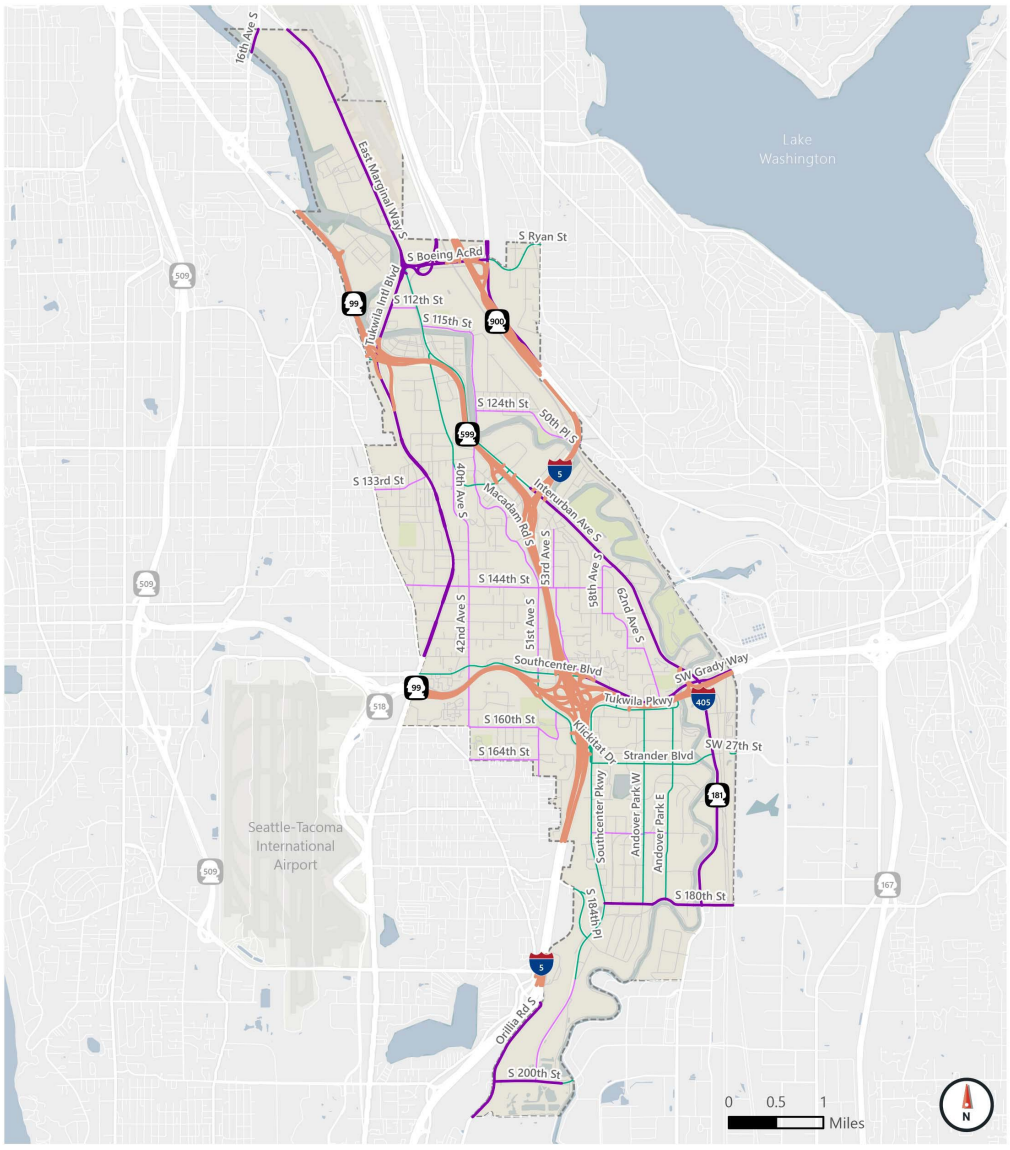
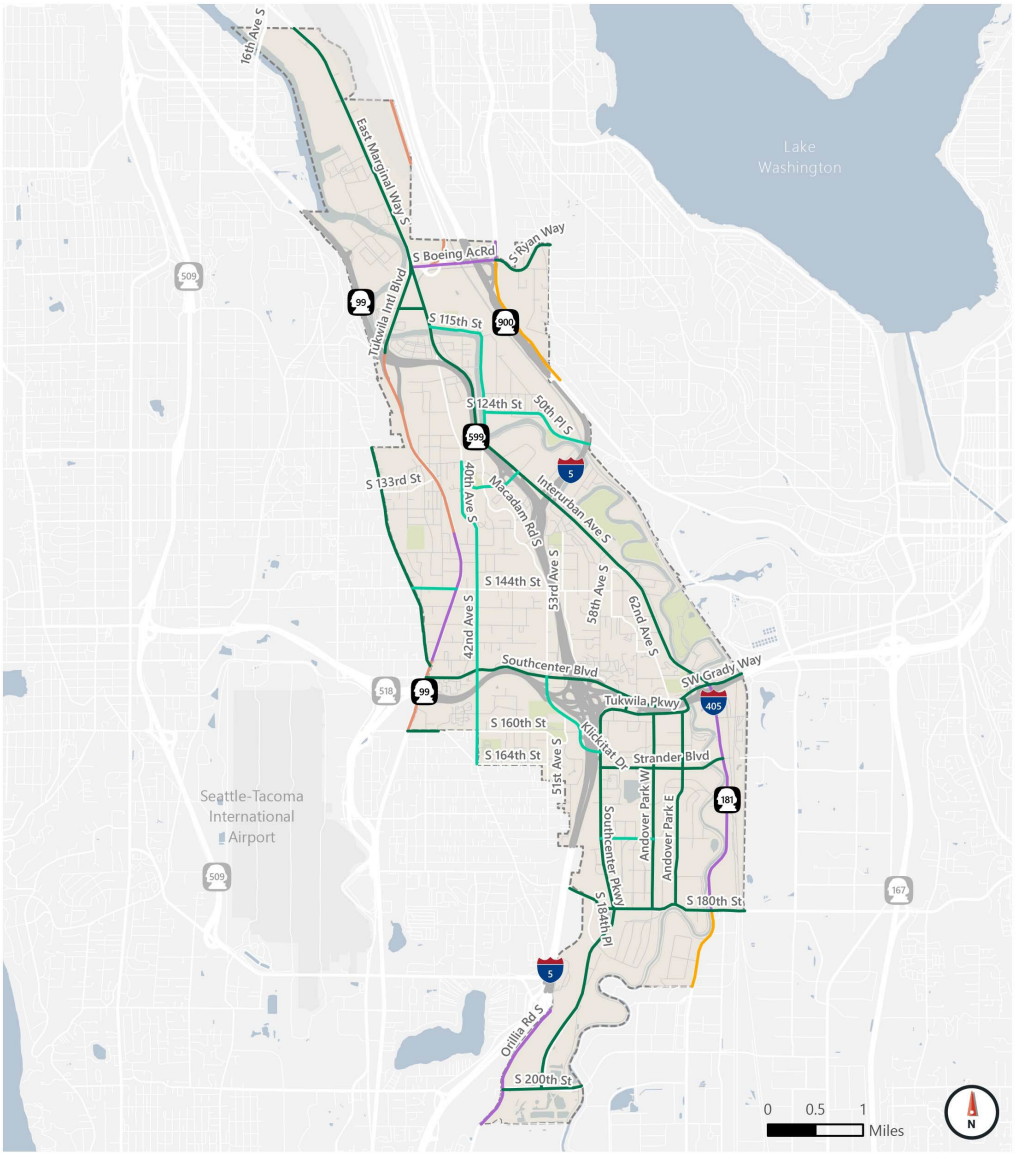


Figure 7. Existing Speed Limits Map



*City streets are 25 mph unless otherwise posted; streets in school zones are 20 mph

Speed Limits

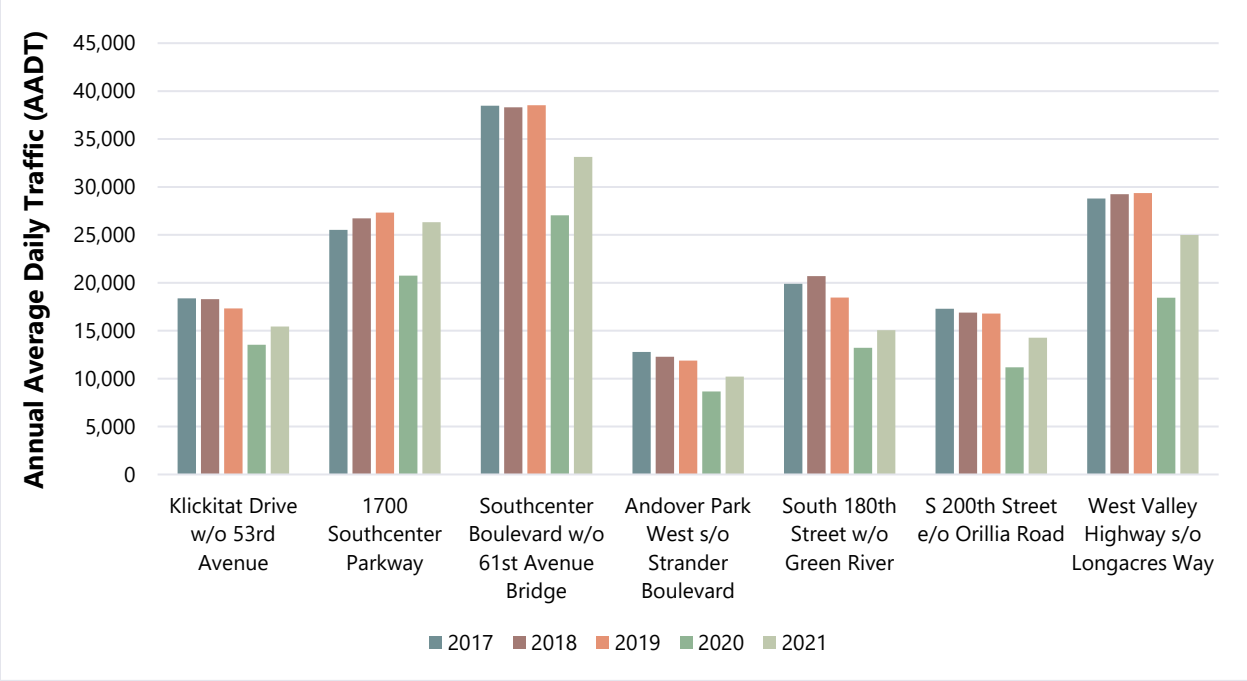
Citywide Traffic Volume Trends

Due to the challenges and unprecedented travel patterns related to COVID-19, pre-pandemic traffic volume data was utilized for the purposes of developing the Transportation Element. Traffic data the City collected in 2018 was used as a starting place, and supplemented by turning movement count data from location-based services (LBS) and navigation global positioning system (GPS) data from anonymized smartphone and vehicle navigation devices. Based on a review of representative locations in Tukwila, these data sets closely matched up with historical counts, with some discrepancies at locations near freeways. As a result, adjustment factors were developed based on the City's traffic database counts to calibrate turning movement count data from these sources to accurately represent baseline conditions.

The City of Tukwila collects and monitors traffic counts at multiple locations across the City monthly to track annual average daily traffic (AADT). As shown in **Figure 8** and **Figure 9**, the busiest locations are Southcenter Boulevard, Boeing Access Road, Southcenter Parkway, and West Valley Highway. Data collected prior to the COVID-19 pandemic from 2017 to 2019 at these locations exceeded 25,000 vehicles. **Figure 8** and **Figure 9** display AADT data from 2020 and 2021. In 2020, the COVID-19 pandemic resulted in abrupt and dramatic changes in travel demand and traffic patterns on all roadway facilities stemming from safety protocols and mass telecommuting. This is reflected in the drop in AADT illustrated in **Figure 8** and **Figure 9**. Data from 2021 show an increase in AADT at study locations; however, travel demand was still less than in pre-pandemic years, which confirms that turning movement count data from 2018 represent a conservative estimate for travel demand.

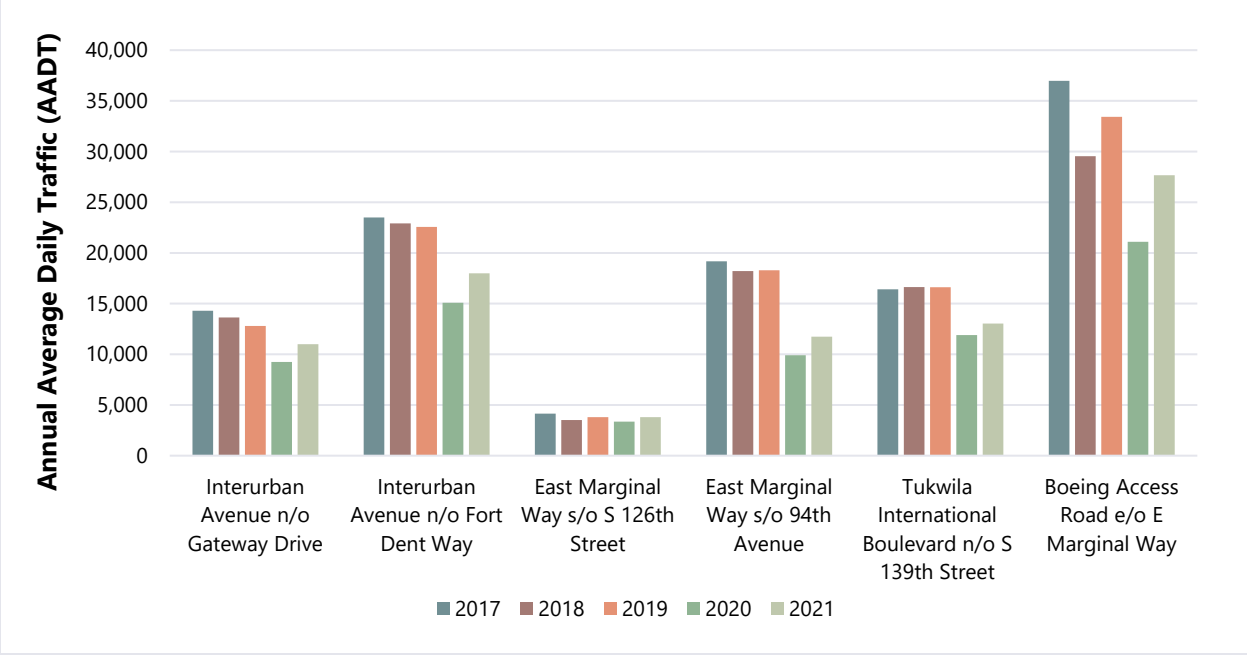
Figure 10 illustrates monthly travel patterns in Tukwila based on total AADT at the count locations. Travel on these corridors peaks during the summer and winter holidays, and volumes are notedly lower in September and October.

Figure 8. Traffic Volume Trends in or near Tukwila Urban Center (2017 - 2021)



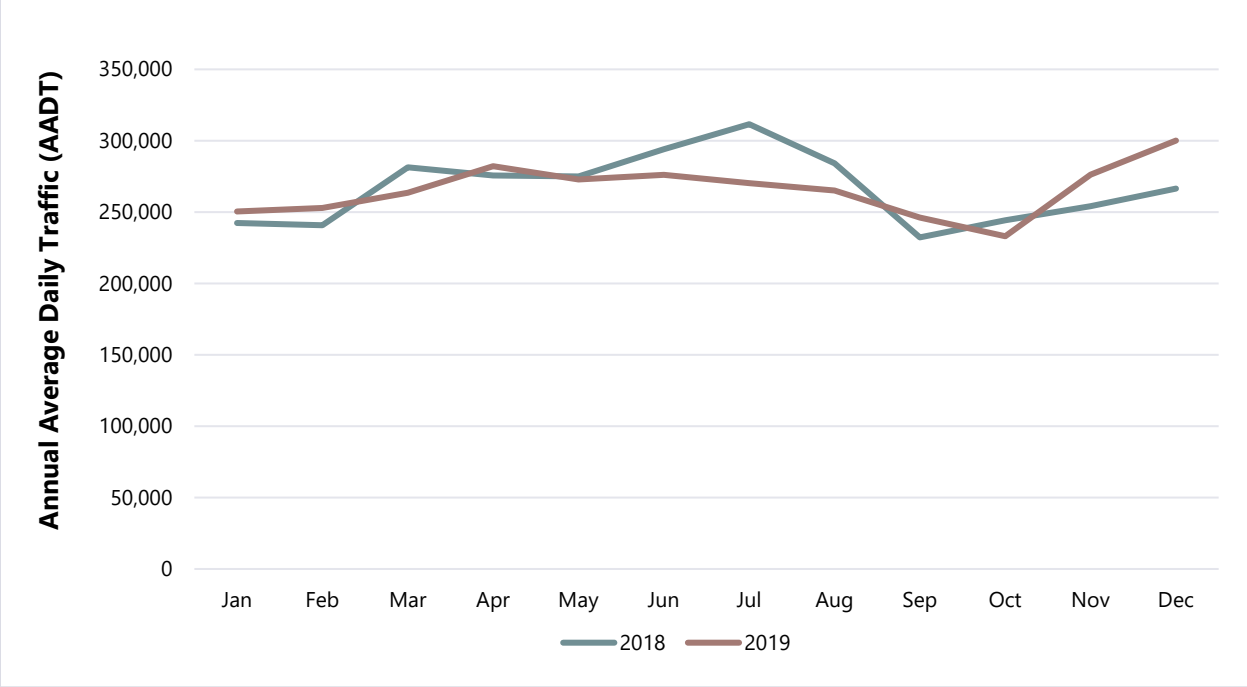
Source: City of Tukwila, Fehr & Peers. 2022.

Figure 9. Traffic Volume Trends in Study Locations Across Tukwila (2017 - 2021)



Source: City of Tukwila, Fehr & Peers. 2022.

Figure 10. Monthly Travel Patterns in Tukwila



Source: City of Tukwila, Fehr & Peers. 2022.

Existing Traffic Conditions

The performance of vehicle congestion at intersections within Tukwila is measured using a standard state-of-the-practice methodology known as level of service (LOS). LOS represents the degree of congestion at an intersection based on the average delay per vehicle at a controlled intersection, such as a traffic signal or stop sign. Individual LOS grades are assigned on a letter scale, A through F, with LOS A representing free-flow conditions with no delay and LOS F representing highly congested conditions with long delays, as described in **Table 2** and illustrated in **Figure 11**.

Table 2 shows the definition of each LOS grade detailed in the 6th edition of the Highway Capacity Manual (HCM) methodology, which is based on average control delay per vehicle. The methodology captures the average delay for all vehicles entering the intersection and prescribes how the average delay is measured at different types of intersections: signalized and stop-controlled intersections. Signalized intersections have higher delay thresholds compared with

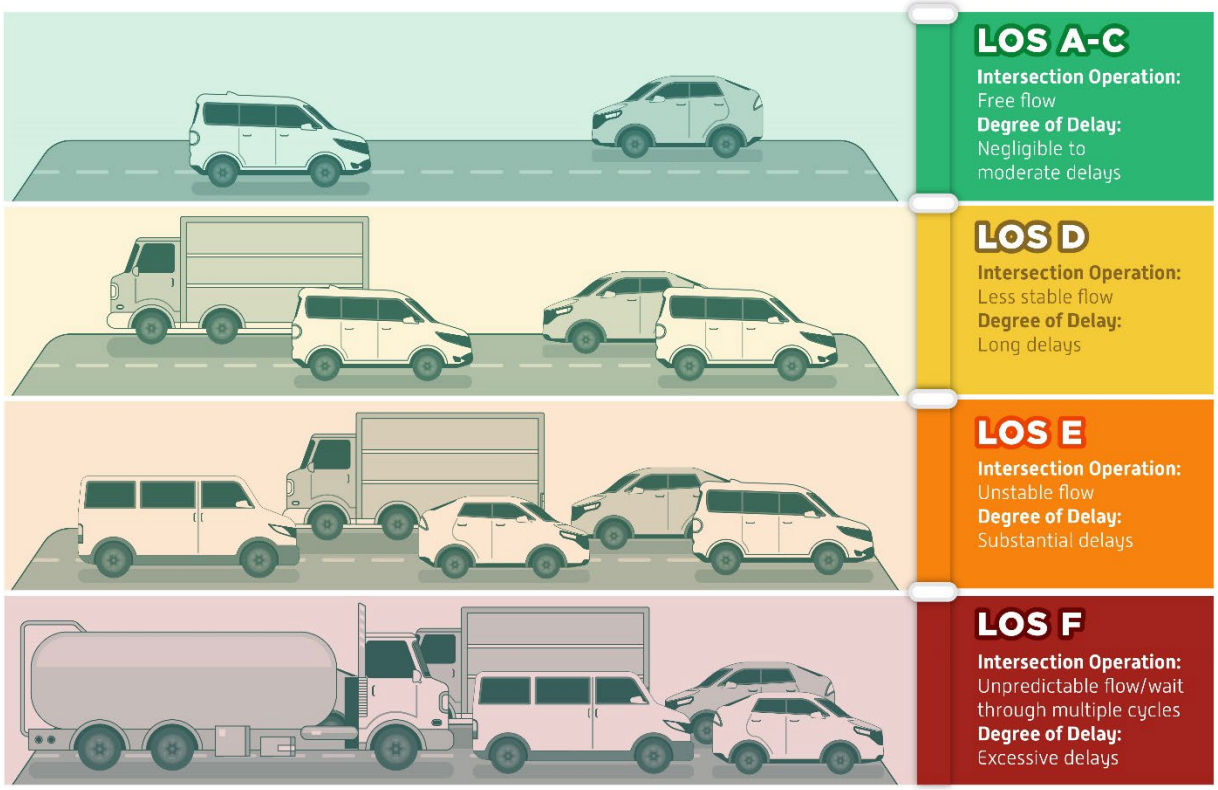
two-way and all-way stop-controlled intersections. When calculating LOS at two-way stop-controlled intersections, the delay from the most congested movement is reported and used.

Table 2. Intersection Level of Service (LOS) Criteria

Level of Service	Signalized Intersection Delay (seconds)	Unsignalized Intersection Delay (seconds)
A	≤ 10	0-10
B	>10-20	>10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

Source: Highway Capacity Manual (HCM) 6th Edition

Figure 11. Intersection Level of Service



Source: Fehr & Peers.

The City's LOS standard requires that roadways and intersections within City limits adhere to the following[3]:

Southcenter Area

- The Southcenter area corridor average is not to exceed LOS E, except for the Strander Boulevard corridor and a portion of the Andover Park East corridors.
- The Strander Boulevard corridor average is not to exceed LOS F, with an average delay not to exceed 120 seconds. The Andover Park East corridor, between Tukwila Parkway and Strander Boulevard, is not to exceed LOS F, with an average delay not to exceed 120 seconds. The S 180th Street corridor average, between Southcenter Parkway and SR 181 (West Valley Highway) is not to exceed LOS F, with an average delay not to exceed 150 seconds.
- SR 181 (West Valley Highway) is not to exceed LOS E/Mitigated per WSDOT standards as a State highway of regional significance.
- 61st Avenue S Bridge/Tukwila Parkway corridor is not to exceed LOS F, with an average delay not to exceed 120 seconds.[13]

Outside of Southcenter

- Southcenter Boulevard/65th Avenue S is not to exceed LOS F with a maximum delay of 90 seconds.[14]
- All other non-residential arterial intersections are not to exceed LOS E.
- The LOS of minor and collector arterials in predominantly residential areas is not to exceed LOS D for each specific arterial.
- As State highway of regional significance, SR 181 (West Valley Highway), SR 99, and SR 599 are subject to a Regional Level of Service Standard established by the Puget Sound Regional Council and WSDOT. The automobile level of service is not to exceed LOS E/Mitigated.
- As State highways of regional significance, I-5, I-405, and SR 518 are subject to a LOS standard established by WSDOT. The automobile level of service is not to exceed LOS D.

Vehicle LOS in Tukwila was evaluated at 54 study intersections (38 signalized and 16 unsignalized) and 11 corridors (comprised of 24 representative intersection locations) presented

[13] Added as part of 2024 Transportation Element update to address anticipated future congestion.
[14] Added as part of 2024 Transportation Element update to address anticipated future congestion.

in **Figure 12** and **Figure 13**. The selection of the study intersections was based on previously identified locations with congestion and geographic spread. This approach has been used in various City efforts including the 2015 Comprehensive Plan and the 2018 Concurrency Study.

Figure 12. Study Intersections

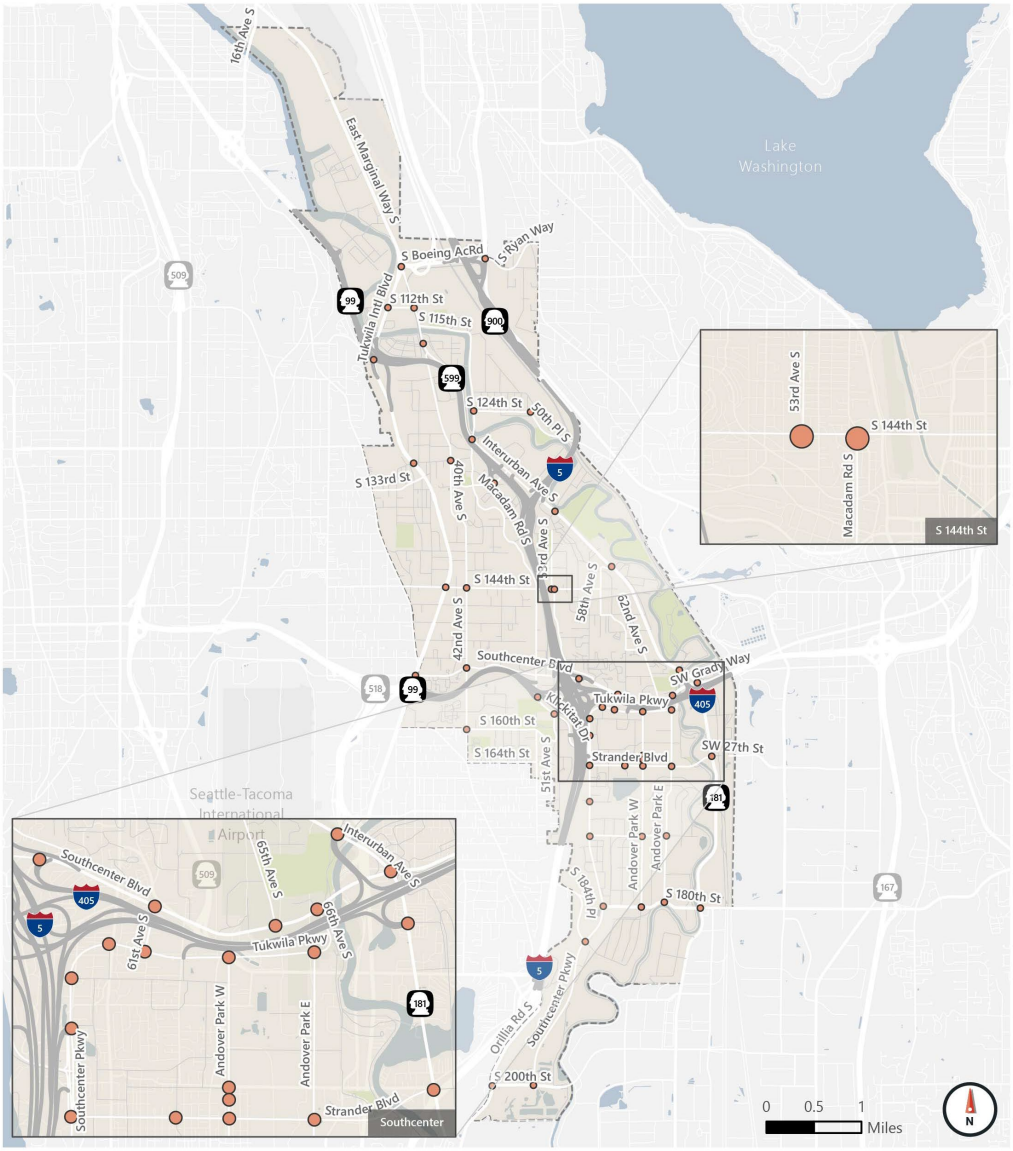
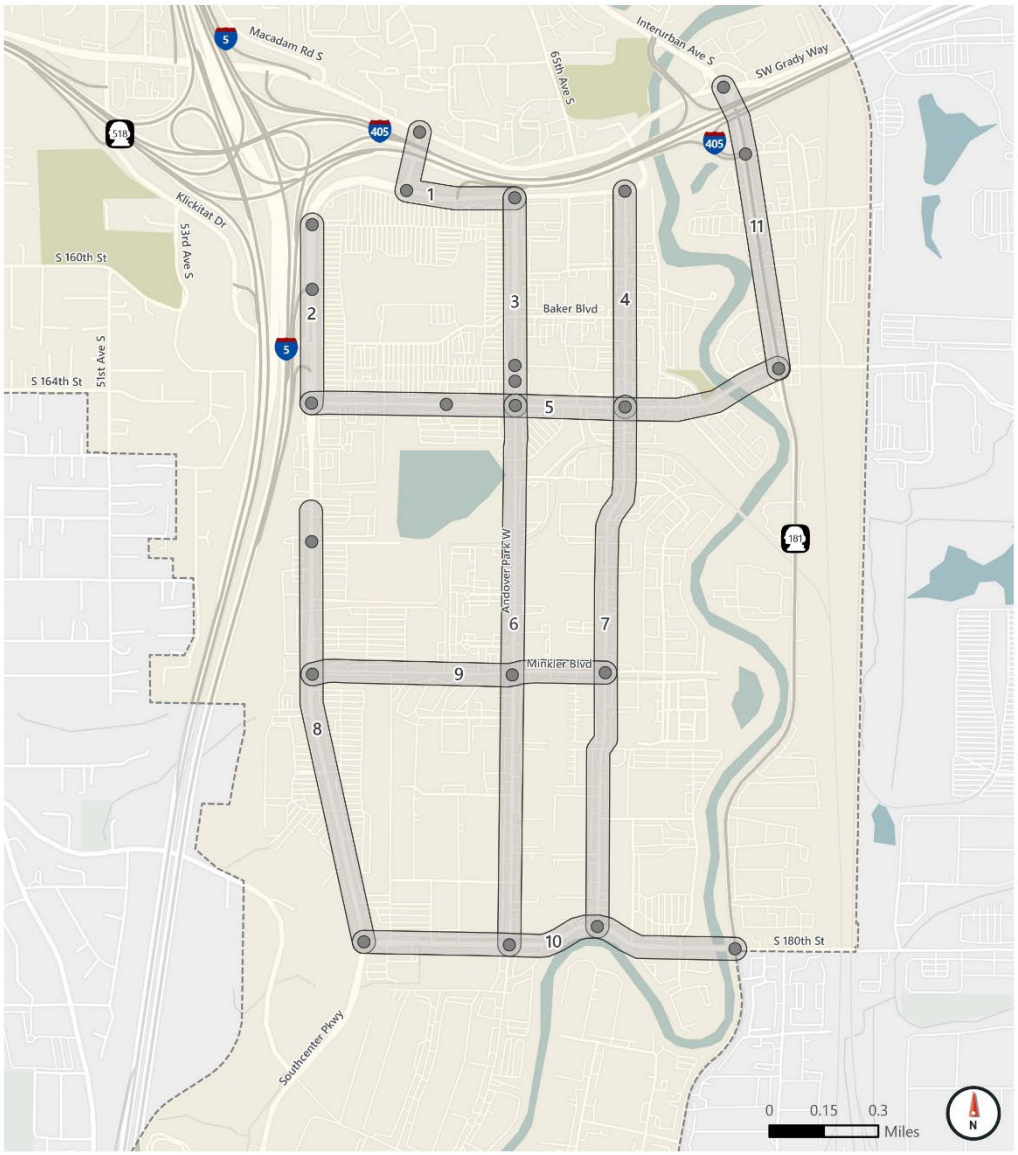


Figure 13. Study Corridors



Study Corridors

Citywide Traffic Conditions

Figure 14 shows vehicle LOS, which reflects how the study intersections operate today based on an existing traffic operations analysis conducted using the Synchro version 11 software package. Detailed vehicle LOS and delay results for each intersection are provided in **Appendix C**.

The City's intersection LOS policy only applies to intersections outside the Southcenter area. These study intersections currently operate acceptably under existing conditions during the PM peak hour except at the following location:

- Southcenter Boulevard / I-405 SB Off-ramp (LOS F with an average delay of 92 seconds)

Other notable intersections outside the Southcenter area include:

- South 116th Street / East Marginal Way (LOS E with an average delay of 39 seconds)

For specifically WSDOT facilities, only the following intersection does not meet the regional LOS standard established by the Puget Sound Regional Council and WSDOT:

- Southcenter Boulevard / West Valley Highway (LOS F with an average delay of 80 seconds) exceeds the LOS E/Mitigated standard.

Figure 14: Existing PM Peak Hour LOS in Tukwila



Urban Center Traffic Conditions

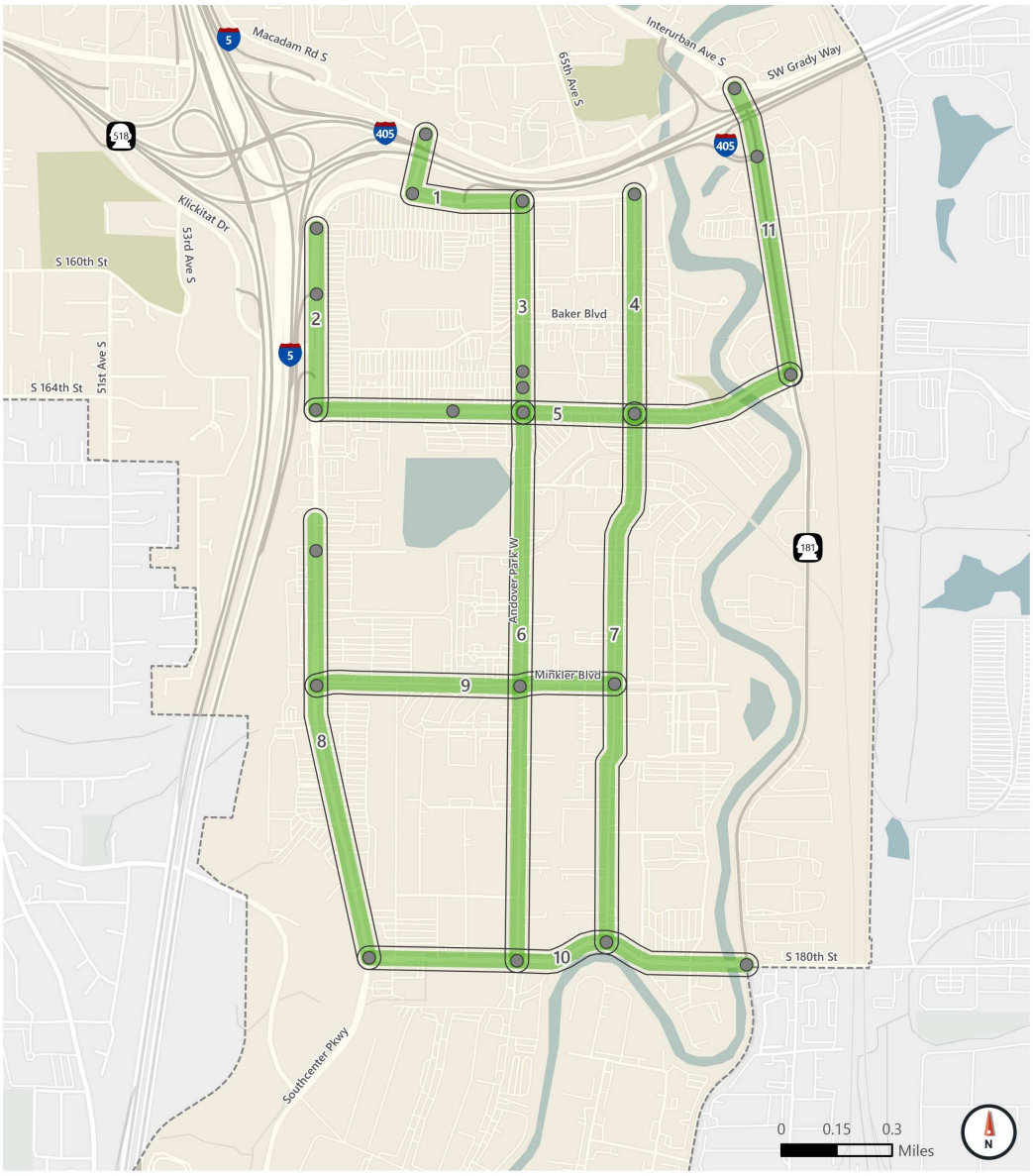
The roadway network within the Southcenter area is understood to have non-traditional peak periods due to retail travel patterns. The 11 study corridors depicted in **Figure 13** were evaluated to understand traffic conditions in the Southcenter area during several peak periods as shown in **Figure 15** through **Figure 18**. The analysis periods include weekdays and weekends during midday and PM peak hours. The weekend analysis periods are of particular interest to capture regional ingress and egress traffic to Southcenter. There are markedly higher traffic volumes in Southcenter during weekends compared to weekdays, with increases ranging from 10 percent to 20 percent.

Detailed Synchro/ SimTraffic microsimulation informed the corridor analysis assessments. As illustrated in **Figure 15** through **Figure 18**, the study corridors operate acceptably during all the evaluated analysis periods and meet the City's corridor LOS standards. The corridors operate at LOS E or better during all studied time periods. Noteworthy intersections along these corridors include:

- Southcenter Boulevard / 61st Avenue South (LOS F with an average delay of 98 seconds under weekend mid-day conditions)
- Southcenter Boulevard / West Valley Highway (LOS F with an average delay of 83 seconds under weekend PM conditions)
- South 180th Street / West Valley Highway (LOS E with an average delay of 70 seconds under weekend mid-day conditions)
- South 180th Street / Andover Park East (LOS E with an average delay of 70 seconds under weekend mid-day conditions)

Tables with detailed vehicle LOS and delay results for each intersection and corridor are exhibited in **Appendix B** and **Appendix C**.

Figure 15. Existing (2018) - Weekday Mid-day Peak Hour LOS



Existing 2018 Weekday Midday LOS

Figure 16. Existing (2018) - Weekday PM Peak Hour LOS

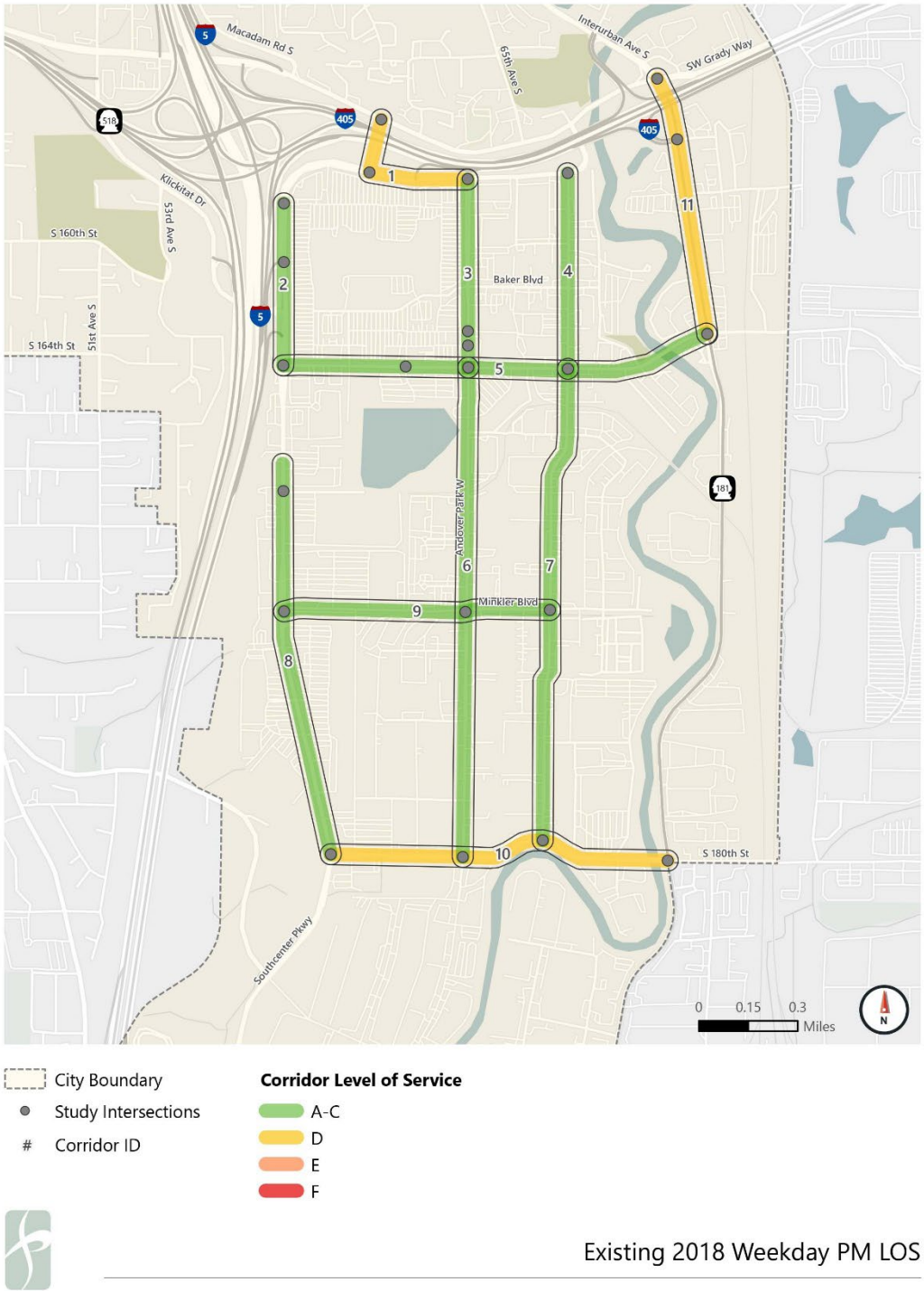


Figure 17. Existing (2018) - Weekend Mid-day Peak Hour LOS

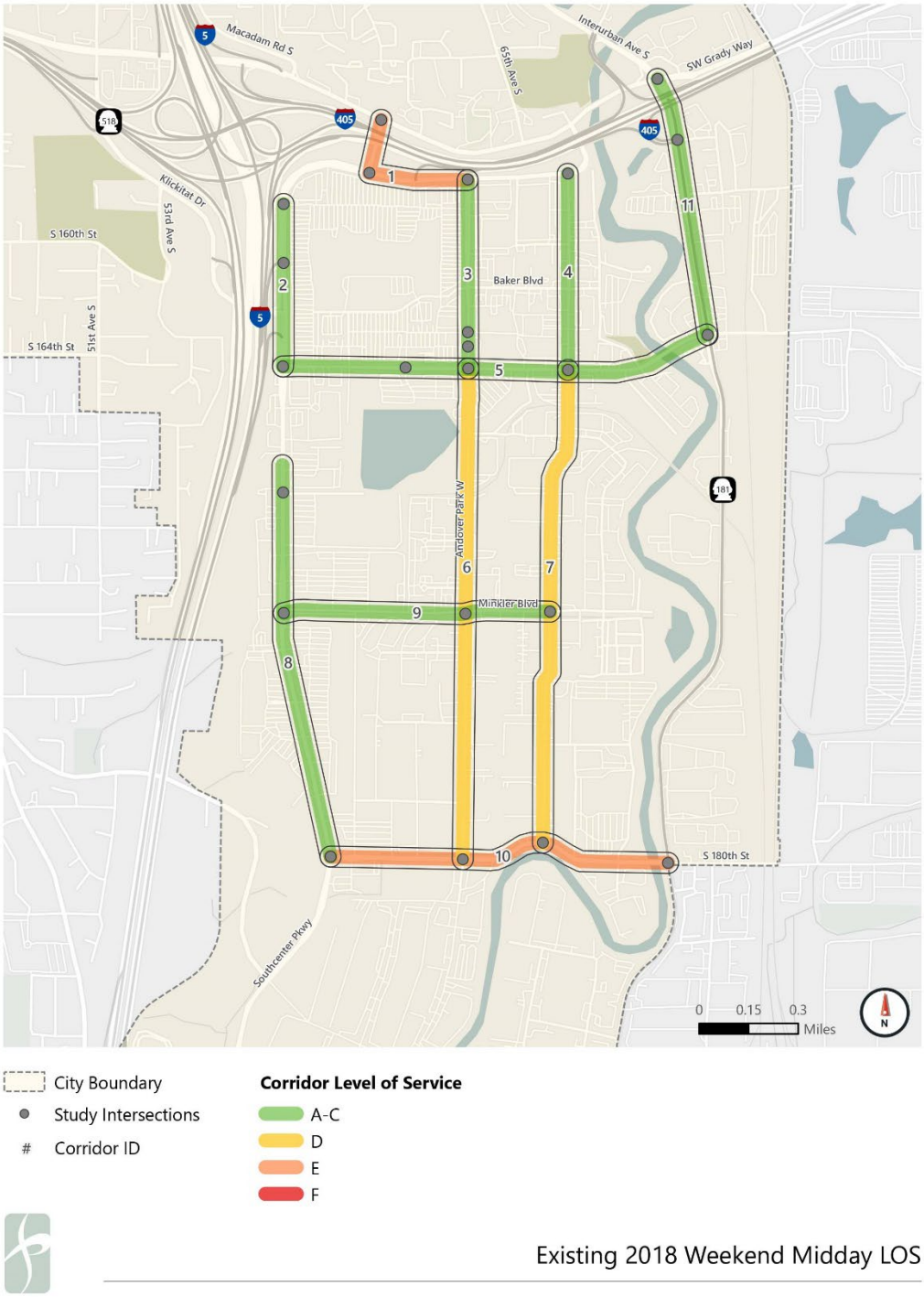
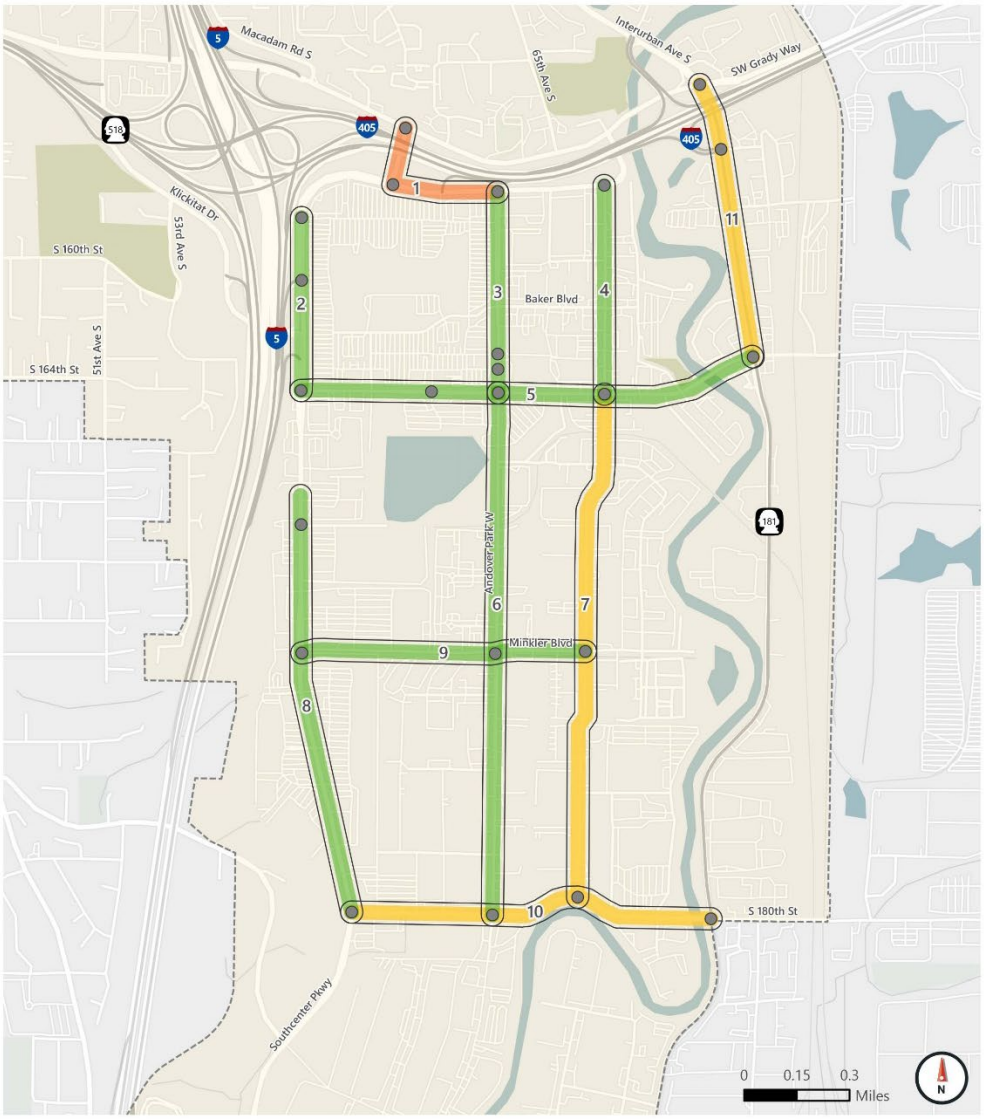


Figure 18. Existing (2018) - Weekend PM Peak Hour LOS



Existing Facilities and Future Needs for Walking and Rolling

Walking and rolling are essential ways people get around Tukwila. Walking and rolling often precedes and concludes trips by other modes. Planning safe and effective pedestrian infrastructure can make these trips easier, cheaper, and more convenient.

Pedestrian infrastructure includes a range of treatments spanning from sidewalks, curb cuts, and crosswalks to trails and shared-use paths. An example of supportive pedestrian infrastructure in Tukwila are pedestrian-actuated Rectangular Rapid Flashing Beacons (RRFB), which are located along several corridors, including Tukwila International Boulevard, as shown in **Figure 19**.

What does "rolling" include?

"Rolling" refers to methods of using pedestrian facilities other than walking. This includes the use of wheelchairs, strollers, mobility devices, and bicycles. Sidewalks, trails, and other pedestrian facilities accommodate those who walk as well as those who rely on mobility devices.

Figure 19. Crosswalk and RRFBs along Tukwila International Boulevard



Source: Fehr & Peers. 2022

Most principal and minor arterials in the City of Tukwila have sidewalk facilities on one or both sides. However, sidewalk facilities tend to be limited to these street designations with many residential areas in Tukwila lacking sidewalks and connectivity across barriers such as I-5. **Figure 20** displays the existing sidewalk network within City limits.

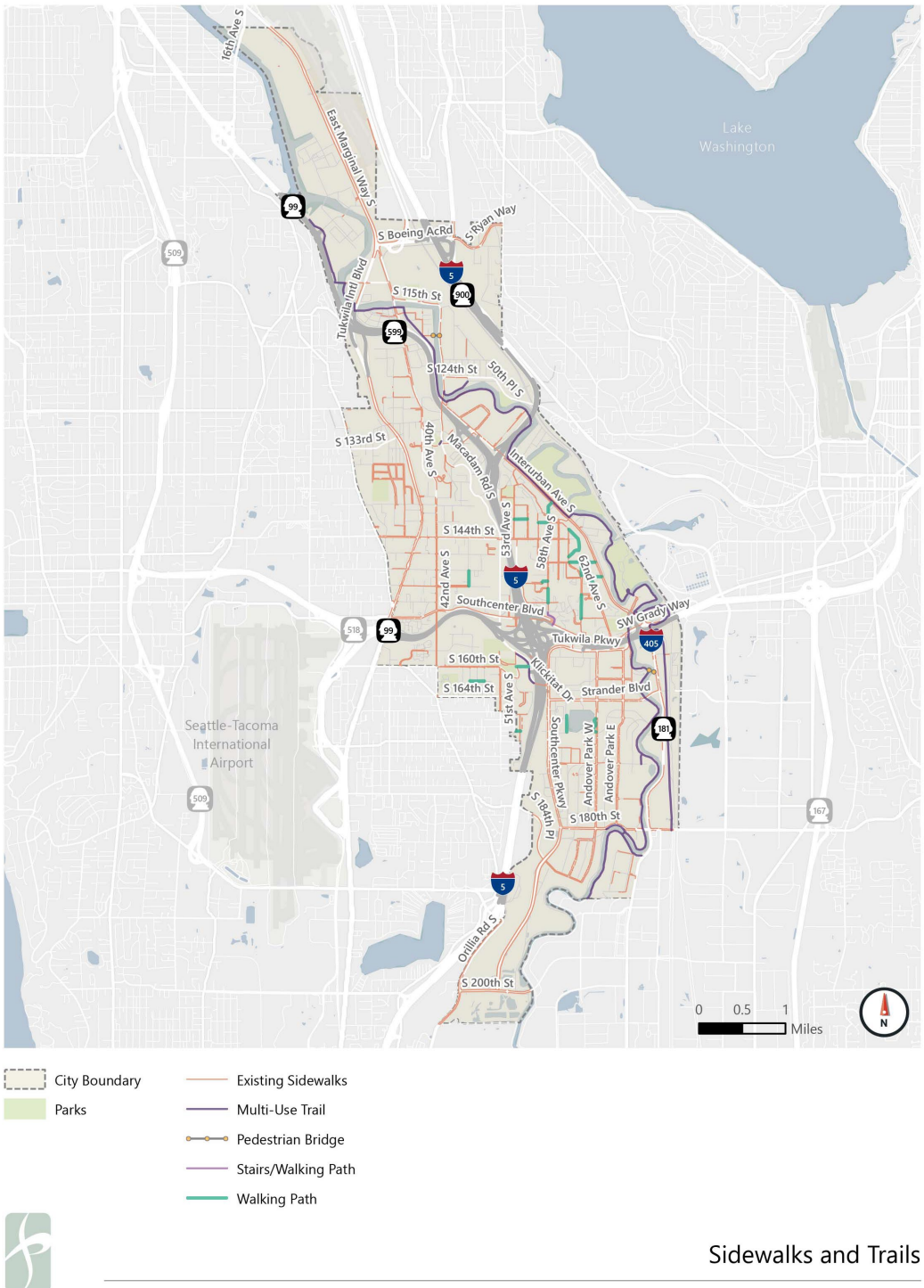
Following the adoption of Tukwila's 2009 Walk and Roll Plan, many pedestrian facilities have been constructed[15] including:

- Cascade View Elementary Safe Routes to School Trail
- Sidewalk in front of Aviation High School
- Sidewalk on South 150th Street (Thorndyke Elementary Safe Routes to School)
- Sidewalks on Interurban Avenue South
- Sidewalks on Tukwila International Boulevard
- Sidewalks on Southcenter Parkway (south of South 180th Street)
- Sidewalks on Southcenter Boulevard (east of I-5)

These projects demonstrate Tukwila's long-standing commitment to multimodal connectivity.

[15] City of Tukwila. Walk & Roll Program. https://www.tukwilawa.gov/departments/community-development/walk-roll-program

Figure 20. Existing Walking and Rolling Network



Sidewalks and Trails

Pedestrian Network Connectivity

The walking and rolling facilities in the City of Tukwila have room to improve overall network connectivity. As noted, residential areas in Tukwila have limited access to sidewalks. This poses a challenge for those relying on pedestrian facilities to reach key destinations such as neighborhood shopping or transit stops. Filling gaps in the network can make the current facilities more functional throughout the City. In addition, many transit stops in the City are not well connected to the sidewalk network. This poses an issue as most transit riders access stops using the pedestrian network. People may resort to walking in travel lanes or on a narrow shoulder, which poses a safety concern. Improving Tukwila's pedestrian network connectivity will, in turn, improve the ability of users of the current infrastructure to reach more destinations.

Existing Facilities and Future Needs for Biking

Biking often facilitates longer trips than walking or rolling with similar benefits to the environment, individuals, and the community.

There are a variety of different biking infrastructure types that can appeal to cyclists with varying levels of experience and confidence. In addition to bikes, other wheeled users include scooters, skateboards, and inline skates. These users tend to use infrastructure geared towards both pedestrians and cyclists, such as shared use paths. A wide range of bicycle facilities is important to ensure that people who bike at all levels can make use of the network. This includes both advanced bicyclists who are comfortable interacting with moving vehicles as well as bicyclists who prefer separated facilities.

Figure 21. Bike lane along Southcenter Boulevard



Source: Fehr & Peers. 2022

Bike facilities currently found in Tukwila include bike lanes (example in **Figure 21**), sharrows, shared-use paths/trails, and designated bike routes. Tukwila currently maintains over six miles of dedicated bike lanes along seven segments. Tukwila's existing bike network is shown in **Figure 22**. While there are bike lanes on some key roadways, such as sections of Southcenter

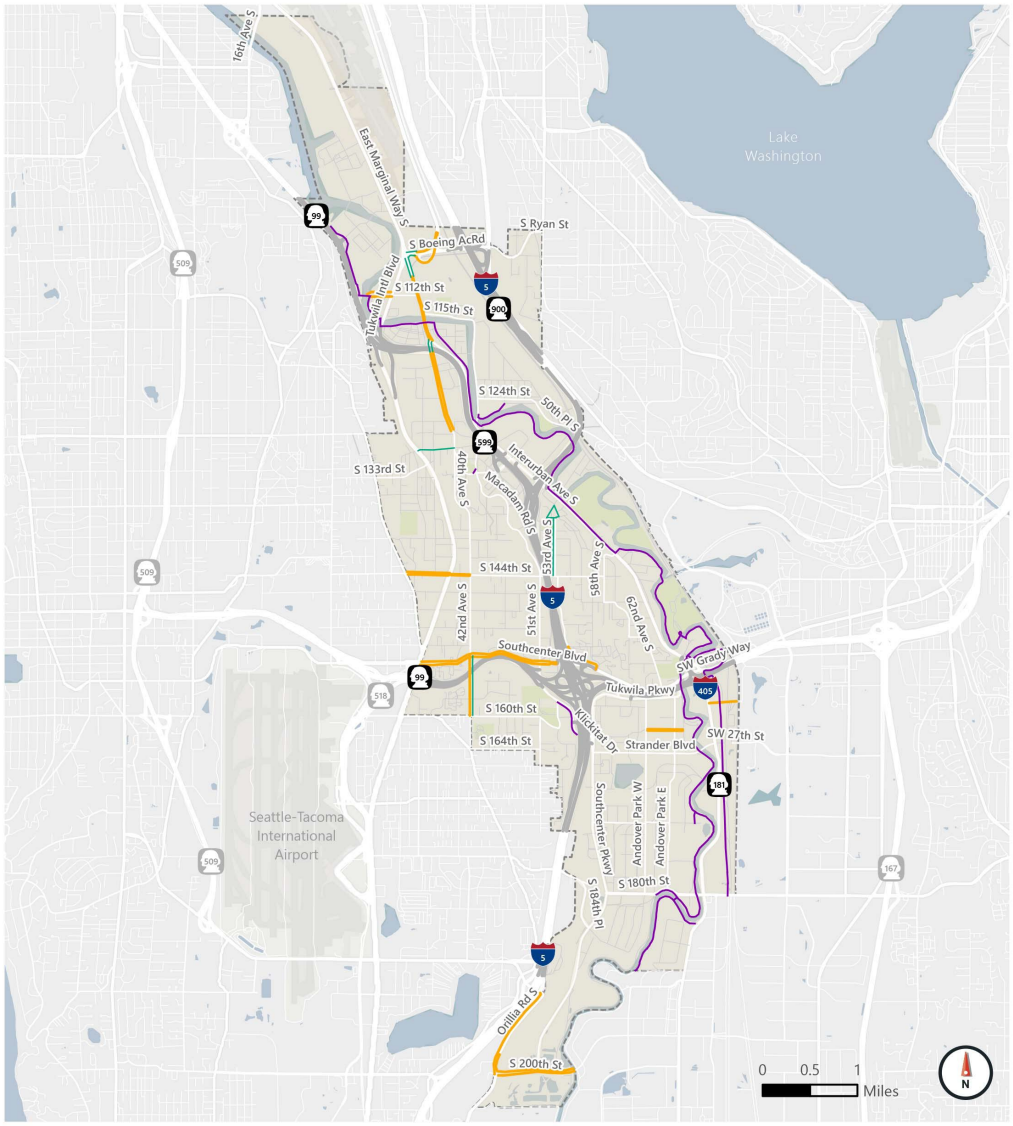
Boulevard, East Marginal Way South, 42nd Avenue South, Baker Boulevard, Orillia Road South, among other roads, there are many gaps in the bike network. These lanes are not connected to each other nor to local shared-use paths.

Following the adoption of Tukwila's 2009 Walk and Roll Plan, the following bike facilities have been constructed by private developers or the City[16]:

- Cascade View Elementary Safe Routes to School Trail
- Bike lane on South 112th Street.
- Bike lanes and sharrows on East Marginal Way
- Bike lanes on ramps to/from Airport Way South
- Bike lanes on Southcenter Boulevard (east of I-5)
- Bike lanes on Baker Boulevard
- Two-way cycle track on Longacres Way
- Bike lane and sharrow on 42nd Ave S

[16] City of Tukwila. Walk & Roll Program.
https://www.tukwilawa.gov/departments/community-development/walk-roll-program

Figure 22. Existing Bike Network



Existing Bike Facilities

Bike Network Connectivity

The overall network connectivity of bike facilities in the City of Tukwila can improve. There are several roadway segments with bike facilities, however they are currently disjointed. The connection between bike lanes in Tukwila to local shared-use paths and trails is limited. This limits the ability of cyclists to reach desired destinations utilizing designated bike facilities. Expanding and upgrading Tukwila's bike network connectivity will provide more options for people who bike to reach their desired destinations using their preferred type of bicycle facility.

Existing and Future Transit Needs

This section provides an overview of the transit services currently providing service to and from Tukwila, how these services are utilized, and where there may be additional demand for service in the area.

System Overview

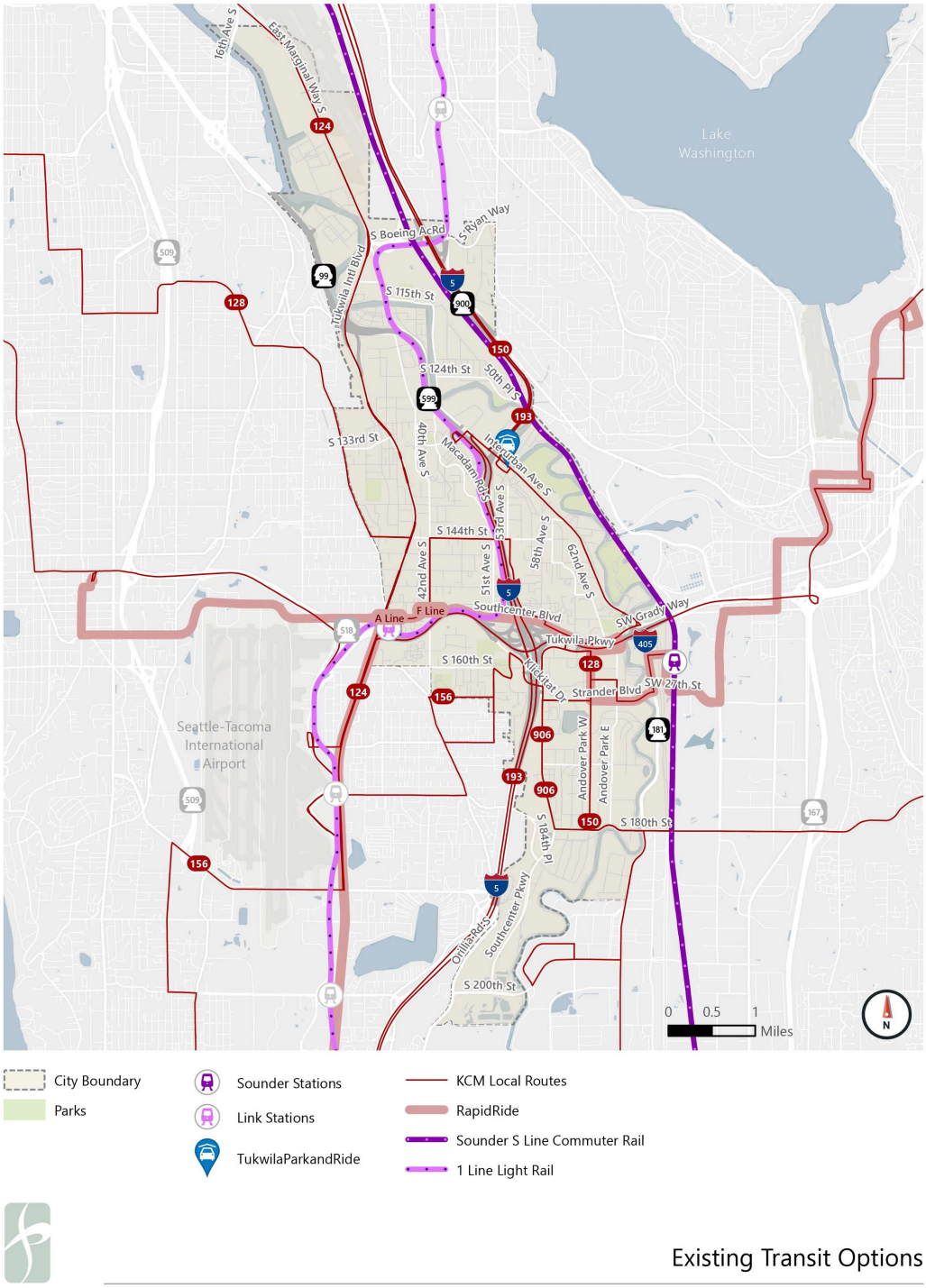
King County Metro (Metro) offers five traditional fixed-route services, two RapidRide routes, one Demand Area Response (DART) route, and Metro Flex on-demand service within the City of Tukwila. Sound Transit provides light rail service on the 1 Line to Tukwila International Boulevard Station and Sounder commuter rail service to Tukwila Station.

The highest ridership activity occurs at two locations that are served by multiple lines and modes:

- Tukwila International Boulevard Station, served by local bus, RapidRide, and the 1 Line. Average daily boardings in March 2024 for Link light rail were 2,244and bus boardings were 2,472 for a total of 4,716 at the station.
- Tukwila Transit Center near Southcenter Mall, served by local bus and RapidRide F Line. Passengers can connect to the Tukwila Sounder station to the east using the RapidRide F Line. Average daily boardings in this location during March 2024 were 1,414.

The characteristics of these services are summarized in **Figure 23.**

Figure 23. Existing Transit Serving Tukwila (2023)



Service Frequency and Availability

Transit service in Tukwila operates with a range of service frequencies and availability depending on corridor. There are four frequent service bus routes in Tukwila that have service every 15-minute service from 6 a.m. to 7 p.m. on weekdays, including RapidRide A, RapidRide F, Route 124, and Route 150. Route 193 is a commuter express route that only operates during commute times in the peak direction to/from First Hill in Seattle. Route 150 serves Kent and Southcenter before becoming an express route to Downtown Seattle. Routes 156 and 128 serve Tukwila locally including Tukwila International Boulevard, Southcenter, and Interurban Ave South. These routes tend to serve the area with lower frequencies compared to rapid transit options. The 1 Line light rail additionally serves Tukwila International Boulevard Station every 8-10 minutes on weekdays. Sound Transit also operates the Sounder South (S Line) commuter rail through Tukwila Station, connecting to Lakewood, Tacoma, Puyallup, Sumner, Auburn Kent, and Seattle with 13 round trips per day on weekdays only. All transit modes serving Tukwila are outlined in **Table 3**, alongside current service frequencies and spans of service.

Table 3. Service Characteristics by Route

Route	Frequency of Service					Span of Service		
	Weekday			Weekend				
	AM/PM Peak (6A-9A, 3P-7P)	Midday (9A-3P)	Evening (After 7P)	Saturday	Sunday	Weekday	Saturday	Sunday
Route 124	15	15	30	30	30	4:54 AM-4:21 AM	5:49 AM-4:24AM	5:53 AM-4:22 AM
Route 128	20	20	30	30	30	4:50 AM-1:12AM	6:02 AM-1:03 AM	6:03 AM-1:13 AM
Route 150	15	15	30	15-30	15-30	4:45 AM-3:03AM	5:07 AM-3:01 AM	5:52 AM-3:06 AM
Route 156	30	30	30	60	60	5:03 AM-11:26 PM	5:25 AM-11:00 PM	5:28 AM-10:47 PM
Route 193x	20	-	30	-	-	5:21 AM-8:50 AM 3:09 PM – 8:32 PM	-	-
RapidRide A	10	10	10*	10*	10*	24 Hr	24 Hr	24 Hr
RapidRide F	15	15	15*	15*	15*	4:44 AM-12:44 AM	5:59 AM-12:44 AM	6:00 AM-12:48 AM

Route	Frequency of Service					Span of Service		
	Weekday			Weekend				
	AM/PM Peak (6A-9A, 3P-7P)	Midday (9A-3P)	Evening (After 7P)	Saturday	Sunday	Weekday	Saturday	Sunday
DART 906*	20-30	30	30	60	60	4:45 AM-11:51 PM	8:20AM-6:59 PM	8:20 AM-6:57 PM
Sounder South (S Line)	20-30	-	20-30	-	-	4:36 AM-11:22 AM 2:35 PM-7:46 PM	Special Events Only	Special Events Only
1 Line	8	10	8	10	10	4:11 AM-2:14 AM	4:11 AM-2:14 AM	5:06 AM-1:05 AM
Metro Flex	On-Demand	On-Demand	On-Demand	On-Demand	On-Demand	5 AM-1 AM	5 AM-1 AM	6 AM-12 AM

* Some late-night trips may exceed maximum frequency listed

High Frequency Transit

During peak travel times on weekdays, there are four services that provide 15-minute or better frequency:

- Metro Route 150
    - *Service between Kent and Downtown Seattle*
- Metro RapidRide A Line
    - *Service between Federal Way Transit Center and Tukwila International Boulevard Station*
- Metro RapidRide F Line
    - *Service between Burien and Renton*
- Sound Transit 1 Line
    - *Service between Angle Lake and Northgate via Downtown Seattle*

Local Route Frequency

During peak travel times on weekdays, Routes 124, 128, and 156 provide service at 30-minute frequencies or better. These routes serve local stops in Tukwila in addition to serving surrounding communities and Downtown Seattle.

- Metro Route 124
    - *Service between Tukwila International Boulevard Station and Downtown Seattle*
- Metro Route 128
    - *Service between North Admiral (West Seattle) and Southcenter Mall*
- Metro Route 156
    - *Service between Highline College (Des Moines) and Southcenter Mall*

On Demand Services

During off-peak times when service is not as frequent on local routes, Tukwila residents are able to use two different on-demand services to transport them to stops with more service and higher frequencies.

Dial-A-Ride Transit (DART) is a service operated by King County Metro that operates within communities that have a need for more flexible service due to lower population density, greater distances, and fewer available fixed route options. DART Route 906 serves Tukwila every hour or better and can deviate from its route by request to allow for residents to make connections to other transit options or their home.

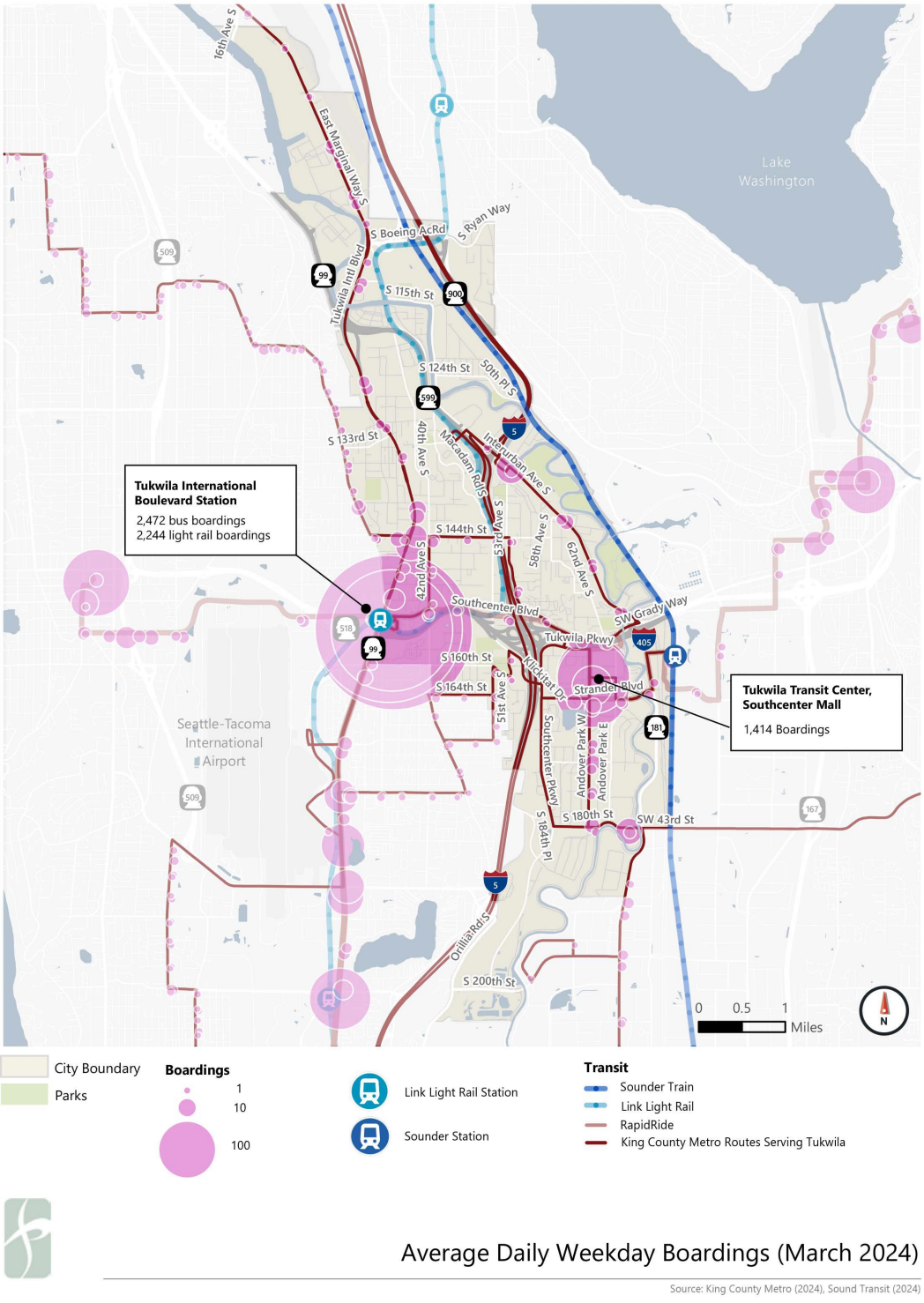
Metro Flex is an on-demand service that is available within a defined boundary of Tukwila. Metro Flex allows anyone within the defined service area to hail a ride using a mobile app or phone call for transportation to a transit stop with frequent service. In Tukwila, Metro Flex can be used within the defined area to provide transportation to Tukwila International Boulevard Station and the Tukwila Community Center.

Ridership and Productivity

Boarding activity in Tukwila is highest at Tukwila International Boulevard Station, with average daily boardings of 4,716 in March 2024 (bus and light rail combined). The next highest boarding activity is at the Tukwila Transit Center located west of Southcenter Mall. The Southcenter area is a large employment hub served by three local routes and the RapidRide F line. The Sound Transit Sounder Station on the east side of the Southcenter area has lower ridership than both Tukwila International Boulevard Station and the Tukwila Transit Center. **Figure 24** shows average daily boardings for these heavily utilized stations and other stops in Tukwila.

Outside of larger transit hubs, the Tukwila International Blvd corridor has notable ridership activity, especially near the intersection of S 144th Street which is located near Tukwila Village, Foster High School, and residential neighborhoods.

Figure 24. Average Daily Boardings by Stop

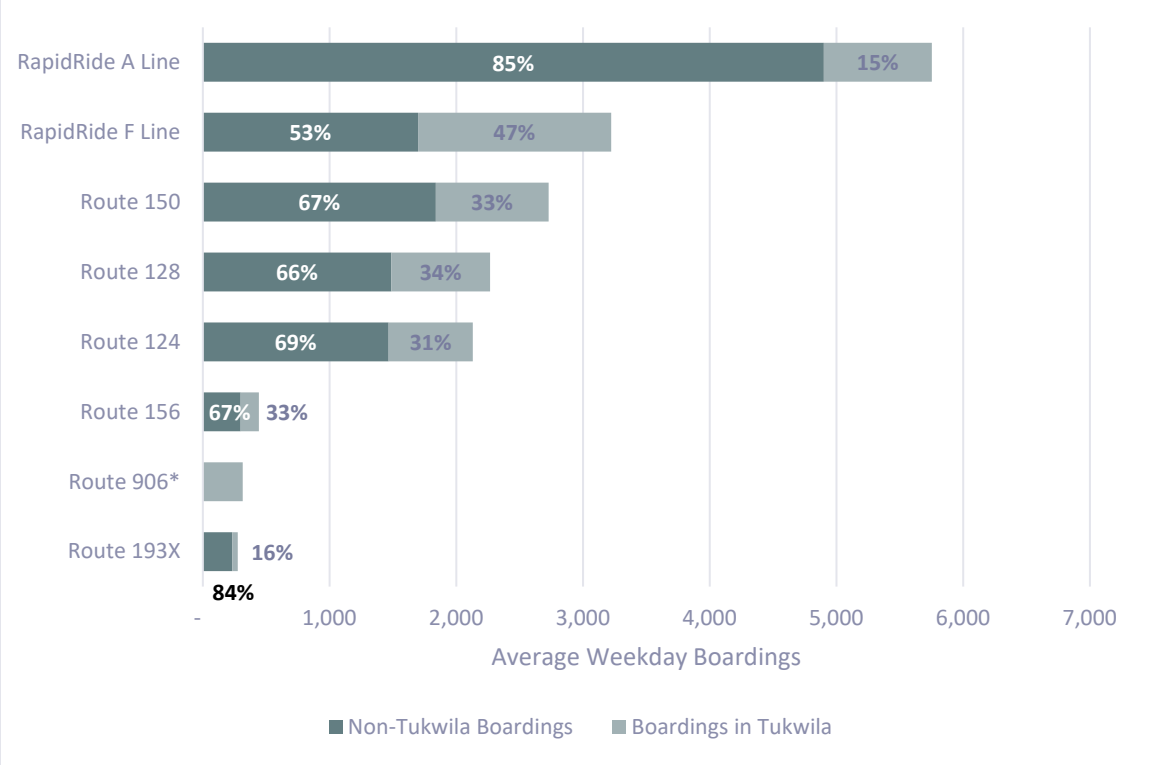


Average Daily Weekday Boardings (March 2024)

Source: King County Metro (2024), Sound Transit (2024)

Figure 25 shows the average weekday boardings for each route serving the City of Tukwila, as well as the percentage of ridership that occurs within Tukwila and outside the City limits. The RapidRide F line, which provides rapid bus service between Burien and Renton, generates almost half of its ridership from Tukwila boardings. This activity indicates strong demand for east-west travel, with Tukwila being a major origin/destination.

Figure 25. Average Weekday Ridership by Route Operating in Tukwila (2021)

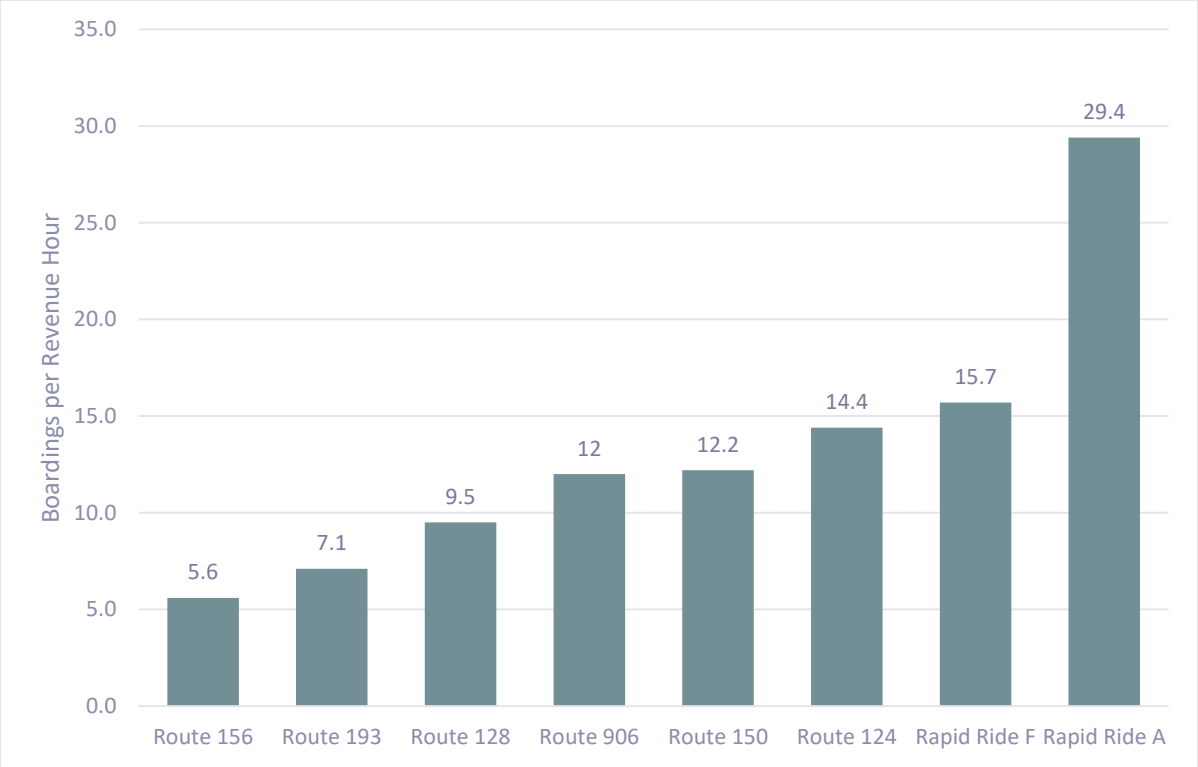


Source: King County Metro, 2020
* Route 906 ridership could not be evaluated by stop and represents all boarding activity inside and outside of Tukwila

Route level productivity, calculated as boardings per revenue hour, is displayed in **Figure 26**. Route productivity provides a measure of service efficiency and shows which routes are most effective at attracting ridership per unit of service. The RapidRide A Line has nearly double the productivity of any other route serving Tukwila. The A Line operates between Tukwila International Boulevard Station and Federal Way Transit Center and serves as an important transit connection for residents to access 1 Line light rail for regional travel and connections to other services. Route 193 carries 16 passengers per trip, which is a better measure of utilization

for peak commute type routes as it shows seat utilization and is not being compared with the metrics of all-day routes.

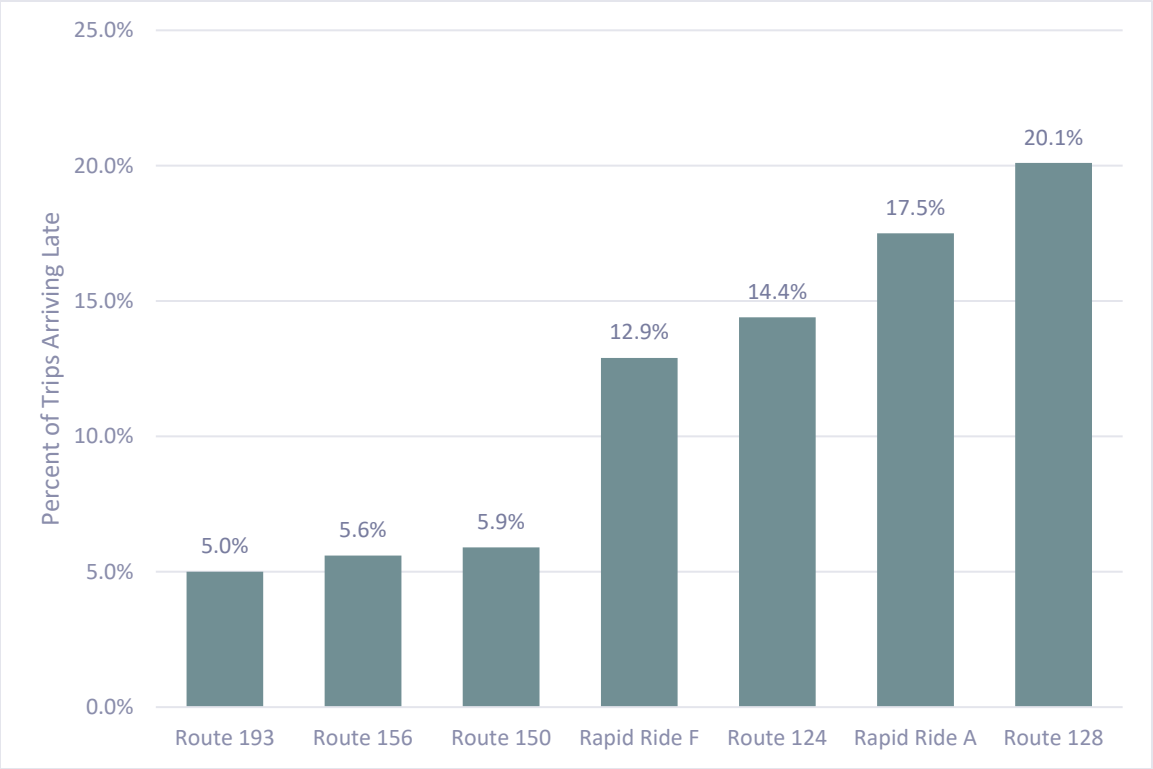
Figure 26. Peak Period Productivity by Route Operating in Tukwila (2021)



On-Time Performance

On-time performance largely impacts the reliability of a transit service and can drive passenger decision making about using transit. **Figure 27** displays the percentage of bus trips arriving late to stops during the full year of 2021, early departure data was not available. King County Metro considers buses on-time if they arrive to a stop up to 1.5 minutes before the scheduled time and up to 5.5 minutes after the scheduled departure. Route 128, RapidRide A, and Route 124 have the highest amount of late trips of any bus service that operates within Tukwila. Routes 193, 156, and 150 operate with the lowest number of trips arriving late.

Figure 27. Percent of Late Arrivals by Route Operating in Tukwila (Fall 2020)



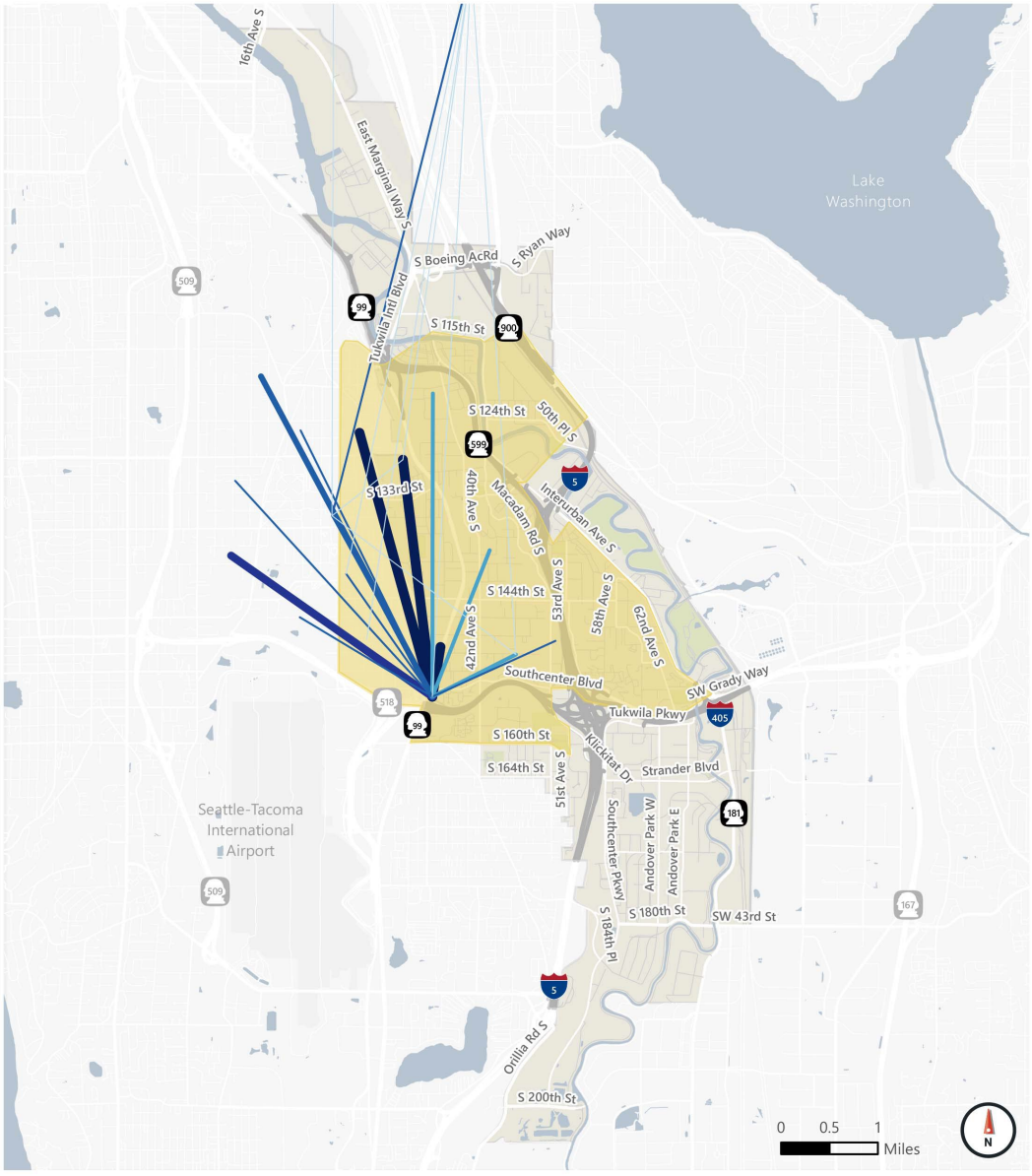
Metro Flex Service

Origins and Destinations

Metro Flex is an on-demand service from King County Metro that connects riders to transit and community hubs that may not be well served by fixed-route or rail service. This analysis shows the predominant ridership patterns of the service.

October 2021 ridership patterns are illustrated in **Figure 28**. The predominant travel patterns are to and from Tukwila International Boulevard Station.

Figure 28. Metro Flex Trip Direction and Popularity



Metro Flex Trip Patterns (October 2021)

Source: King County Metro (2021)

In October 2021, there were 836 Metro Flex trips in Tukwila, of which there were 24 unique origin and destination pairs. The most common pairing provided service between Tukwila International Boulevard Station and a block group approximately 1.5 miles north containing a mix of housing densities and commercial activity including King County Metro's South Base. This pairing accounted for 20% of all 836 trips. The block group is defined at the south near Foster High School and to the north by the Duwamish River. It includes residential neighborhoods north of the school and isolated areas near the Duwamish. Popularity of this trip may be influenced by the King County Metro base and employees potentially using the service. The block group also contains isolated residential areas with limited pedestrian infrastructure, making it difficult to walk to a fixed route bus stop. This aligns with Metro Flex's goal of improving transit access in harder to reach areas.

The second most popular trip pair made up 17% of total ridership, providing service between Tukwila International Boulevard Station and a block group two miles northwest of the station bounded by Tukwila International Boulevard to the west, S 139th St to the south, E Marginal Way to the east, and the Duwamish River to the north. The southern half of the area is residential while the northern half is warehouse commercial near Highway 599.

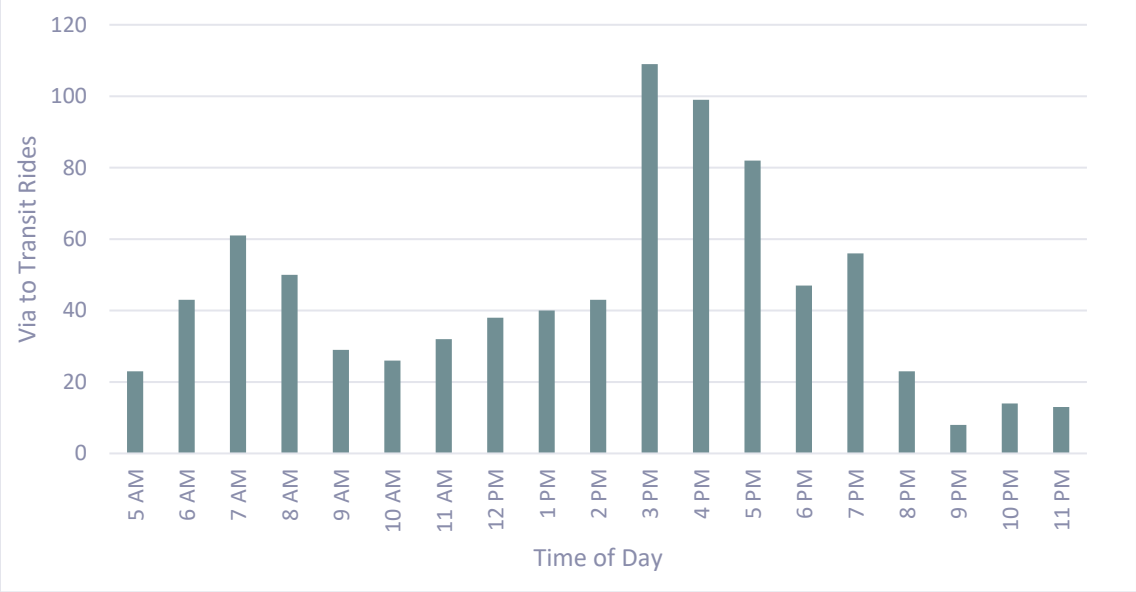
The Tukwila Community Center, which is not on regular bus service, generated only 33 Metro Flex trips. There are also several trips outside of the Tukwila boundary, which is allowed under Metro Flex policy if the requesting passenger is eligible for Access, King County Metro's paratransit service.

Time of Day Evaluation

Over a sample of 30 days of Metro Flex data, the largest number of requests for rides were during the afternoon peak period, from approximately 3 pm to 6 pm. From the location-based analysis of Metro Flex t trips, trips at the most popular times of day indicate the service being used to connect employees to regional transportation options and Tukwila residents from high frequency transit hubs to home locations. **Figure 29** displays the number of Metro Flex trips during the afternoon rush hour.

Metro Flex in Tukwila appears to function primarily as a first/last mile connection during common commute times. The service is also used as an early morning and late-night connection to transit when frequencies are lower, but with fewer riders than during the peak period.

Figure 29. Metro Flex Rides Provided by Time of Day (October 2021)



Market Analysis

Travel Patterns

The employment related travel patterns to and from Tukwila were evaluated using 2019 Longitudinal Employer-Household Dynamics (LEHD) data, a product from the U.S. Census. Data that is aggregated at the Census tract level.

Figure 30 and **Figure 31** display work or home locations by point density. Each point represents ten commute destinations or home locations.

Tukwila Residents Work Destination

Tukwila residents primarily commute within King and Pierce counties, with only a handful of employment locations further away. Large employment clusters can be seen in downtown Seattle, Renton, SeaTac Airport, and commercial areas adjacent to the I-5 corridor. Transit service from Tukwila to downtown Seattle is fast and frequent by utilizing Link light rail or Route 150 from areas surrounding Tukwila International Boulevard Station or Tukwila Transit Center. Tukwila residents additionally have access to frequent east/west travel with RapidRide F line which serves employment centers in Southcenter and Renton. Residents may face slower commutes by car or local bus to reach stops with frequent and regional service.

Figure 30. Employment Locations of Tukwila Residents

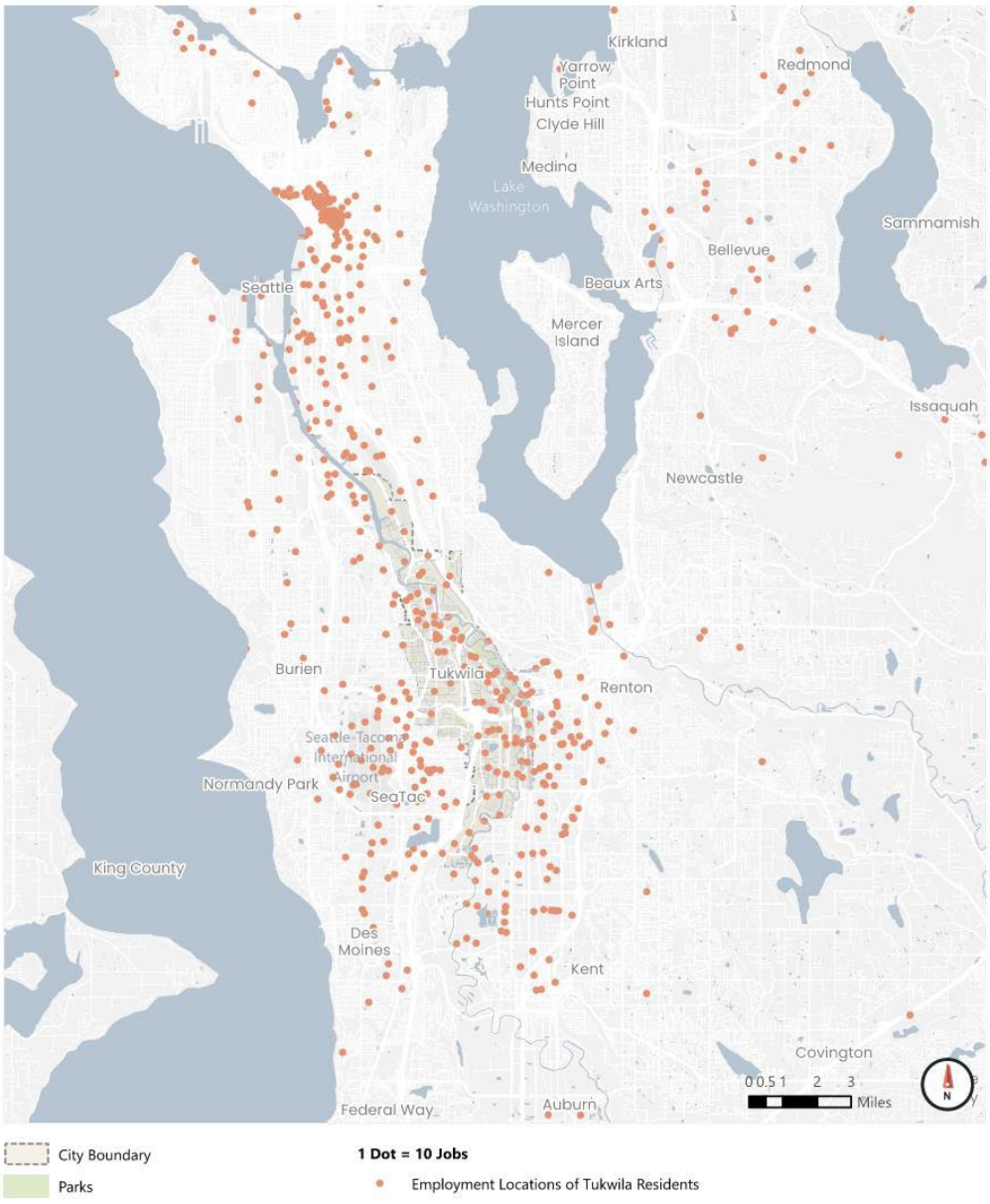


Figure 1-9

Employment Locations of Tukwila Residents (2019)

Source: US Census, LEHD (2019)

Tukwila Employee Home Origins

Commuters into Tukwila live throughout King, Pierce, and Kitsap County. The largest concentration of Tukwila commuters live in South Seattle, West Seattle, Federal Way, and unincorporated King County southeast of Renton. Except for unincorporated areas of King County, employees that work in Tukwila have access from surrounding communities to three large transit stations, Tukwila International Boulevard Station, Tukwila Transit Center, and Tukwila Station. These three stations can be accessed by utilizing Link Light Rail, Sounder S Line, RapidRide A or F line, and routes 124, 128, and 156.

Figure 31. Home Locations of Workers Employed in Tukwila

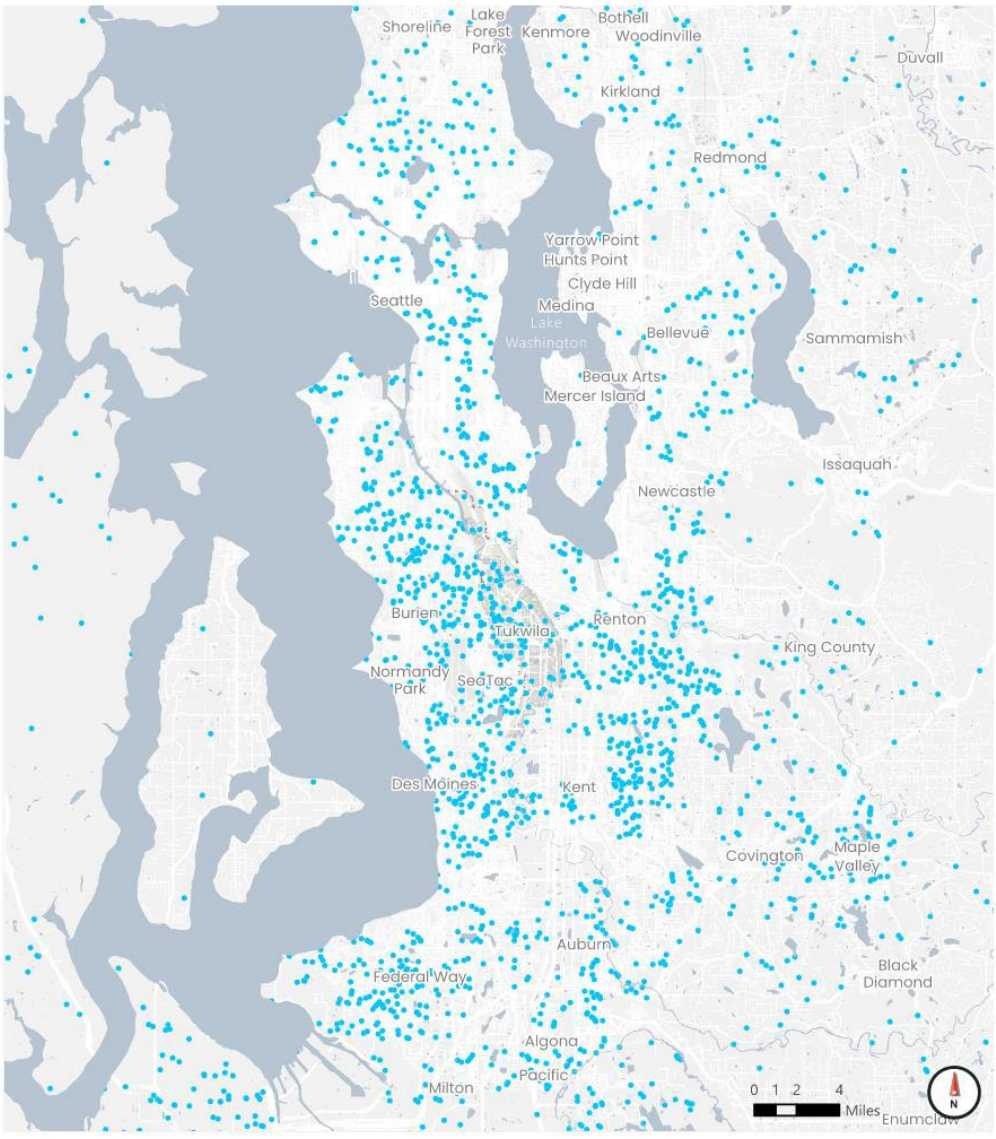


Figure 1-10

Home Locations of Workers Employed in Tukwila (October 2019)

Source: US Census, LEHD (2019)

Refer to **Appendix D** for an overview of the transit services to and from Tukwila, how these services are utilized, where there may be additional demand for service in the area, and recommendations for City policy, and actions to be taken.

Freight and Truck Mobility

Freight plays a critical role in the economic vitality of Tukwila as businesses and residents rely on freight shipped via trucks. Truck sizes range from light-duty commercial vans, "single-unit trucks" for package delivery or moving, and garbage trucks that navigate through neighborhoods to large semi-truck trailers connecting to local businesses and Tukwila's Manufacturing/ Industrial Center (MIC). Tukwila's MIC is one of four regional MICs in King County targeted to preserve and enhance manufacturing and industrial activity, facilitating freight transportation and substantial employment opportunities.

Trucks delivering wholesale and retail goods, business supplies, and building materials throughout Tukwila contribute to and are impacted by traffic congestion. The City partners with regional agencies and the State to build and maintain Freight and Goods Transportation System (FGTS) routes. Designated FGTS routes aim to prevent heavy truck traffic on lower-volume streets and promote the use of adequately designed roadways. The Washington State Department of Transportation (WSDOT) classifies roadways using five freight tonnage classifications described in **Table 4**.

Table 4. WSDOT FGTS Classification

Freight Corridor	Description
T-1	More than 10 million tons of freight per year
T-2	Between 4 million and 10 million tons of freight per year
T-3	Between 300,000 and 4 million tons of freight per year
T-4	Between 100,000 and 300,000 tons of freight per year
T-5	At least 20,000 tons of freight in 60 days and less than 100,000 tons per year

Source: WSDOT Washington State Freight and Goods Transportation System (FGTS) 2021 Update, 2021

Multiple roadways in various parts of the City are designated as T-2 and T-3 corridors. **Figure 32** presents an example of a T-3 corridor in Tukwila. As shown in **Figure 33**, Interstate 5 and Interstate 405, which are part of the national Interstate Highway system, are T-1 corridors that run through Tukwila and facilitate the transportation of more than 10 million tons of freight per year. Other T-1 corridors include State Route 599, West Valley Highway, Orillia Road South, East Marginal Way South from Interurban Avenue South to South Boeing Access Road, and South Boeing Access Road from East Marginal Way to Martin Luther King Junior Way South.

Figure 32. T-3 Corridor – S 129th Street Bridge



Source: Fehr & Peers. 2022

In addition to truck routes, railroad tracks owned by Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) run north-south through Tukwila, as shown in **Figure 33**. These rail networks carry international and domestic cargo to the inland market and serve the Port of Seattle to the north and the Port of Tacoma to the south.

There are various ongoing efforts by the City to balance freight mobility and community needs, including the Allentown Truck Reroute Project, which is proposing alternative routes for freight truck traffic that currently uses the Allentown neighborhood to access BNSF Railway's South Seattle Intermodal Facility.

Figure 33. Freight Routes

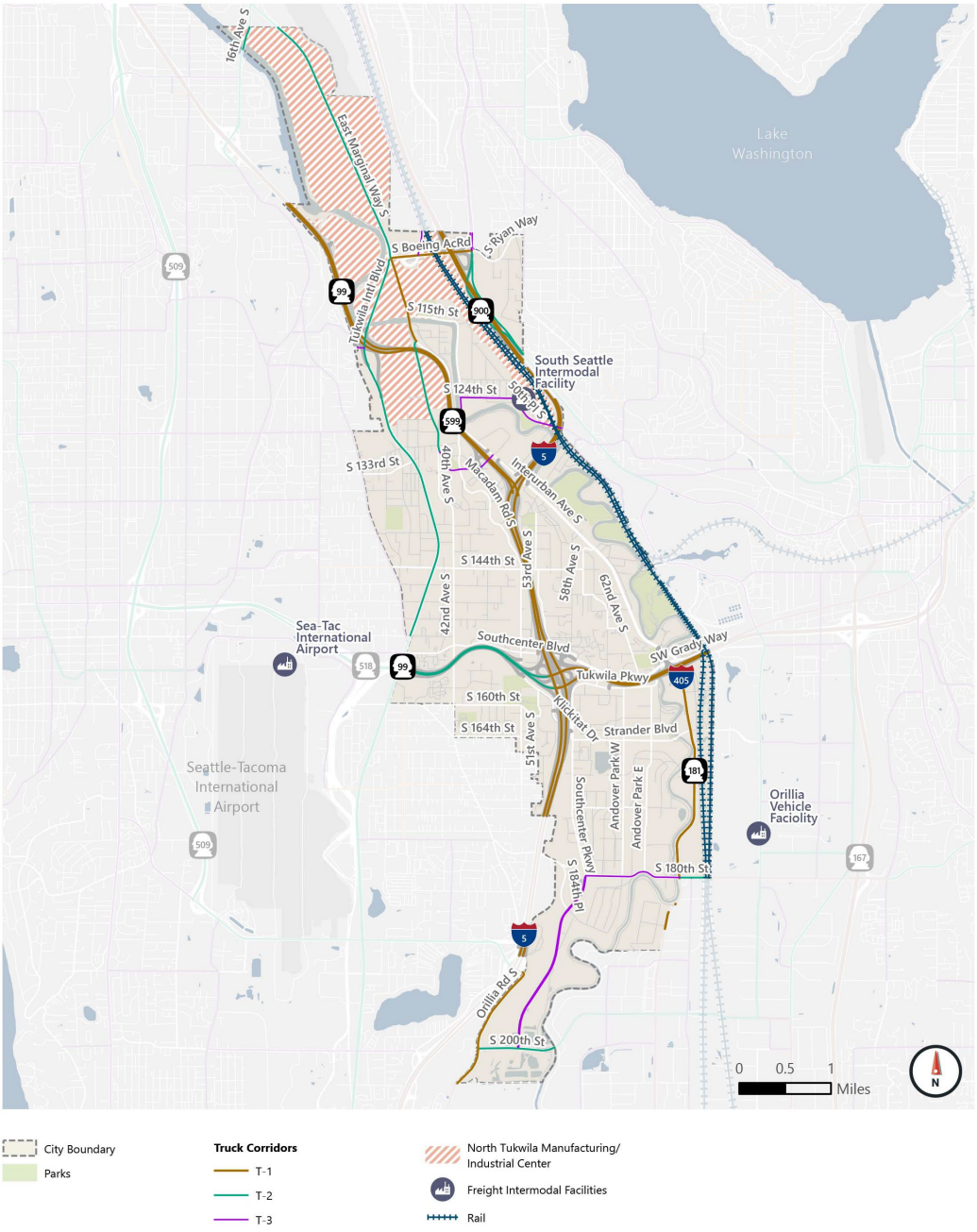


Figure 23

Freight Routes

Safety

The ultimate goal of traveling is to arrive safely at a destination, regardless of the mode of transportation used. The City of Tukwila has several programs dedicated to ensuring the safety of its transportation system users, including the Local Road Safety Plan (LRSP), Safe Routes to School (SRTS) and a Neighborhood Traffic Calming Program (NTCP). The LRSP, to be adopted in 2025, includes an analysis of existing conditions and systemic safety concerns to determine recommended improvements on Tukwila streets. Tukwila's SRTS program is part of a national movement to make it easier and safer for students to walk or bike to school. Speeding and unnecessary through-traffic in neighborhoods create safety hazards on residential streets; therefore, the NTCP program was developed to improve the livability of the local streets and residential collectors using traffic calming. An example of a traffic calming measure is shown in **Figure 34**.

Figure 34. Speed Cushions in Tukwila



Source: Fehr & Peers. 2022

The City's collision data from 2017 to 2021 obtained from WSDOT was analyzed to identify safety hotspots and overall collision trends in Tukwila. Five years of collision data was analyzed to understand overarching patterns: vehicle collisions with bicyclists, with pedestrians, and with other vehicles. Over the five-year time period, collision counts in Tukwila have generally decreased. Data from 2020 showed an increase in collisions that resulted in serious injuries and fatalities despite a notable drop in the number of collisions across all three modes that year. This is potentially related to the onset of the COVID-19 pandemic, at which times drivers experienced less congestion on roadways and could travel at higher speeds.

It is critical to consider that vehicle-pedestrian collisions have substantially higher proportions of serious injuries and fatalities as compared to other modes, hovering around 40 percent since 2019. This is substantially higher than the rate among vehicle-vehicle collisions, where killed or seriously injured (KSI) collisions typically make up approximately two percent of collisions. However, in 2020, serious injuries and fatalities resulted from slightly over four percent of vehicle-vehicle collisions. Overall, vulnerable road users in Tukwila, including cyclists and

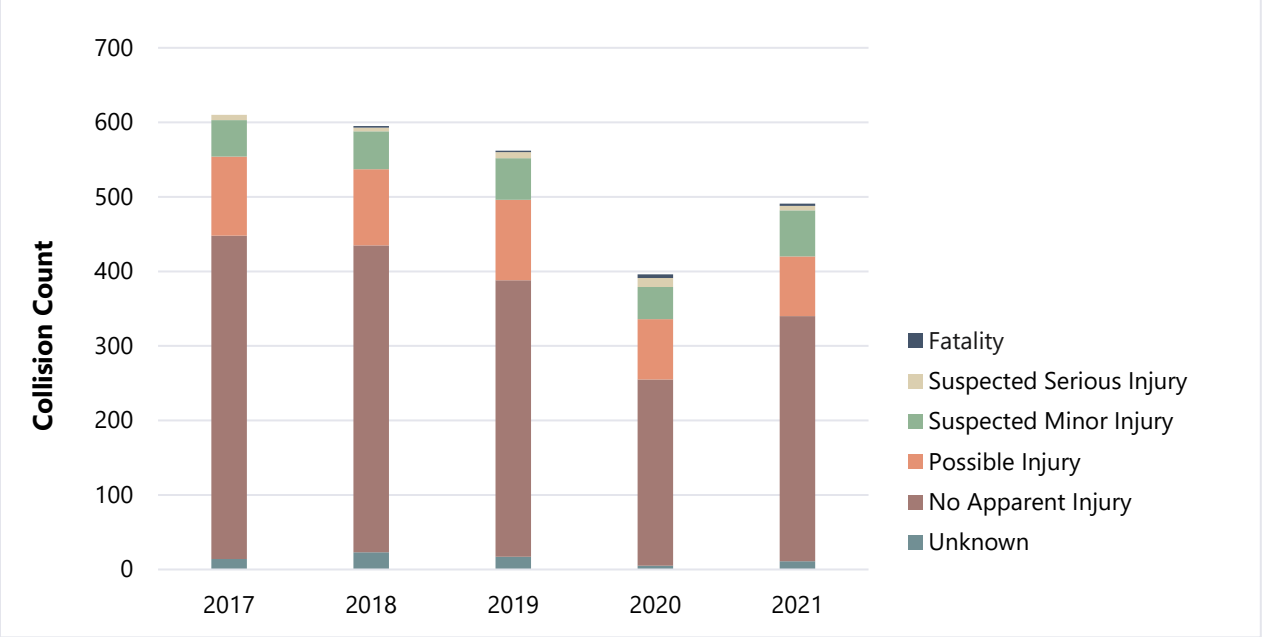
pedestrians, face higher rates of negative outcomes of collisions as compared to rates among vehicle-only collisions.

Vehicle-Vehicle Involved Collisions

While collisions have generally decreased over the period of 2017 to 2021, Tukwila experienced a significant decline in collisions in 2020. As shown in **Figure 35**, the number of collisions involving only vehicles in 2021 increased from 2020 but remained at a level lower than 2019. The top three causes recorded, for vehicle-vehicle collisions that reported a cause, were driver distraction/inattention (24%), failure to yield/did not grant right of way (15%), and improper turning (9%).

A heat map of vehicle-vehicle collisions from 2017-2021 is provided in **Figure 36**. The reported vehicle-vehicle collisions are concentrated in the Southcenter area, as well as along Tukwila International Boulevard. These areas have speed limits of 35 miles per hour which may contribute to elevated rates of collisions. Collisions resulting in fatalities are spread throughout the City, with several fatalities resulting from collisions along South Boeing Access Road, where the speed limit is 40 miles per hour. Higher speeds can result in worse outcomes from collisions.

Figure 35. Vehicle-Vehicle Involved Collisions in Tukwila

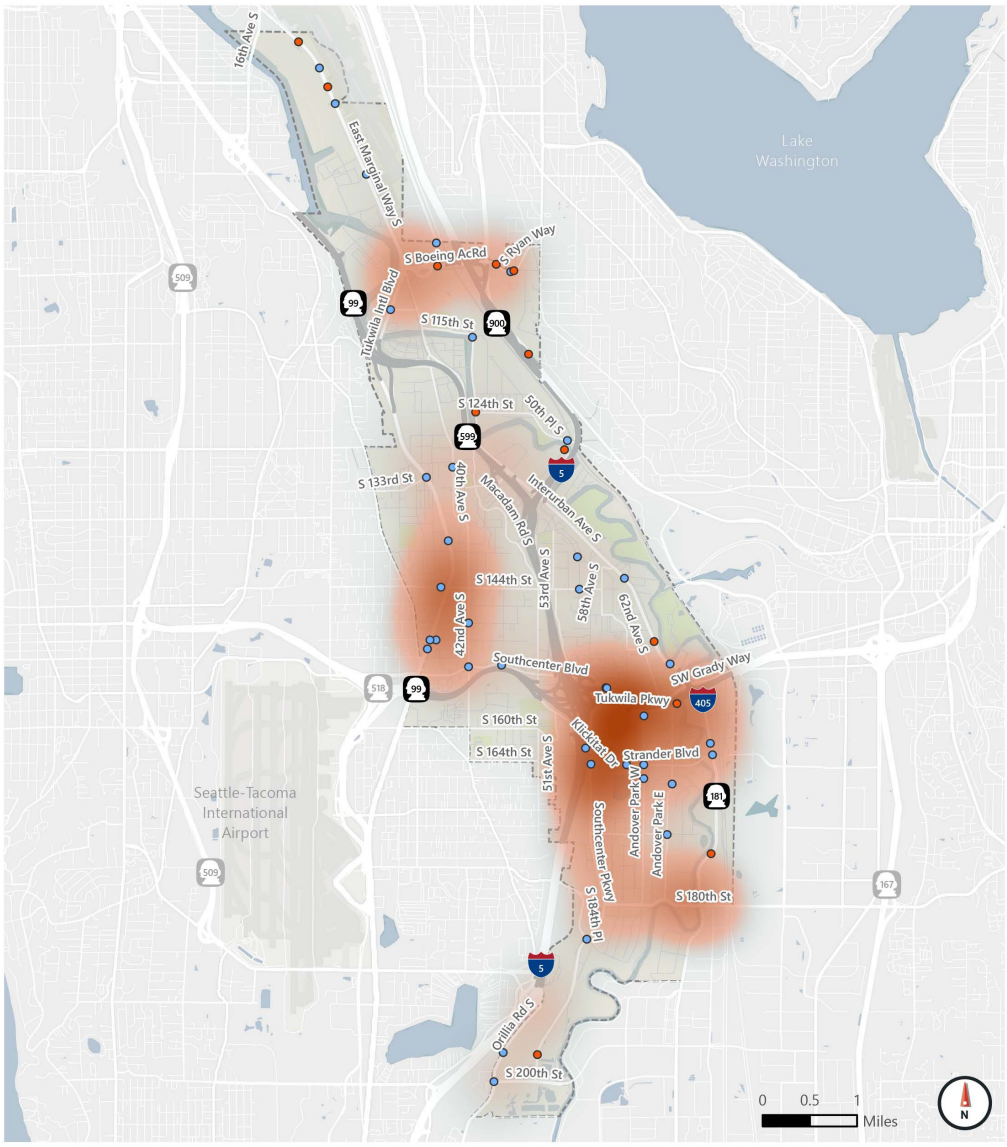


Notes

* Vehicle-vehicle collisions include vehicle crashes that do not involve pedestrians or cyclists. This does include crashes with standing objects.

Source: WSDOT, Fehr & Peers. 2022.

Figure 36. Vehicle-Vehicle Involved Collisions Heat Map, 2017-2021



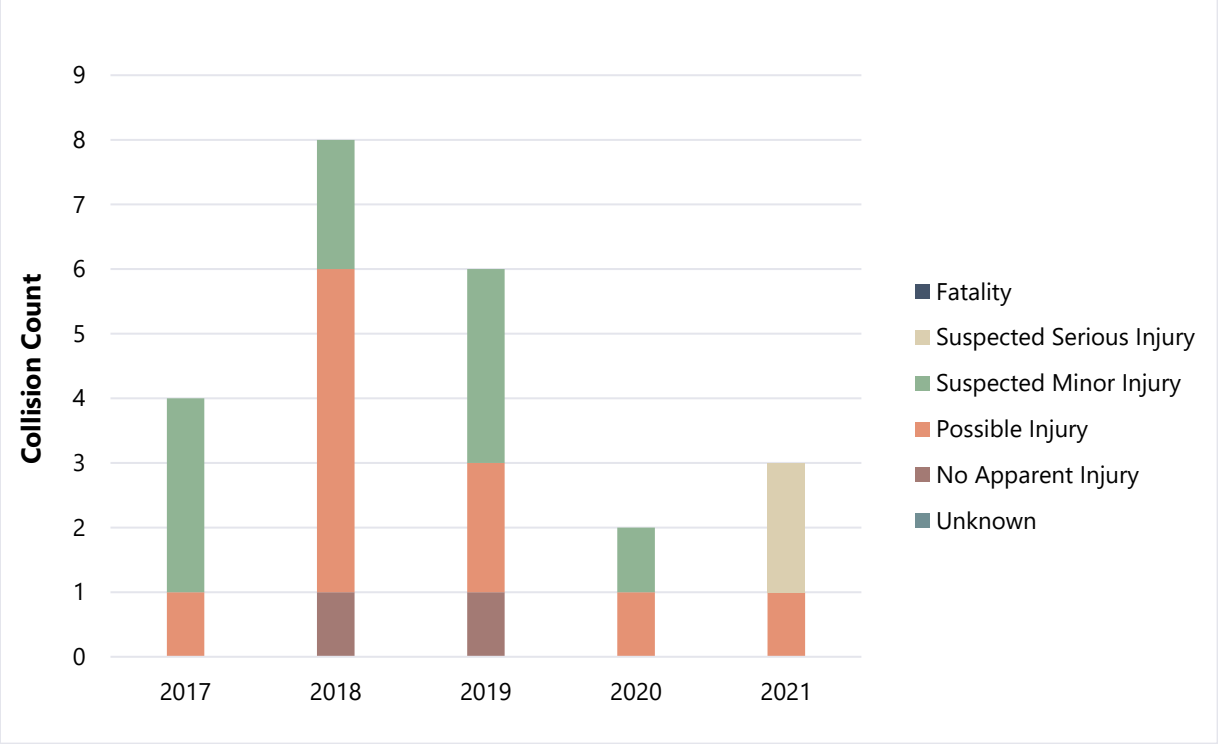
Vehicle-Vehicle Involved Collisions Heat Map

Vehicle-Bike Involved Collisions

There were no fatalities as a result of a vehicle-bike collision in Tukwila between 2017 and 2021. However, more than 80 percent of vehicle-bike collisions resulted in some form of injury (serious injury, minor injury, or possible injury). Notably, two thirds of vehicle-bike collisions in 2021 resulted in a suspected serious injury. **Figure 37** displays the vehicle-bike involved collisions by year and of the vehicle-bike collisions with a listed cause, driver distraction/inattention (39%), failure to yield/did not grant right of way (35%), and asleep or ill (4%) make up the most common reasons.

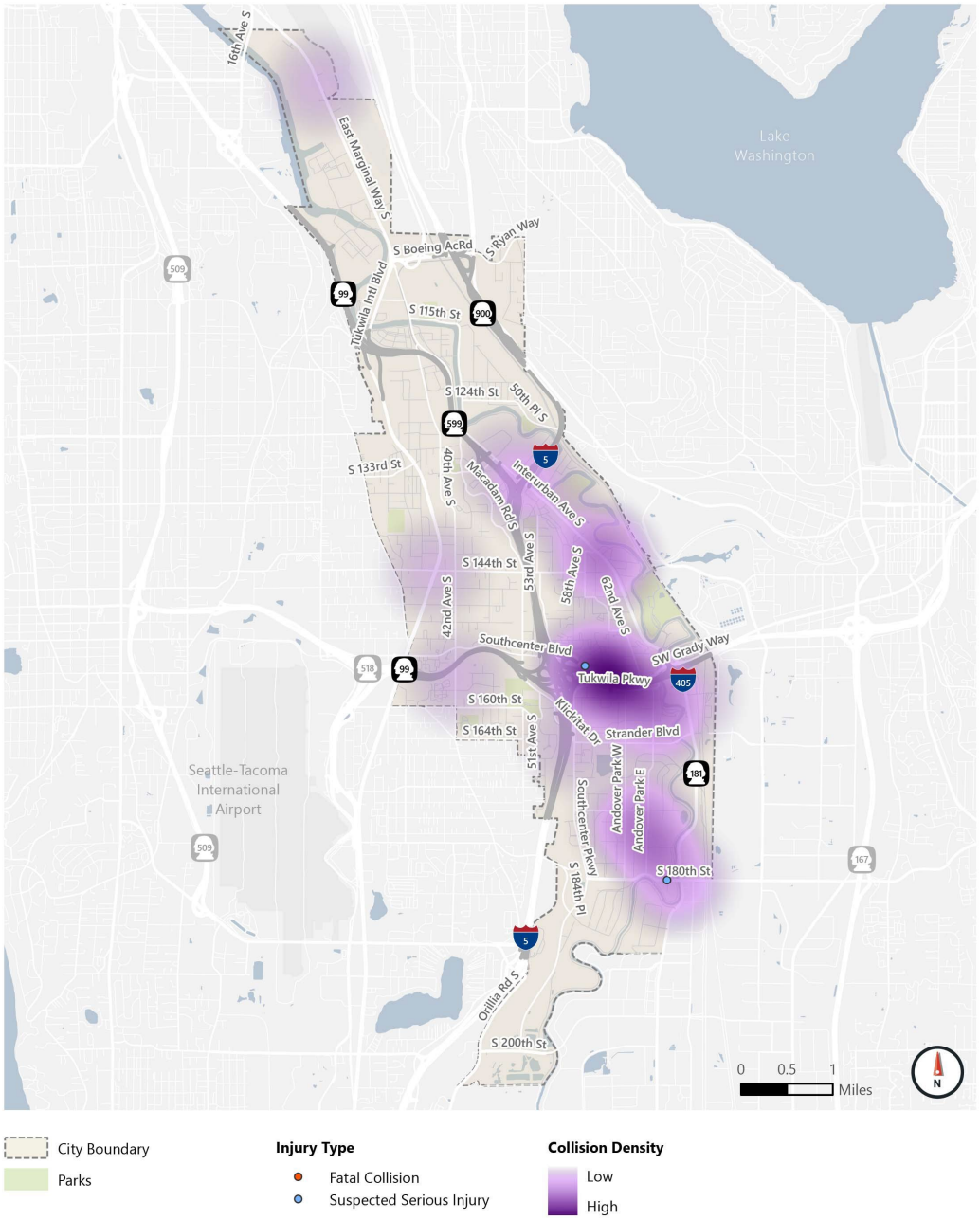
Figure 38 displays a heatmap of vehicle-bike collisions. Higher concentrations of bicycle collisions were reported in the area north of Southcenter Mall, along Tukwila Parkway, than other areas within the City. Since there are minimal dedicated bicycle facilities in the area, bicycles must interact with vehicles on these busy streets, which may be related to the elevated number of collisions.

Figure 37. Vehicle-Bike Involved Collisions in Tukwila



Source: WSDOT, Fehr & Peers. 2022

Figure 38. Vehicle-Bike Involved Collisions Heat Map, 2017-2021



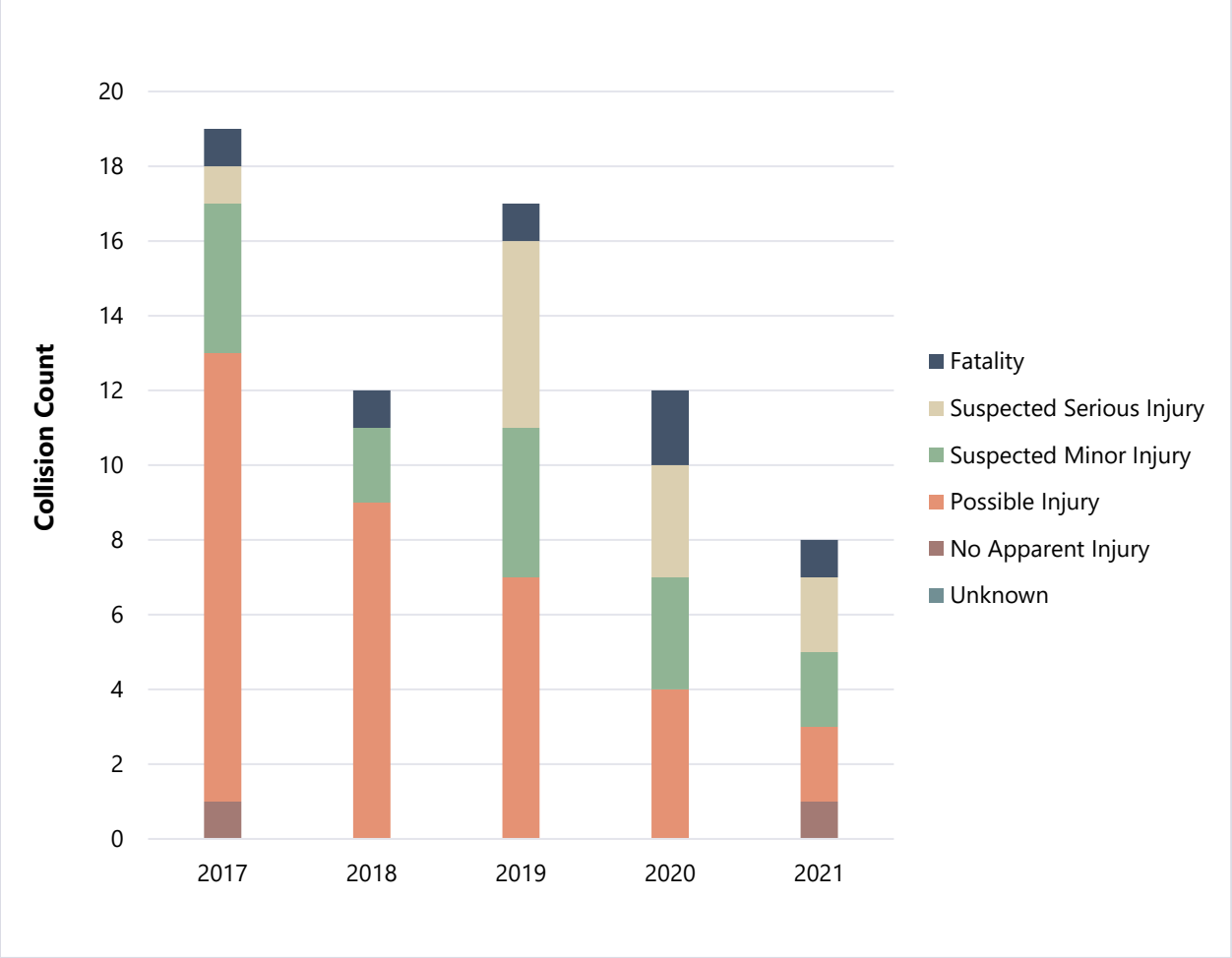
Vehicle-Bicycle Involved Collisions Heat Map

Vehicle-Pedestrian Involved Collisions

Between 2017 and 2021, at least one pedestrian fatality occurred in Tukwila each year. The rate of serious injuries and fatalities resulting from vehicle-pedestrian collisions ranges from eight percent of collisions in 2018 to 42 percent of collisions in 2020. The rate of serious injuries and fatalities resulting from vehicle-pedestrian collisions followed a generally increasing trend from 2017 and 2021. **Figure 39** displays the vehicle-pedestrian involved collisions by year. Of vehicle-pedestrian collisions where a cause was reported, driver distraction/inattention (26%), failure to yield/did not grant right of way (15%), and under the influence (3%) make up the most common causes.

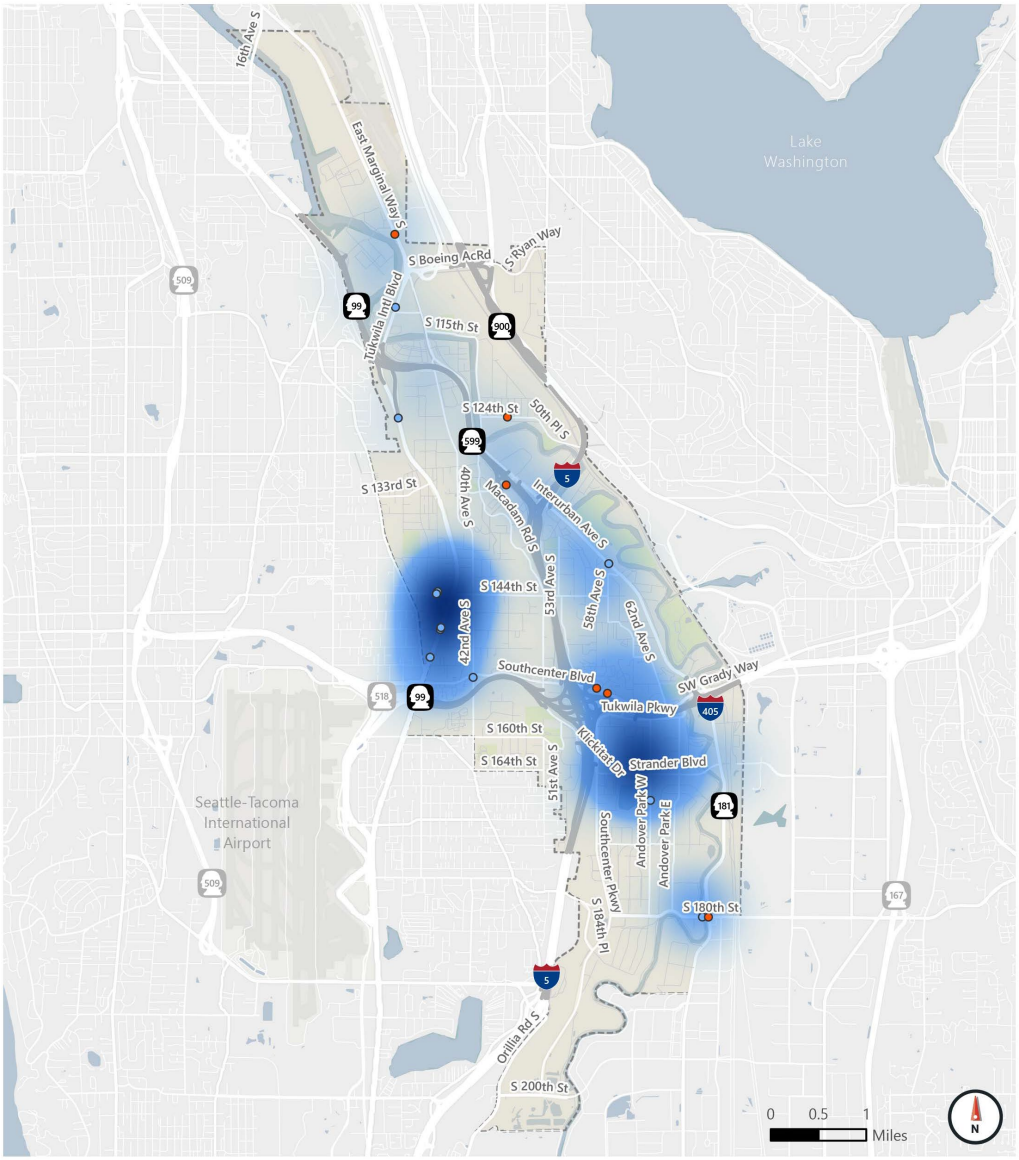
Figure 40 displays a heatmap of vehicle-pedestrian collisions. Higher concentrations of vehicle-pedestrian collisions were reported around Southcenter Mall as well as Tukwila Hill. Surrounding Southcenter Mall, there was one suspected serious injury collision, while there were several suspected serious injury collisions along Tukwila International Boulevard and Military Road. This may be related to the difference between traffic speeds at each location. Although there are increased conflict areas between pedestrians and vehicles near Southcenter Mall, vehicle speeds may be slower which could result in less severe collisions. The fewer conflict areas may allow higher speeds along Tukwila International Boulevard, which could contribute to worse outcomes of collisions. The speed limit in both areas is 35 mph. Collisions resulting in a fatality were spread throughout the City along streets with high speeds or limited pedestrian amenities.

Figure 39. Vehicle-Pedestrian Involved Collisions in Tukwila



Source: WSDOT, Fehr & Peers. 2022

Figure 40. Vehicle-Pedestrian Involved Collisions Heat Map, 2017-2021



Vehicle-Pedestrian Involved Collisions Heat Map

Chapter 3: Public Outreach

Community engagement is a key component of the overall Transportation Element process, ensuring that community stakeholders have ample opportunity to identify issues, influence outcomes, and participate in final recommendations. The engagement efforts for this update were targeted to enable collaboration in identifying and resolving issues, facilitated two-way communication, ensured transparency, and built trust. This Background Report summarizes key takeaways from outreach efforts conducted in 2023 and 2024. These standards are intended to reinforce the transportation goals developed as part of the City's TE Update.

Vision and Goals for Transportation

The City views this Transportation Element update as an opportunity to step back and develop a holistic vision for transportation in Tukwila. As pointed out in the subsequent sections, draft goals for Tukwila's transportation system were developed based on input from the community, stakeholders, councilmembers, and City staff. Given the system that Tukwila has today, these goals require ongoing efforts and input from stakeholders and the community.

Process to Develop Vision and Goals

The transportation vision and goals are a product of extensive stakeholder and public engagement efforts conducted in collaboration with City officials and staff.

Community Input

The TE team, in partnership with the Department of Community Development (DCD), conducted multiple community outreach and engagement events in 2023 and 2024. The first outreach effort to Tukwila residents, businesses, and community organizations was held in spring of 2023. These efforts were targeted to ensure that the goals of the Transportation Element aligned with the needs of the community. Emphasis was primarily placed on engaging hard-to-reach communities through tabling events and focus groups. 2024 outreach events focused on project list development to ensure that feedback in 2023 was reflected in the project list development. For more information on the public outreach process, see **Appendix E**.

Recurring Themes

Outreach and engagement efforts in the spring of 2023 holistically catalogued the community's needs regarding the various modes of transportation available in Tukwila. During the in-person events (tabling and focus groups), the project team captured a total of 128 public comments and ideas related to the City's transportation system. Thirty-six comments from the community involved issues with transit, and over a third of these were specifically regarding safety while using public transit. Of the 17 comments that highlighted issues with driving, about 40 percent specified a concern regarding cost or access. Lastly, 19 comments pointed out walking and biking needs. The interactive webmap presented a platform for respondents to share feedback, concerns, or ideas regarding precise locations or transportation facilities within City limits. In addition, respondents could upvote each other's comments that they agreed with. In total, 67 comments were compiled on the online map. The key themes noted from community input included:

- Transit safety, reliability, and amenities
- Expanding the bicycle network
- Filling sidewalk gaps
- Costs associated with driving

The location-based comments pointed out the lack of bicycle and sidewalk connectivity. Several comments identified abrupt ends of bike lanes on busy streets, including Southcenter Boulevard and other streets in the vicinity of Southcenter Mall. Similarly, respondents also noted challenges in the Southcenter area for pedestrian connections. Additionally, respondents identified the Tukwila Community Center as an area of interest for sidewalk connections and transit access.

Specifically for transit, several respondents revealed that the available transit routes do not reach all City neighborhoods, particularly the Metro Flex system. On the citywide scale, the community generally needs east-west connections via multiple modes of transportation. Driving speed is also a citywide concern. A number of comments pointed out areas where traffic moves faster than the speed limit due to the underutilization of streets.

The project team documented a list of all proposed ideas from the community on improving transportation in Tukwila and which have been used in developing project recommendations for the Transportation Element.

Plan Goals

Some of the key challenges and opportunities for achieving each goal are listed below.

Goal 1: Equity
Eliminate systemic barriers to ensure fair access to healthy, affordable, reliable transportation options, livable places, and jobs.

Tukwila is one of the most diverse communities in Washington State, with over 40 percent residents who were born in various parts of the globe. Therefore, it is of paramount importance to serve the needs of all people, that decision makers consider diverse perspectives, and to strive to eliminate systemic barriers. In 2017, the Tukwila City Council passed their first Equity Policy (Resolution No. 1921) targeted to provide elected officials, City staff, board members and commissioners with the necessary tools to lead and make decisions with an equity lens. Currently, the Equity Policy Implementation Committee (EPIC) seeks to dismantle historic systemic and institutional injustices, and to reinforce practices that result in inclusion with equitable outcomes.

Specific to transportation, the City frequently engages with the community about transportation issues to provide support to populations who have the greatest need: children, older adults, people with disabilities, lower income communities, and under-served communities. In addition, the Americans with Disabilities Act (ADA) Self-Evaluation and Transition Plan establishes the City of Tukwila's ongoing commitment as an all-inclusive community to providing equal access for all, including those with disabilities.

Goal 2: Safety
Provide a safe transportation system and placemaking to emphasize Tukwila as a welcoming place, particularly for historically marginalized and vulnerable populations.

Safety is important to Tukwila residents and visitors. The City of Tukwila has several programs dedicated to ensuring the safety of its transportation system users, including Safe Routes to School (SRTS) and the Neighborhood Traffic Calming Program (NTCP). The collision analysis described earlier highlights locations where documented crashes resulted in injuries and fatalities or involved the most vulnerable users (pedestrians and cyclists), between 2017 and 2021.

Pedestrians and cyclists face higher rates of negative outcomes of collisions as compared to rates among vehicle-only collisions. Serious injuries and fatalities for vulnerable users were noted along arterials including Southcenter Boulevard, Tukwila International Boulevard and South 144th Street. Addressing these locations through improved multimodal designs and other strategies such traffic calming helps provide a more safe and welcoming system. Most importantly, it is critical to ensure that Tukwila residents and visitors feel safe walking, biking, and connecting to transit, otherwise they will not choose to do so. This resonates with the sentiments shared by the community regarding transit safety concerns.

Using the 2009 Walk and Roll Plan as a starting point, the 2024 Transportation Element (TE) Update presents an opportunity to identify existing facilities needing improvements, to address gaps in the pedestrian and bike networks, and to provide safe and comfortable access to transit facilities. In addition, identifying and addressing gaps in transit amenities such as lighting, benches, and shelters helps improve safety and comfort for transit riders.

Goal 3: Connectivity
Maintain, expand, and enhance Tukwila's multimodal network, particularly walk, bike, roll, and transit, to increase mobility options where needs are greatest.

Having a variety of practical and reliable transportation modes offers Tukwila residents and visitors travel choices, which helps to optimize the capacity of the City's transportation system and reduces reliance on driving. Following the adoption of Tukwila's 2009 Walk and Roll Plan, new bike and pedestrian facilities have been implemented to improve connectivity. Currently, most principal and minor arterials in the City have sidewalk facilities on one or both sides. However, sidewalk facilities tend to be more available on arterials than the collector and local streets. Similarly, bike facilities are limited to a few roadways. While people have expressed desire to use transit, there are also gaps in transit service and inadequate stop amenities that make transit an inconvenient option for many. Developing a network of Complete Streets to

accommodate varying modes and all abilities is vital to increasing walking, rolling, biking, and riding transit.

Goal 4: Adaptability
Anticipate and plan for the community's evolving needs, new technologies, and opportunities for mobility.

As indicated by how the COVID-19 pandemic resulted in the abrupt and dramatic changes in travel demand and traffic patterns, there is need for a poised and responsive transportation system capable of adjusting to disruptive trends in transportation. With the TE Update, the City has an opportunity to invest in new technologies, such as optimized signal timing to make intersections more efficient, bike share and/or scooter share programs to provide more modal options, and automated enforcement cameras. Cognizant of funding limitations, the City will need to be strategic in capitalizing upon new technologies and policy choices to create opportunities for mobility.

Goal 5: Environment
Plan, design, and construct transportation projects that reduce greenhouse gas emissions, improve community health, and protect the natural environment.

Transportation is one of the major contributors to air pollution and consequently, climate change. Historically, there have been inequities among populations adversely affected by negative impacts of transportation, such as air pollution. Streets and other transportation facilities are typically hardscaped, which generates runoff and carries contaminants into streams and waterways. Transportation infrastructure in Tukwila should be designed to promote sustainability, reduce pollution, and support clean air and water for all, particularly historically marginalized populations.

Encouraging multimodal, connected transportation options plays a significant role in advancing the goal of protecting the environment. This TE Update looks for opportunities to reduce the negative impacts of the City's transportation system on the environment by implementing and supporting: expanded accessibility to transit; improving pedestrian and bike transportation options; utilizing intelligent transportation systems (ITS) for traffic management and more efficient transportation operations; and using environmentally-friendly street design elements such as trees, landscaping, planted medians and permeable paving. Additionally, this goal will tie to the Climate Element, which the City will be developing for the Comprehensive Plan by 2029. Transportation will be a major component of the upcoming Climate Element.

Chapter 4: Transportation Vision

Introduction to Layered Network

The City's Transportation Element takes a layered network approach to focus on how Tukwila's transportation network can function as a comprehensive system to meet the needs of all users. While Tukwila aims to develop "complete streets" to address the needs of all users, providing accommodations that serve all modes well on every street can be an unattainable goal in practice, given constraints such as limited right-of-way and available funding. Some user types are incompatible with others, resulting in streets serving all modes undesirable. An example of this is on Andover Park W which serves high volumes of automobiles, pedestrians, and transit, but does not include marked bike lanes: the high volumes of cars and transit moving in and out of driveways and the Tukwila Transit Center is not conducive to safe bike lanes. Existing and planned adjacent and parallel bike facilities accommodate the bikes more safety.

To practically address this challenge, the City plans its street network to serve adjacent land uses. The proposed layered network builds on this current practice to create a high-quality experience for intended users by considering the function of multiple streets and transportation facilities together rather than individually. This approach allows for certain streets to emphasize specific modes or user types while discouraging incompatible uses. For example, a commercial street may be planned to provide a pleasant experience for shoppers on foot, recreational bicyclists, and car parking on the street while discouraging use by "cut-through" traffic. The project team has identified the priority transportation network for each mode: pedestrians, bicyclists, transit, freight, and general-purpose vehicles. Tukwila's key destinations and land use information provide the basis for the proposed layered network (see **Figure 2** and **Figure 4**).

The subsequent sections outline the proposed MMLOS standards and guidelines for each modal network. Standards are "must dos" that are subject to concurrency. Current LOS standards in the City are focused on automobiles and new development must ensure that the adopted intersection or corridor LOS standard can be maintained or achieved before gaining approval by the City.

Auto LOS Guidelines

The current auto LOS policy in the City of Tukwila includes isolated intersection LOS for areas outside of Southcenter and the corridor average approach for the Southcenter area. See the **Existing Traffic Conditions** section of **Chapter 2: Transportation Inventory and Needs Assessment** for more information on existing Auto LOS policies.

Given the City's past success in maintaining the LOS standard while supporting planned growth, the current approach to auto LOS maintains a similar format for evaluating delay. The approach uses standards tailored to specific locations, giving it flexibility and effectiveness in addressing issues that impact specific areas while not unnecessarily restricting the desired growth. However, the City is adjusting the vehicle LOS policy standards to allow for more vehicle congestion and balance systemwide improvements yielded by multimodal projects. The City is emphasizing multimodal options through investing in projects that improve conditions for varying modes.

Appendix B and **Appendix C** present the detailed vehicle LOS and delay results at the study intersections and corridors.

2044 Traffic Conditions

Traffic forecasts based on anticipated land use growth and planned regional transportation investments were developed using the customized Tukwila travel demand model to help inform future transportation needs. The model assumes a growth of 6,729 additional households and 16,155 additional jobs between the 2018 base year and the 2044 horizon year. An average growth in traffic volume of about 40 percent is anticipated between 2018 and 2044.

The 2044 scenario is anticipated to be similar to the assigned growth targets from King County and is generally consistent with the buildable lands and urban growth capacity analysis. The City will continue to monitor the near and long-term traffic patterns and identify any additional needs to meet level of service standards in line with the City's King County growth allocations, particularly in Southcenter.

The anticipated performance of roadway intersections and corridors within Tukwila under 2044 conditions was evaluated using the same methodology as existing conditions. The analysis assumed that all signal timings for intersections in Tukwila would be optimized between 2018

and 2044; however, there would be no adjustments to cycle lengths unless otherwise planned. The following background projects were assumed based on input from City staff:

- Southcenter Boulevard / 66th Avenue South
  - Restripe the east leg from a single left turn pocket, and two through lanes to dual left turns and a single through lane
- Southcenter Boulevard Road Diet
  - Restripe Southcenter Boulevard between 61st Avenue S and 65th Avenue South to reduce the number of lanes. Ongoing coordination with King County Parks could also see a section of the Lake to Sound Trail being built along with the road diet (at County expense).
- Southcenter Boulevard / 65th Avenue South
  - Install a traffic signal
- Andover Park East / Minkler Boulevard
  - Design and construct dedicated left turn lanes on Andover Park East
  - Reconstruct traffic signal; remove split phasing
- Ryan Way Road Diet
  - Restripe Ryan Way between Martin Luther King Junior Way South and 51st Avenue South to provide one travel lane in each direction (eastbound and westbound), improve pedestrian facilities, and possibly provide bike facilities.
  - In advance of the Martin Luther King Junior Way South intersection, taper the traffic lane to match the existing lane configuration
- The Tukwila South Development would include intersection improvements to address potential impacts to South 200th Street / Orillia Road South, South 200th Street / Southcenter Parkway, or other nearby intersections.

Figure 42 presents vehicle LOS results for the study intersections and Southcenter corridors under 2044 conditions. The following intersections are anticipated to operate at a level of service that does not meet the City's LOS policy during the PM peak hour by 2044 and as such a project is identified to meet the standards:

- South 116th Street / East Marginal Way (two-way stop-controlled intersection results in LOS F with 125 seconds of delay)
  - The increase in northbound and southbound traffic volumes on East Marginal Way is expected to limit gaps in traffic flow to permit eastbound left-turn movements.
- South 124th Street / 42nd Avenue South (all-way stop-controlled intersection results in LOS E with 39 seconds of delay)

    - The increase in westbound traffic volumes on South 124th Street degrades the LOS at the intersection below LOS D.
- South 133rd Street / SR 599 Ramps (two-way stop-controlled intersection results in LOS F with over 150 seconds of delay)
    - The overall increase in traffic volumes for all movements is anticipated to degrade southbound operations.
- South 144th Street / 53rd Avenue South (two-way stop-controlled intersection results in LOS F with over 150 seconds of delay)
    - South 144th Street is an important connection over I-5, connecting the west and east parts of Tukwila; expected delays on the minor approach would be due to high through movements.
- South 144th Street / Macadam Road South (two-way stop-controlled intersection results in LOS F with 56 seconds of delay)
    - Eastbound traffic on South 144th Street encounters delays as it is a major east-west connection across I-5.
- Southcenter Boulevard / I-405 SB Off-ramp (two-way stop-controlled intersection results in LOS F with over 150 seconds of delay)
    - The intersection operates at LOS F under existing conditions and is expected to result in higher vehicle delays in 2044 due to increased traffic volumes along Southcenter Boulevard.
    - This intersection is state-owned and within limited access control.
- SR 518 EB Off-ramp / Klickitat Drive (two-way stop-controlled intersection results in LOS F with 60 seconds of delay)
    - The current intersection control would not accommodate increased traffic volumes from SR 518 under future conditions as the approach is currently stop-controlled.

The following intersection, given the planned road diet, is anticipated to operate at a level of service that falls below City's current LOS policy during the PM peak hour by 2044. As such, the 2024 Transportation Element policies have been revised to address the anticipated congestion.

- Southcenter Boulevard / 65 Avenue South (signal-controlled intersection results in LOS F with 83 seconds of delay)
    - Given the road diet on Southcenter Boulevard, there are expected to be delays for westbound traffic along the corridor.

As previously described, the roadway network within Southcenter is understood to have non-traditional peak periods due to retail travel patterns. Eleven study corridors were evaluated to understand traffic conditions during the weekend PM peak period, which is projected to have

the most congestion under future conditions. The evaluated corridors currently operate acceptably and meet the City's LOS standard of LOS E average. Under 2044 Growth Target conditions, most of the corridors operate acceptably except for the following corridors that would operate at LOS F:

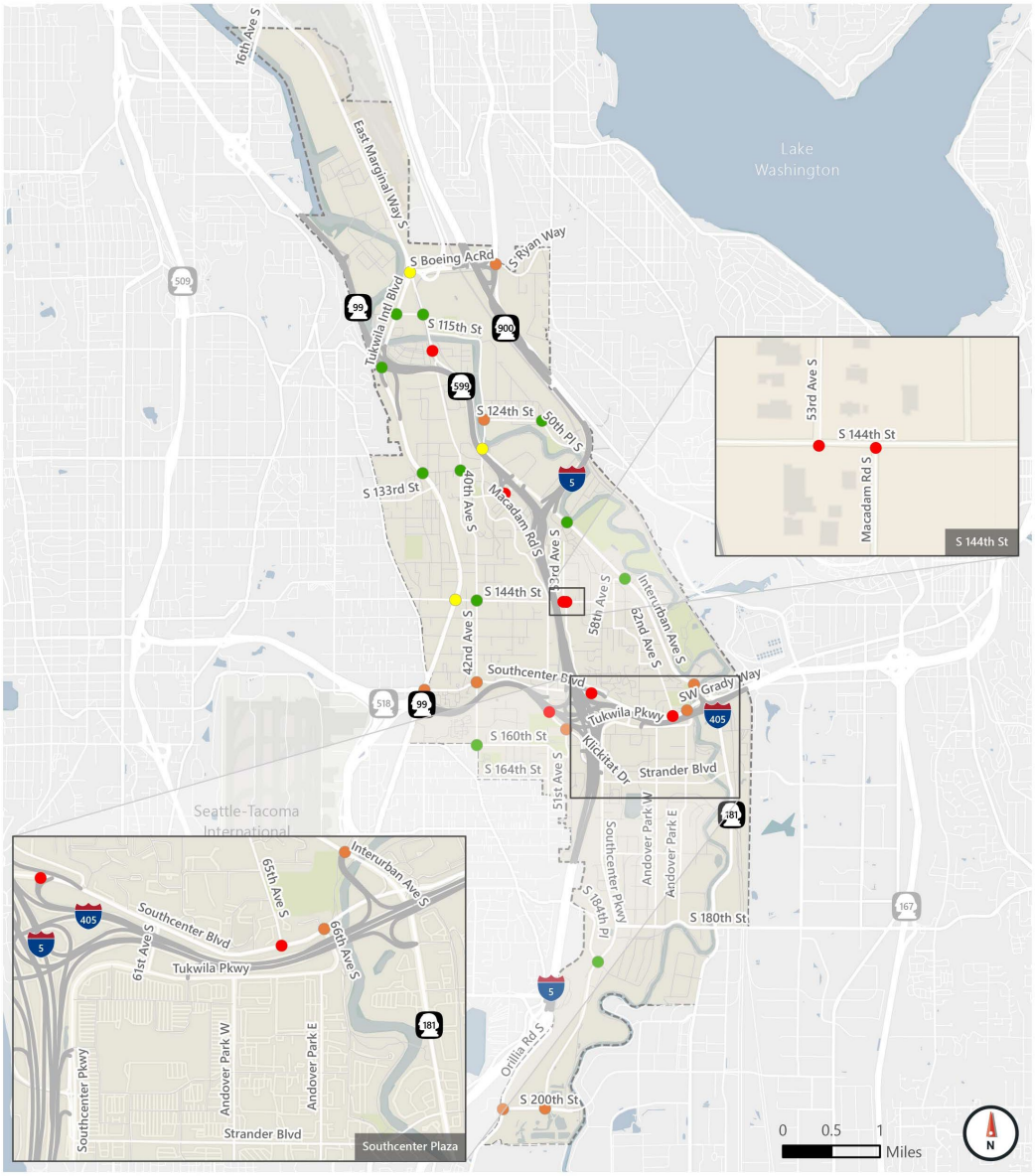
- 61st Avenue South Bridge/Tukwila Parkway from Southcenter Boulevard to Andover Park West
- West Valley Highway from Southcenter Boulevard to Strander Boulevard

The 2044 Growth Target projections warranted revisions to previous LOS standards in the Southcenter area, as described previously. The City may consider the following strategies to address degrading traffic operations in the Southcenter area:

Table 5: Potential Additional Strategies to Mitigate Southcenter Congestion

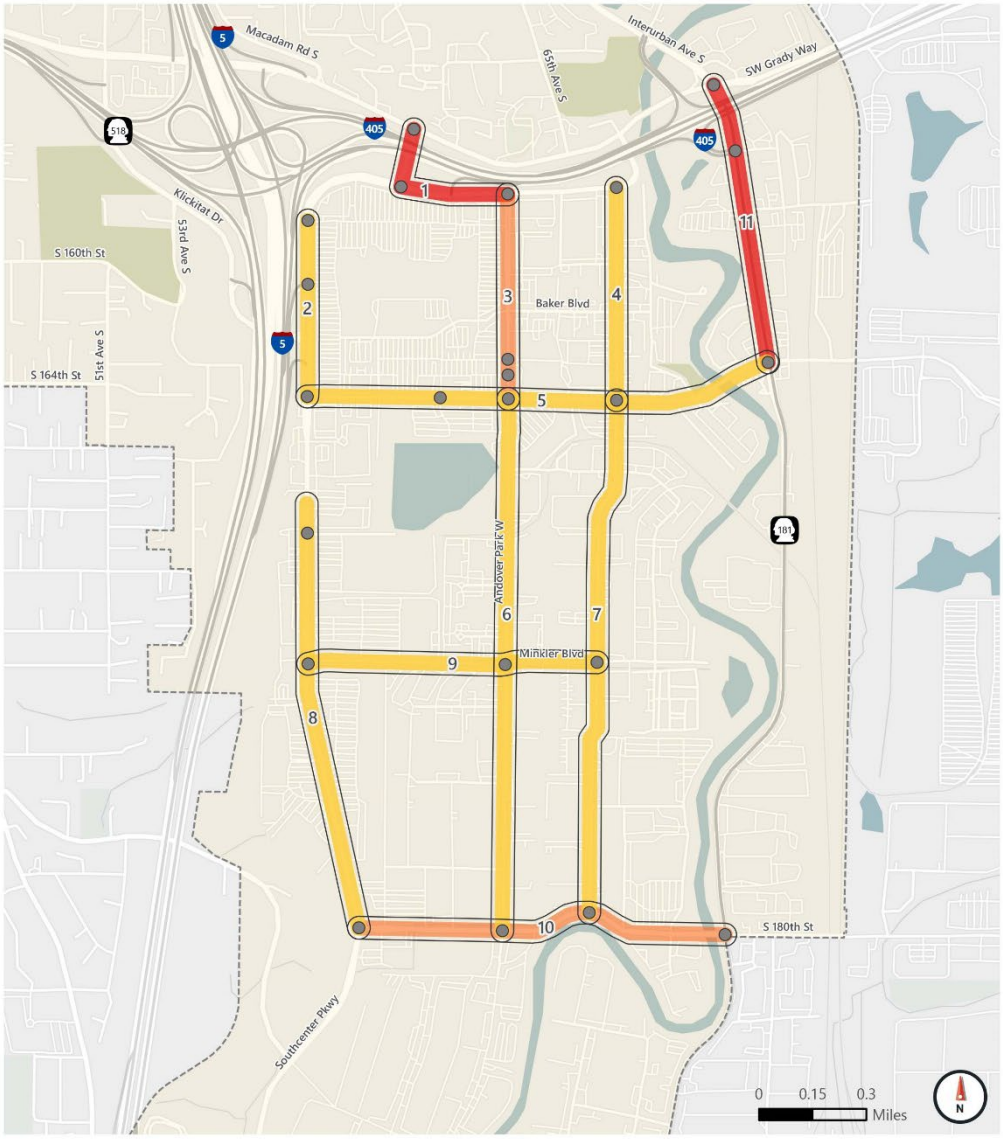
Strategy	Description	Potential Limitations/Barriers
Update the City's LOS policy	Allow LOS F operations, with an average delay not to exceed 120 seconds on the impacted corridors.	WSDOT controls the LOS standard on West Valley Highway.
Improve vehicle access into the Southcenter area	Partner with WSDOT/regional partners to provide an east-west connection from Southcenter, e.g., an extension of Strander Boulevard. This would better accommodate increased volumes on West Valley Highway and other key access locations.	A capital project of this size would require extensive WSDOT and regional partner support and collaboration.
Advocate for enhanced transit service	Given that Southcenter is a regional attraction, advocate for enhanced transit service through improved frequency, new routes, or infrastructure investments such as bus lanes or transit signal priority. This may promote transit use and discourage single-occupancy vehicle trips in Southcenter.	Advocacy does not always translate to implementation.
Coordinate with WSDOT	The congestion in the Southcenter area is expected to include SR 181. The City can coordinate with WSDOT to develop specific mitigation measures to meet the standards set by the state.	WSDOT standard is currently set to LOS E/mitigated for SR 181 as a Highway of Regional Significance

Figure 41: Future 2044 - PM Peak Hour LOS in Tukwila



Study Intersections Future 2044 - PM Peak Hour LOS

Figure 42. Future 2044 - Weekend PM Peak Hour LOS



Future 2044 Weekend PM LOS

New traffic conditions expected in 2044 as a result of land use changes over time can also change the conditions of non-motorize modes. As density increases and non-motorized facilities are improved, it is expected that the share of non-vehicle options increases over time. **Table 6** displays the projected mode share percentages that were derived from traffic modeling.

Table 6. Mode Share Percentages

	2018	2044
Single Occupancy Vehicle (SOV)	51.5%	47.4%
High Occupancy Vehicle (HOV)	40%	39.1%
Walk	4.1%	7.5%
Bike	1.2%	1.5%
Transit	3.2%	4.6%

Pedestrian LOS Standards and Guidelines

Pedestrian LOS standards and guidelines describe the comfort of someone walking. The fundamental expectations for physical space, modal separation, and street crossing amenities are informed by the neighborhood and land use context of a given street. Therefore, pedestrian facility standards and guidelines are tailored to different neighborhood and street contexts. Accordingly, pedestrian LOS standards typically involve design standards applied to each of the various pedestrian environments represented within the City.

The City of Tukwila currently utilizes a consistency-based standards for non-motorized modes, focusing on consistency among planned developments. The non-motorized standards are not currently used for concurrency; however, the previous TE document includes networks and policies that support consistency-based standards. This involves using existing plans to prioritize construction of new sidewalks, bike lanes, and trails.

Table 7 presents a new pedestrian LOS policy, which would apply standards to all streets in Tukwila. The policy outlines the minimum standards required by corridor type; however, the City aspires to provide sidewalks on both sides and amenity zones on residential streets as right of way permits. **Figure 43** maps out the pedestrian level of service standards on all streets outside of the Southcenter area and **Figure 44** maps out the pedestrian standards in the Southcenter area. Utilizing a simplified approach to pedestrian LOS standards allows for flexibility in addressing critical concerns while avoiding design-specific nuances. The goal is to provide safe and convenient pedestrian connectivity, making a sidewalk presence the key focus.

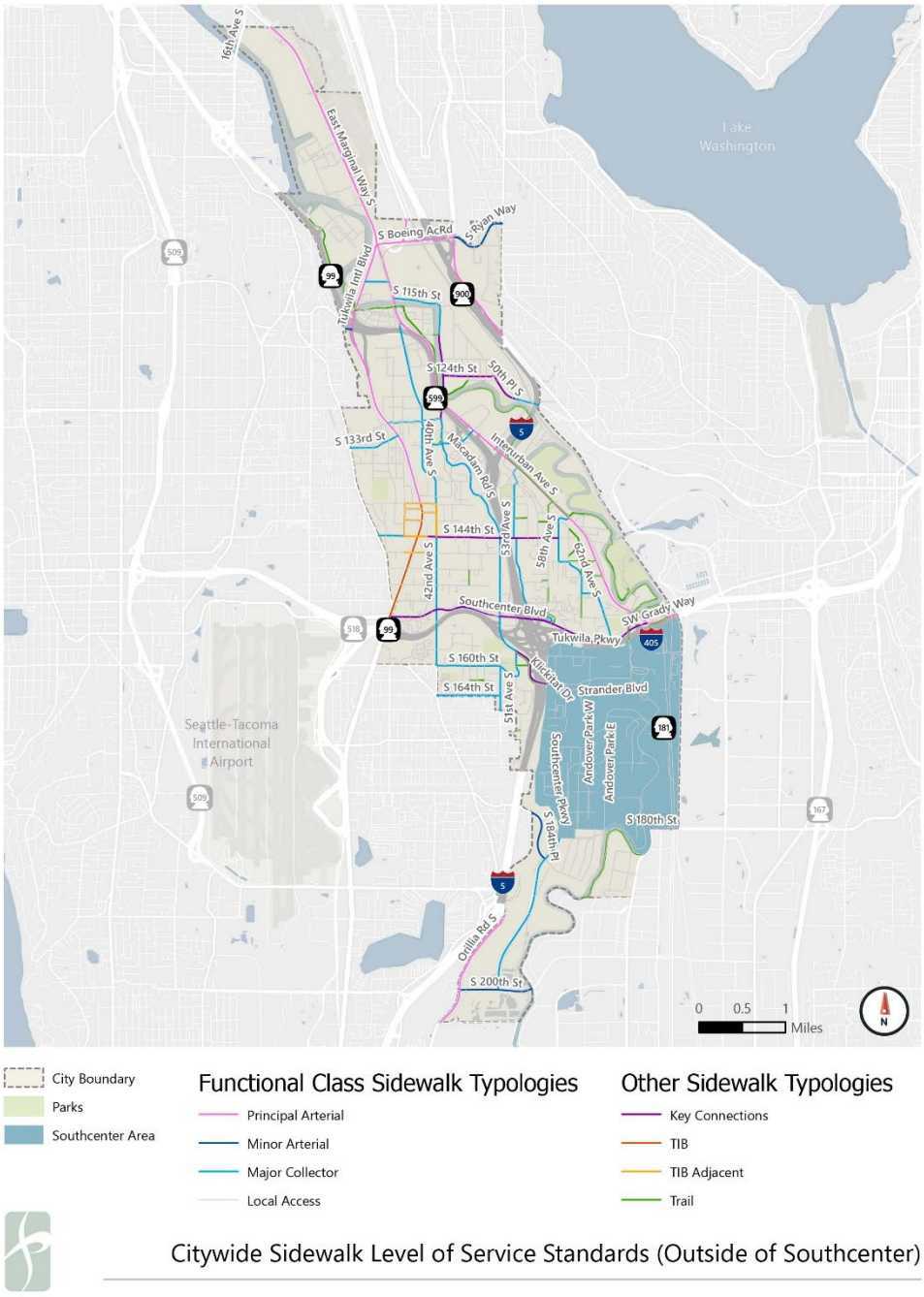
Table 7. Pedestrian LOS Standards by Street Type

	Category	Side of Street	Minimum Sidewalk Width[1]	Minimum Amenity Zone Width[2]	Lighting	Optimal Crossing Frequency
Functional Class	Principal Arterials	Both Sides	8 ft	5 ft	Pedestrian and vehicular-scale decorative street lighting	Within 300 feet of a transit stop or community asset[3] Elsewhere: ≤quarter mile
	Minor Arterial and Collectors	Both Sides	6 ft	5 ft	Vehicular-scale lighting	Within 300 feet of a transit stop or community asset Elsewhere: ≤ quarter mile
	Residential Streets	Both Sides	6 ft	4 ft	Vehicular-scale lighting	Within 300 feet of a transit stop or community asset Elsewhere: ≤ quarter mile
Southcenter	Commercial Corridors, Urban Corridors, and Workplace Corridors	Both Sides	8 ft	5 ft	Pedestrian and vehicular-scale decorative street lighting	≤ 800 feet
	Neighborhood Corridors and Walkable Corridors	Both Sides	15 ft (10 ft on Minkler)	6 ft	Pedestrian and vehicular-scale decorative street lighting	≤ 800 feet
	Freeway Frontage Corridors	One Side	8 ft	5 ft	Pedestrian and vehicular-scale	Within 300 feet of a transit stop or community asset

	Category	Side of Street	Minimum Sidewalk Width[1]	Minimum Amenity Zone Width[2]	Lighting	Optimal Crossing Frequency
					decorative street lighting	Elsewhere: ≤ quarter mile
Other	Trails	N/A	10 ft	N/A	Pedestrian-scale decorative street lighting	N/A
	Key Connections[4]	Both Sides	8 ft	5 ft	Pedestrian and vehicular-scale decorative street lighting	Within 300 feet of a transit stop or community asset Elsewhere: ≤ quarter mile
	Tukwila International Boulevard	Both Sides	8 ft	4 ft	Pedestrian and vehicular-scale decorative street lighting	Within 300 feet of a transit stop or community asset Elsewhere: ≤ quarter mile
	Tukwila International Boulevard Adjacent Streets	Both Sides	5 ft	4 ft	Pedestrian and vehicular-scale decorative street lighting	Within 300 feet of a transit stop or community asset Elsewhere: ≤ quarter mile

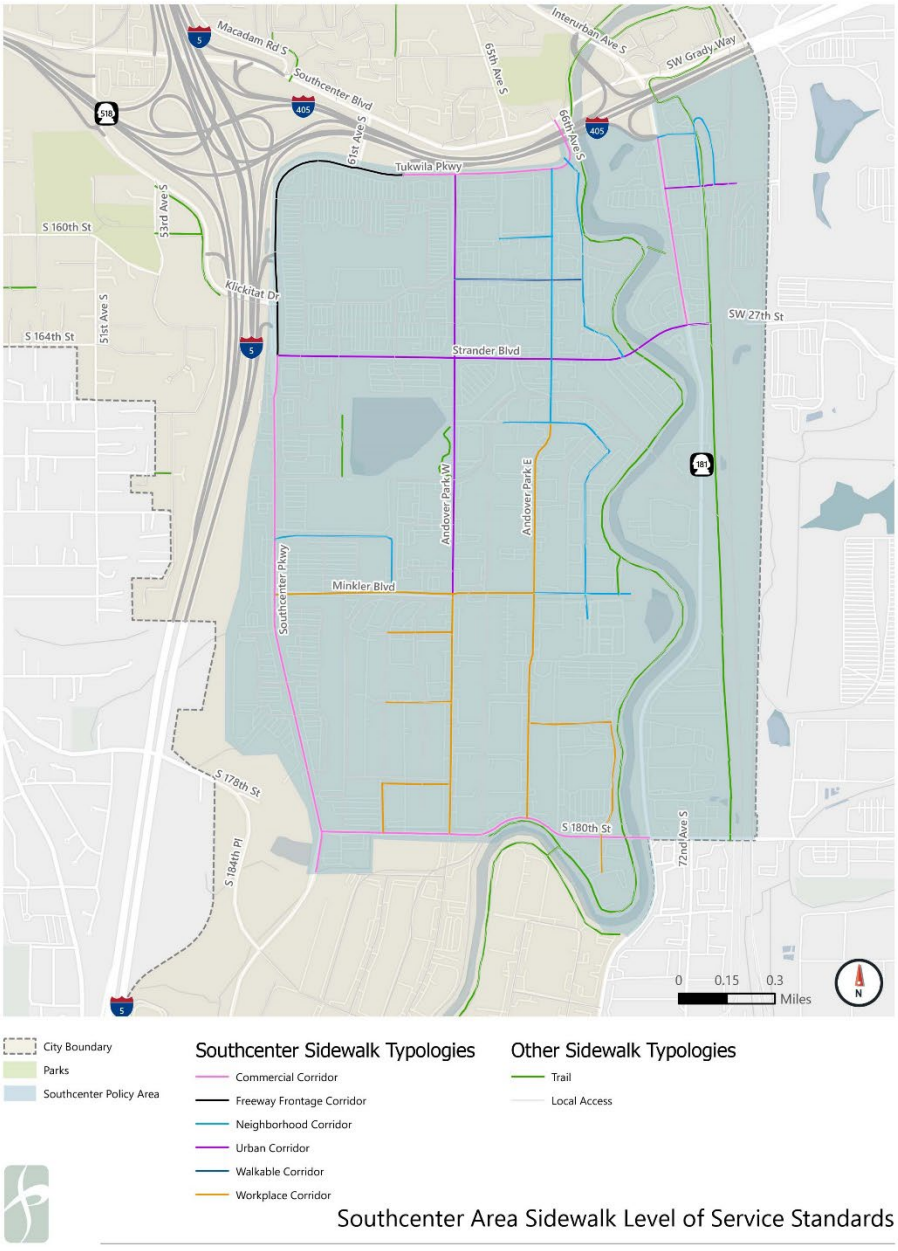
Notes:
[1] The minimum sidewalk width refers to the pedestrian through zone, which serves as an accessible pathway, clear of obstacles.
[2] The amenity zone provides additional space for pedestrians and/or serves as a buffer from vehicle traffic, separate from the minimum sidewalk width. This space may include street furniture, landscaping, or trees.
[3] A community asset is defined as a park, school, community center, neighborhood shopping, or library.
[4] Key Connections policies supersede functional class policies. These locations include east-west access corridors, connections to pedestrian generators/destinations, and critical transit corridors.

Figure 43. Citywide Sidewalk Level of Service Standards (Outside of Southcenter)



Source: City of Tukwila, Fehr & Peers, 2023

Figure 44. Southcenter Sidewalk Level of Service Standards



Source: City of Tukwila, Fehr & Peers, 2023

Based on the existing sidewalk network (see **Figure 20**) as well as the pedestrian standards, key focus areas where there are high levels of pedestrian activity such as the Southcenter area, east-west connections across Tukwila International Boulevard, and the Tukwila Community Center area. Important connections around Southcenter include connections to the Tukwila Sounder station as well as Tukwila Pond Park. Tukwila International Boulevard, particularly between South 140th Street to South 154th Street, hosts many multi-family and affordable housing units, which are commonly associated with higher usage of public transit and walking, and other high pedestrian generators like nearby schools, multiple churches, and a mosque. The Tukwila Community Center has also been identified as a key area for pedestrians.

In addition to existing pedestrian needs, it is important to plan pedestrian facilities prior to future development that would rely on these facilities. International Boulevard/SR 99 and South 160th Street is the location of a potential large-scale mixed-use project with access to the light rail station via a pedestrian bridge. South Boeing Access Road is the location of a planned light rail station that would require increased pedestrian connectivity.

Bike Guidelines

Level of traffic stress (LTS) is the current state of the practice in planning bike facilities. This approach provides a framework for designing bike facilities that meet the needs of the intended users of the system. **Figure 45** describes the four typical categories of cyclists, each requiring different levels of accommodation to feel comfortable using the system.

Figure 45. Bike Level of Traffic Stress and Rider Categories

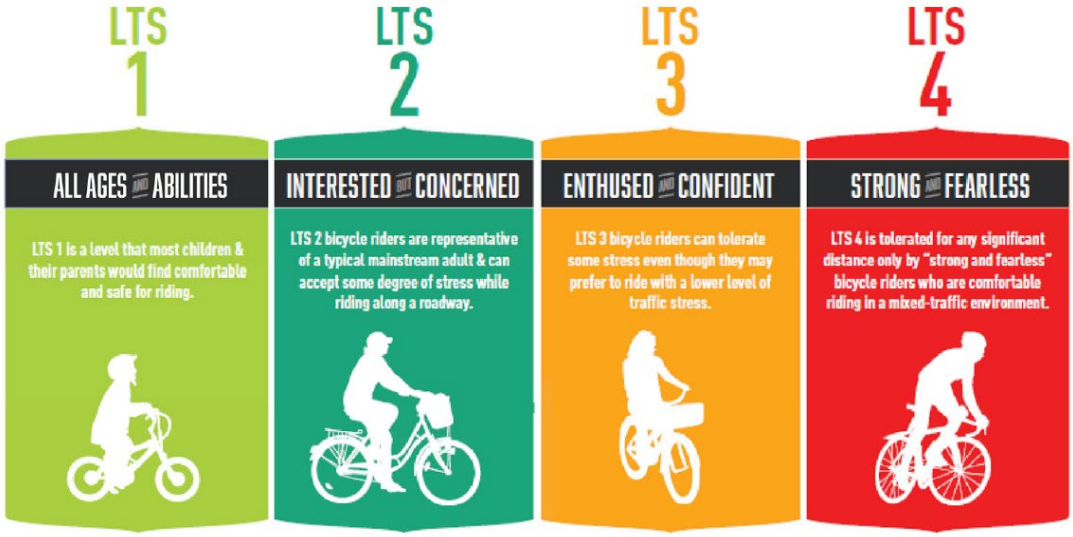


Table 8 and **Table 9** display the various treatments required for each LTS designation along corridors as well as at intersections. With this approach, treatments required to meet each LTS designation along a corridor vary based on speed limit and traffic volume. The contextual nature of the LTS approach acknowledges that the same bike treatment under different street conditions can evoke different levels of stress. For example, a striped bike lane without a buffer may be comfortable for all ages and abilities on slow streets with low traffic volumes. However, as traffic volumes or speeds increase, the riding conditions no longer meet the needs of those in the LTS 1 category. Utilizing the LTS approach for bike conditions provides the City with the opportunity to plan bike networks that address the varying comfort levels of people who bike. Additional information on bike facility types and treatments is provided in **Appendix F**.

Table 8. Bike Level of Traffic Stress and Rider Categories

Speed Limit (MPH)	Arterial Traffic Volume	No Marking	Sharrow Lane Marking	Striped Bike Lane	Buffered Bike Lane (Horizontal)	Protected Bike Lane (Vertical)	Physically Separated Bikeway
≤ 25	< 3k	1	1	1	1	1	1
	3-7k	3	2	2	2	1	1
	≥ 7k	3	3	2	2	1	1
30	< 15k	3	3	2	2	1	1
	15-25k	4	4	3	3	2	1
	≥ 25k	4	4	3	3	3	1
35	< 25k	4	4	3	3	3	1
	≥ 25k	4	4	4	3	3	1
>35	Any	4	4	4	4	3	1

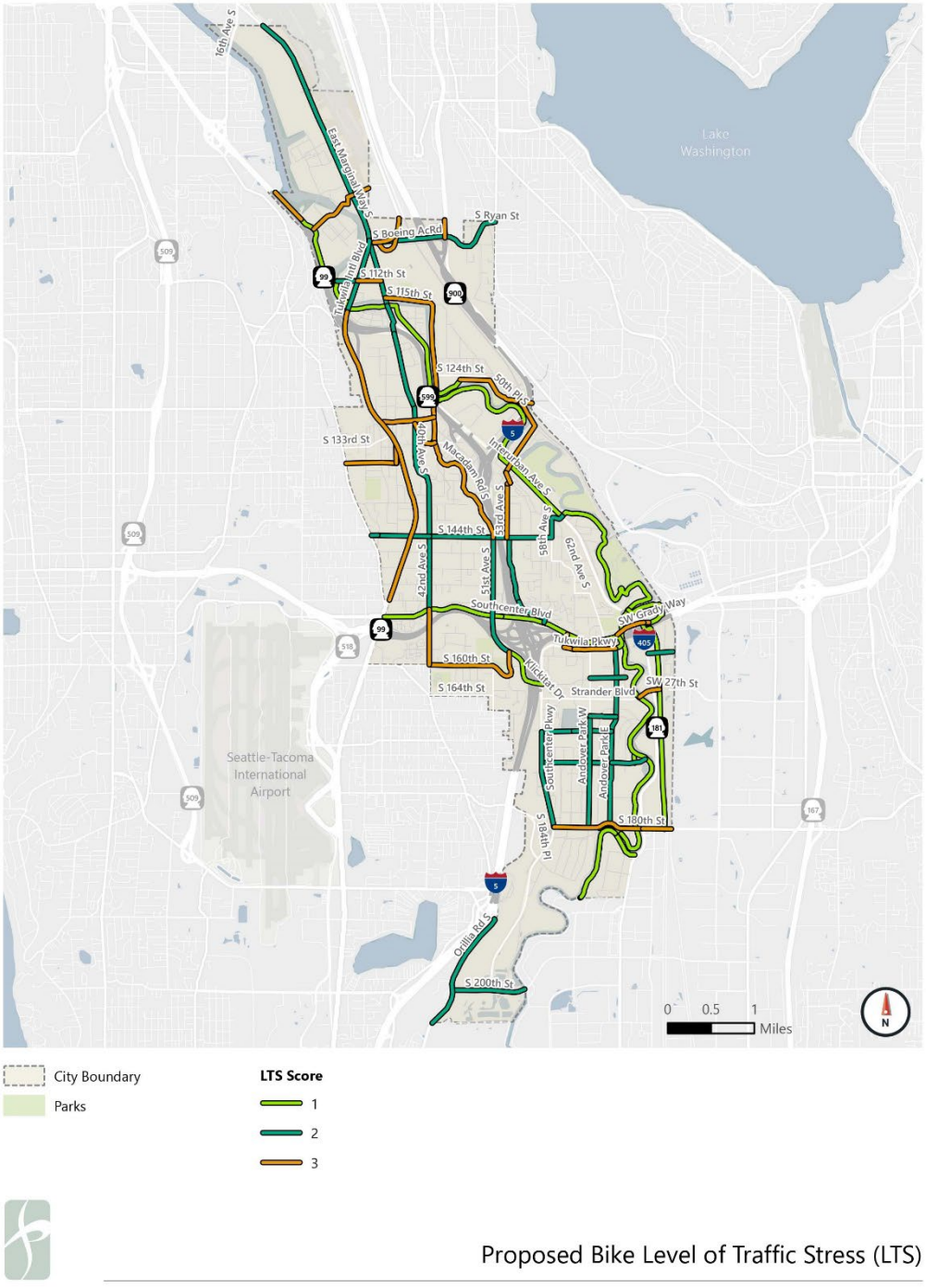
Table 9. Recommended Bike Facility Treatments at an Intersection

Bike LTS	Signal Type	Street Crossing	Approach to Intersection	Approach to Intersection with Right Turn Lane
LTS 1	Bike Signal	Green solid or skip-stripe	Green bike box	Curb ramp to wide sidewalk, Dutch Intersection
LTS 2	Bike Signal	Skip-stripe	Bike box	Green bike lane to left of turn lane
LTS 3	Green Cycle Length	Sharrow lane markings	Automatic signal actuation	Bike lane to left of turn lane
LTS 4	No Specific design guideline for LTS 4			
Trail or Mid-Block Crossing	Full signal, HAWK, or RRFB	Green solid or skip-stripe	N/A	N/A

Note: See Appendix F for detailed descriptions and images of bike facility treatments.

The LTS approach to bike LOS offers a way to develop a network of bike facilities that meet the needs of each rider category. **Figure 46** shows the City's aspirational bicycle LTS network. It considers the current facilities and their LTS designations to identify areas for potential connections. Awareness of the types of people who bike provides insight into the inclusivity of each bike route. Establishing various options for all people who bike allows people to efficiently reach desired destinations.

Figure 46. Proposed Bike Level of Traffic Stress Network



Source: City of Tukwila, Fehr & Peers, 2023

Transit Guidelines

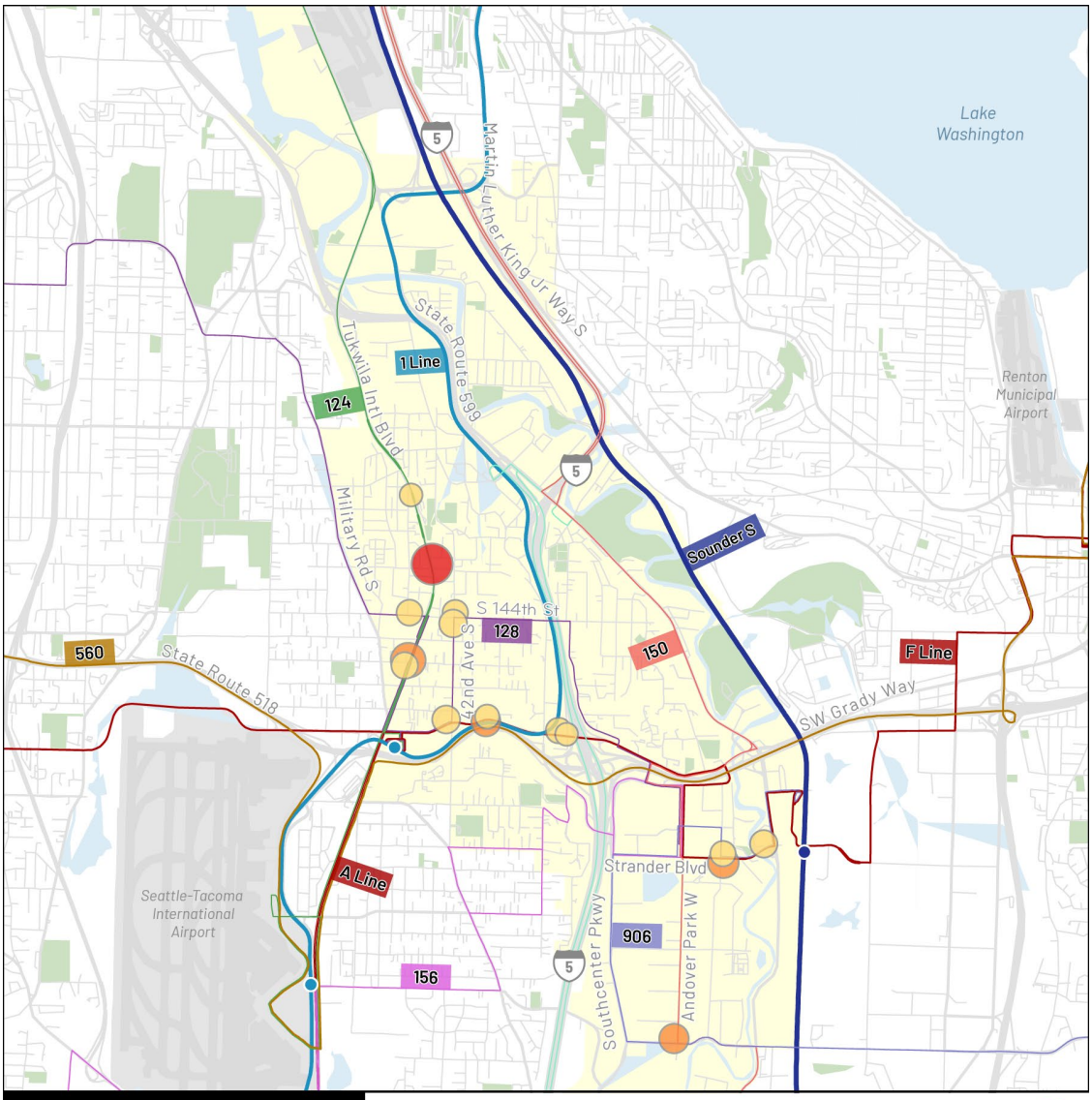
Transit service in Tukwila is provided by King County Metro and Sound Transit and the City's ability to set transit standards is limited. The transit providers maintain routes, headways, and most stop amenities. Given that the City is not the transit provider, the City is only responsible for providing access to established transit stops and maintaining roadway conditions. However, the City will use these guidelines to advocate for improved transit service and higher-quality transit stop amenities along City streets. **Table 10** shows proposed transit treatments based on the corridor type.

Table 10. Recommended Transit Treatments

Stop Component	Corridor Type	
	Local Transit Corridor	Frequent and Express Transit Network Corridor
Weather Protection	Yes, priority with 25+ daily boardings	Yes, for RapidRide stops, priority with 25+ daily boardings on other Frequent/Express stops
Seating	Yes, near community assets	Yes, for RapidRide stops, priority with 25+ daily boardings on other Frequent/Express stops
Paved Bus Door Passenger Zone	Yes, zone length 25-30 feet	Yes, zone length 60 feet
Wayfinding	Yes, priority with 25+ daily boardings	Yes, for RapidRide stops, priority with 25+ daily boardings on other Frequent/Express stops
Other Amenities (trash, lighting, bike parking)	Yes, priority with 25+ daily boardings	Yes, for RapidRide stops, priority with 25+ daily boardings on other Frequent/Express stops

Figure 47 includes the City of Tukwila's current transit network, stop locations, and available amenities. There are still gaps in the transit network, including access to the Tukwila Community Center, and the City will continue advocating for access to key destinations. As shown in **Figure 47**, there are several transit stops without any amenities and this presents an opportunity to address these gaps using the recommended transit stop treatments tabulated in **Table 10**

Figure 47. Existing Transit Network and Stops



Source: City of Tukwila, Fehr & Peers, 2023

Freight Guidelines

As a result of the growth in urban populations, the prevalence of online shopping, and related freight activities, there is an upward trend in goods and parcel delivery in cities. This prompts the need to closely review and develop guidelines to adequately accommodate freight movement and related activities. Current street designs or policies often present challenges for truck/freight operators. Better balance can be achieved by clearly defining freight corridors and developing guidelines to address the following challenges often faced by truck or commercial delivery drivers in cities:

- Large truck operators frequently have difficulty navigating restricted and narrow turns, narrow lanes, and curved or circular travel paths.
- Street furniture, bike parking, trees, signage, bollards, and other curbside or sidewalk obstructions can inhibit delivery activity if they are installed without considering truck needs.
- Inadequate supply of truck parking and delivery spaces results in double parking or parking in the middle of roadways using two-way left-turn lanes, which presents safety and traffic issues for other road users.
- High risk for dangerous collisions in areas where pedestrians and bicyclists are likely to be operating in driver blind spots.
- Poorly designed commercial vehicle load zones which do not accommodate safe and efficient deliveries. The space allocation for deliveries is typically constrained.

As a community that hosts a major Manufacturing/Industrial Center (MIC) and citywide delivery activity, developing freight LOS guidelines is critical to ensure efficient delivery of goods and limited impacts on other transportation modes. The subsequent sections and **Appendix G** present recommendations regarding freight corridors, curb access, and truck parking.

Freight Corridors

The City currently partners with regional agencies and the state to build and maintain freight corridors within the City that are classified as Freight and Goods Transportation System (FGTS) routes (**Figure 33**). Designated FGTS routes aim to prevent heavy truck traffic on lower-volume streets and promote the use of adequately designed roadways. Building on this effort, the City is including implementation strategies in the TE document that address competing needs along freight corridors in the City.

Curb Access

Several agencies are beginning to recognize curb space as valuable real estate that ought to be better understood and designed to improve the quality of life for residents and transportation systems. Prioritizing curb functions based on adjacent land use is an approach that various jurisdictions/ agencies are taking to manage curb access. See **Appendix G** for recommended curb access considerations along designated FGTS routes.

Truck Parking

Truck parking is a critical national transportation issue that cities including Tukwila currently face. Truck drivers need safe and secure parking as well as rest breaks as required by law. But, with more trucks and drivers on the road to serve the significant increase in demand for goods, the scarcity of parking for drivers has increased. Most truck parking in cities is directly related to industrial warehouse development and the production of goods, and these land uses, and the associated zoning are locally controlled.

A nationwide effort to address ongoing truck parking issues has been underway for several years. More locally to Tukwila, there is a real need for truck parking to support residents who are professional truckers without negatively impacting residential and commercial areas. The proposed guideline on this topic is to engage and coordinate with the diverse set of truck parking stakeholders (truck drivers, neighborhoods, City staff, freight facility operators, and other regional, state, and federal agencies) to address/ discuss the following:

- The disconnect between economic development goals to build major freight generators (e.g., industries, malls, dense mixed-use developments, hospitals, etc.) without provisions for truck staging or parking spaces to support truck deliveries and driver needs.
- The common response of banning truck parking when dealing with truck parking concerns (typically learned about through resident complaints). These truck parking bans often result in moving rather than solving the problem.
- Key truck parking components including safety, zoning, environment and sustainability, residential impacts and quality of life, intermodal connections and emerging technology, funding and incentives, communication, and public outreach.

- Educating local planners, development staff, and elected officials to get an understanding of how freight operates, and the truck parking demand generated by local industrial development.

In addressing and discussing the bulleted items, the City should utilize the Federal Highway Administration (FHWA)'s truck parking handbook. It presents resources for the development of truck parking, including factors that influence parking need, quantitative approaches for estimating truck parking demand, design of truck parking facilities, truck parking safety and security, and facility siting to protect community quality of life.[17]

[17] FHWA, Truck Parking Development Handbook, 2022.

Chapter 5: Transportation Project List

This section describes the projects and programs that will support the City's goals, policies, and vision. Implementing the project list would provide a safer and more connected multimodal system while fitting within the City's anticipated budget over the next 20 years.

Project Development

The Transportation Element development process involved several methods of identifying project ideas and transportation needs citywide. Projects were identified through technical analysis, community input, and past plans. After a full project list was developed, prioritization metrics were applied to fit the projects within the expected funding constraints.

Technical Analysis

Several types of analyses were used to pinpoint where transportation challenges are present under current conditions and what challenges Tukwila is expected to face in the next 20 years. These technical analyses identified where the City's set level of service standards are not met under existing and future conditions. Projects were identified to mitigate substandard LOS for each mode.

Vehicle network performance was measured based on the seconds of delay at intersections and average delay along corridors during PM peak hour, midday, and weekend periods. Vehicle projects were identified where:

- Existing conditions failed to meet LOS standard
- Future alternatives show LOS degrading below the standard.

Pedestrian level of service standards were set by determining the required walking and rolling treatments on each type of corridor. Sidewalk presence is the most critical element of the set standard. Identification of sidewalk gaps was completed after inventorying existing facilities and determining where sidewalks were required on one or both sides of the street. Projects were identified for areas where the walking and rolling facilities do not meet the standard.

Bike projects were identified using a methodology similar to pedestrian network improvements. Level of Traffic Stress methodology was used to identify the existing bicycle LTS network. The

project team then identified a proposed skeleton LTS network based on current LTS and feasibility. Projects were identified in areas where an LTS improvement is proposed. See Chapter 4. Transportation Vision for more detail on the proposed bike LTS network.

Community Input

The community was heavily involved throughout the process of developing the TE. Community input was synthesized to identify patterns and ultimately create projects out of the ideas shared by the community. See **Chapter 3: Public Outreach** for more details on the engagement process.

Previous Planning Efforts

The 2023-2028 Capital Improvement Program included sections dedicated to Residential Streets as well as Bridges & Arterial Streets. Transportation projects from these sections were incorporated into the TE project list.

Prioritization Metrics

Upon consolidating a full list of potential projects, prioritization metrics were applied to identify which projects would further the City's goals. Criteria and metrics were developed for each of the five transportation goals and projects were scored accordingly. **Table 11** describes the goals, guiding principles, and weighting. **Table 12** includes the project prioritization metrics that were used to identify a fiscally constrained project list.

Table 11. Goals, Guiding Principles, and Weighting for Prioritization

Equity	Safety	Connectivity	Adaptability	Environment
Ensure fair access to healthy, affordable, reliable transportation options, livable places, and jobs, particularly for historically marginalized and vulnerable populations.	Provide safe transportation infrastructure and improve personal comfort to emphasize Tukwila as a welcoming place.	Maintain, expand, and enhance Tukwila's multimodal network, particularly walk, bike, roll, and transit, to increase mobility options where needs are greatest.	Anticipate and plan for the community's evolving needs, new technologies, and opportunities for mobility.	Plan, design, and construct transportation projects that reduce greenhouse gas emissions, improve community health, and protect the natural environment.
20%	35%	20%	10%	15%

Table 12. Scoring Criteria by Goal

Equity	**Community outreach and engagement**	Project is supported by community members. The community is meaningfully engaged in identifying how the project supports community needs and goals.
	Delivery of transportation services	Project provides access to healthy, affordable, reliable transportation options in areas with historically marginalized or vulnerable populations.
Safety	**Safe and comfortable options**	Project improves levels of comfort and desirability of walking, biking, rolling, or using transit.
	Crossing Safety	Project provides new or improved crossing treatment (e.g. restriping, RRFB, curb ramps, crossing island, curb extension, reduced pedestrian exposure, new signal, reduced motor vehicle turning speed, narrowed curb return, etc.).
	Collision history	Project is identified as a priority project in Tukwila's Local Road Safety Plan (LRSP).
Connectivity	**Access**	Project increases route options or interconnectedness and/or closes an existing gap in the walk/bike/roll/transit networks
	Quality of travel choices	Project increases the number of high-quality travel choices, which are defined by mode as follows: a) Pedestrians – facilities are comfortable and accessible b) Bikes - facilities are LTS 1 or 2 c) Transit - service is frequent and reliable or the provision of stop amenities d) Auto - intersection or corridor LOS meets the set standard.
	Person trip capacity	Project provides additional capacity for person trips compared to existing conditions.
Adaptability	**Emerging travel modes and technology**	Project supports or advances emerging travel modes or technology including e-scooters, e-bikes, electric-vehicles, autonomous and connected vehicles
	Intelligent Transportation Systems (ITS)	Project provides opportunities to maximize the efficiency of the transportation system using technology. This includes implementing smart signal or technology upgrades, e.g. fiber optic, signal cabinets, adaptive signal technology or leading pedestrian interval.
	Preparedness for disruptive events	Project supports redundancy to the transportation network and traffic operations improvements. This is pivotal for evacuation planning in preparation of future emergencies/ challenges such as landslides, flooding, earthquakes, unplanned road closures etc.
Environment	**Sustainable transportation**	Project encourages travel to be less impactful on the environment by promoting shared/mass transportation or shortening SOV vehicle trips or shifting to other low- or zero-emission, energy-efficient, affordable modes. This criterion is primarily centered on vehicle miles traveled (VMT) reduction which is linked to Green House Gas emissions, air and noise pollution.
	Protection of ecological resources	Project protects or minimizes impact to ecological resources (plant/animal species and their habitats).

Priority Projects

A priority project list is a critical piece of transportation planning. The City of Tukwila can use the priority project list to determine what capital improvements to include in budgeting. This list outlines the 36 most important projects in Tukwila over the next 20 years.

Each project derived from previous planning efforts, technical analysis, and community input was scored using the criteria and weights outlined above. The projects were then sorted by score to determine the top performing projects that would make up the prioritized project list.

Table 13 includes the priority projects with descriptions and displays the priority projects on a map. The extended project list is included in **Appendix H**. The priority projects appear to have a good likelihood of being funded under current financial expectations. Regular monitoring of level of service compliance and updates to the evolving City needs should be done by the City. Keeping tabs on current needs, and moving forward other projects that have been identified, but not determined as the highest priority needs, will ensure that the City will continue to maintain high levels of service for all users.

Boeing Access Road Station

Sound Transit's Boeing Access Road Station Project would add a new station to the existing 1 Line of the Link light rail network near South Boeing Access Road, East Marginal Way, and Interstate 5 (I-5) in Tukwila. The project bridges the current 5.5-mile gap between Rainier Beach and Tukwila International Boulevard stations, and would include 300 parking spaces at the station. Sound Transit is currently considering the following locations for the station:

- S Boeing Access Road, west of I-5
- E Marginal Way S, north of S 112th St

The Transportation Element includes policies and implementation strategies to support the city's vision for the station area. Tukwila aims for the station area to become a walkable community destination and supportive of future transit-oriented development, as per strategies T3.5 and T3.15. Priority projects near the station area support this vision, including priority projects C, D, I, J, K, and AD.

More information about the Boeing Access Road Station is available on Sound Transit's project website.

To ensure that the City of Tukwila continues to build infrastructure that aligns with its goals, additional funds are set aside for developing safety projects, derived from the Local Road Safety Plan, as well as ADA improvements and other needs Citywide. The cost of developing the projects on the Top Priority list would not use the entirety of the budget expected over the next 20 years. The remaining portion can be used to address safety, ADA, and other emergent needs in Tukwila.

Table 13. Prioritized Project List

#	Project Name	Description	Street Name	Start	End	Cost
A	Buffered Lane on 42nd Ave S Section 3	Remove parking on one side and widen sidewalk to create a 12ft shared use path 8ft parking lane, 2-11ft lanes and 8ft sidewalk.	42nd Ave S	S 150th St	S 144 St.	$ 550,000
B	Buffered Lane on 42nd Ave S Section 4	Develop a traffic-calmed bikeway along 42nd Ave S between S 150th St and Southcenter Blvd. On the west side of the street, add striped southbound bike lane between Southcenter Blvd and S 150th St. On the east side of the street, add striped bike lane between Southcenter Blvd and S 151st St. Remove on-street parking to widen the sidewalk on the east side of the street between S 151st St and S 150th St, creating a shared path; add shared lane markings to the roadway.	42nd Ave S	Southcenter Blvd	S 150th St	$ 376,000
C	S Norfolk St Bike Facilities	Add bike facilities on S Norfolk St. If this project moves forward, need to update bike network.	S Norfolk St	E Marginal Way S	Eastern City Limits	$ 497,000
D	E Marginal Way Bike Lanes (E Marginal Way S North Section)	Widen and extend asphalt paving on E Marginal Way S north of S Boeing Access Road. Bike facilities may be desired here, pending BAR Infill station and area redevelopment, could connect to bike facilities on Airport Way if Seattle/Tukwila install, connecting via Norfolk to EMWS If this project moves forward, need to update bike network.	E Marginal Way S	S Boeing Access Rd	Northern City Limits	*Further analysis required to determine planning-level cost estimate*

E	Southcenter Boulevard Bike Lanes Section 2	Add vertical flexi posts to existing bike lanes or raise the bike lane to sidewalk level to create better separation from vehicles.	S 154th St	42nd Ave S	51st Ave S	$ 390,000
F	42nd Ave S Bridge Replacement	Design and construct a replacement structure for the existing 42nd Ave S Bridge near the Tukwila Community Center.	42nd Ave S Bridge	Interurban Ave S	Tukwila Community Center	$ 32,333,000
G	Southcenter Blvd/65th Ave S Signal	Design and construct a traffic signal at the Southcenter Boulevard/65th Avenue S intersection. Intersection will include pedestrian crossings.	Southcenter Blvd	65th Ave S		$ 1,100,000
H	SR 518 EB Off-ramp / Klickitat Drive Intersection Improvements	Design and construct a new traffic signal, lighting, and pedestrian facilities including crosswalks and pedestrian push buttons.	SR 518 EB Off-ramp	Klickitat Drive		$ 850,000
I	E Marginal Way/S 112th Street Intersection Modifications	Design and construct curb/gutter, drainage, lighting, turn lanes, and traffic control.	E Marginal Way	S 112th Street		$ 2,500,000
J	S 115th Street / E Marginal Way Intersection Improvements	Design and construct a new traffic signal, lighting, and pedestrian facilities including crosswalks and pedestrian push buttons. Coordinate the new traffic signal with the Interurban Ave / E Marginal Way signal.	S 115th Street	E Marginal Way		$ 2,000,000
K	Boeing Access Road/E Marginal Way/Tukwila International Boulevard Intersection Feasibility Study	Evaluate the feasibility of modifying the intersection.	Boeing Access Road	E Marginal Way/Tukwila International Boulevard		$ 125,000
L	Andover Park E/Minkler Blvd Intersection	Design and construct left turn lanes on Andover Park East and reconstruct	Andover Park E	Minkler Blvd		$ 1,832,000

		traffic signal. Improve safety and provide needed capacity.				
M	Andover Park E/Industry Dr Intersection	Design and construct traffic signal with Andover Park East left turn lanes and crosswalks.	Andover Park E	Industry Dr		$ 846,000
N	E Marginal Way (BAR - S 112 St)	Design and construct curb, gutter, drainage, lighting, turn lanes, and traffic control.	E Marginal Way	S 115th St	S Boeing Access Rd	$ 3,418,000
O	124th and 50th Intersection Improvements	Add sidewalk facilities from 51st to 49th on north side and reconfigure intersection to bring all movements to a full stop, eliminating the EBRT slip lane. Add protected pedestrian facility on 50th Pl from 124th to connect into the pedestrian facilities south of S 125th.	S 124th St	50th Pl S		$ 750,000
P	S 152nd St Safe Routes to School	Install curb, gutter, and sidewalks on both sides of S 152nd St, including widening pavement width by three feet to construct an on-street parking lane as a buffer between the roadway and sidewalk on the north side.	S 152nd St	42nd Ave S	Tukwila International Boulevard	$ 4,468,000
Q	46th Ave S Safe Routes to School	Install curb, gutter, and sidewalk on the west side of 46th Avenue South. Install a curb bulb-out at the southeastern corner of 46th Ave S and S 144th St and a raised crosswalk on S 144th St with pedestrian-activated flashing beacons.	46th Ave S	S 144th St	S 150th St	$ 2,580,000
R	S 144th St Bridge - Sidewalks	Design of pedestrian improvements to the S 144th Street bridge over I-5, to include structural, civil, environmental, and traffic design to obtain PS&E. Project will widen the existing pedestrian pathway on the bridge from three feet to six feet with a barrier to	S 144th St Bridge	Macadam Rd S	53rd Ave S	$ 3,298,000

		separate automobile and pedestrian traffic.				
S	Macadam Rd S Section 1 Sidewalk	Construct sidewalk on west side of 42nd Ave S from S 124th St to entrance of 42nd Ave S Bridge, construct sidewalk on both sides of 42nd Ave S from entrance of 42nd Ave S Bridge to Interurban Ave S. Construct sidewalk on both sides of Macadam Rd S from Interurban Ave S to S 130th St.	42nd Ave S and Macadam Rd S	S 124th St	S 130th St	$ 992,000
T	S 146th St Sidewalk	Construct sidewalk on south side of entire segment, and extend the sidewalk on the north side to the project extents	S 146th St	35th Ave S	41st Ave S	$ 667,000
U	40th Ave S Sidewalk	Construct sidewalk on both sides of road segment up to existing sidewalk	40th Ave S and 42nd Ave S	East Marginal Way S	S 139th St	$ 3,443,000
V	Strander Blvd Sidewalk	Construct sidewalk on south side of Strander Blvd from Christensen Rd to W Valley Hwy. Construct sidewalk on both sides of Strander Blvd from W Valley Hwy to east boundary of Tukwila city limits	Strander Blvd and SW 27th St	Christensen Rd	Interurban Trail	$ 467,000
W	S 124th St Sidewalk	Construct sidewalk on both sides of S 124th St from 49th Ave S to 50th Pl S	S 124th St	49th Ave S	50th Pl S	$ 2,105,000
X	Minkler Blvd Section 2 Sidewalk	Construct sidewalk on both sides of road segment	Minkler Blvd	Andover Park W	Andover Park E	$ 1,430,000
Y	Tukwila International Blvd Section 2 Sidewalk	Construct sidewalk on east side of Tukwila International Blvd from S 112th St to the HW 99 Exit Ramp. Construct sidewalk on both sides of Tukwila International Blvd from the HW 99 Exit Ramp to 12400 Block.	Tukwila International Blvd	S 112th St	12400 Block	$ 2,050,000
Z	E Marginal Way S Section 2 Sidewalk	Construct sidewalk on both sides of road segment	E Marginal Way S	Interurban Ave S	S 120th Pl	$ 803,000

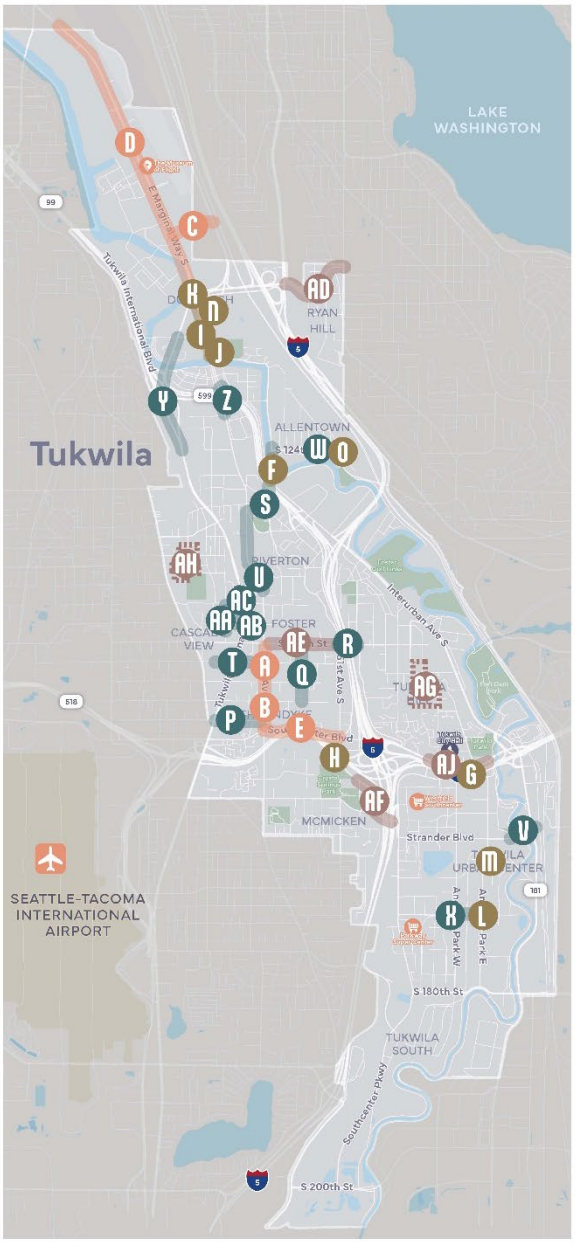
AA	37th Ave S Sidewalk	Construct sidewalk on east side of 37th Ave S from S 140th St to S 142nd St east segment. Construct sidewalk on both sides of 37th Ave S from S 142nd St east segment to S 142nd St west segment	37th Ave S	S 140th St	S 142nd St	$ 530,000
AB	S 142nd St Sidewalk	Construct sidewalk on both sides of road segment	S 142nd St	37th Ave S	Tukwila International Blvd	$ 541,000
AC	S 141st St Section 1 Sidewalk	Construct sidewalk on both sides of road segment	S 141st St	37th Ave S	Tukwila International Blvd	$ 510,000
AD	Ryan Way Road Diet	Resurface and rechannel S Ryan Way to improve failing pavement and improve safety. Add pedestrian and bicycle facilities where appropriate. Signalize intersection with 47th Avenue S to accommodate future growth and improve safety.	S Ryan Way	Martin Luther King Jr Way S	51st Ave S	$ 14,371,000
AE	S 144th Street Complete Street	Restripe and remove parking on one side to accommodate 2-10ft lanes, 1-2ft buffer, and 1-10ft two-way cycle track. Construct sidewalk facilities on the south side of the street.	S 144th St	42nd Ave S	51st Ave S	$ 869,000
AF	Klickitat Dr Complete Street	Multimodal improvements to improve connectivity and accessibility of existing path (wayfinding, signage, width improvements, etc. wherever possible)	Klickitat Dr	53rd Ave S	Southcenter Pkwy	*Further analysis required to determine auxiliary costs.* Planning-level cos estimate

						without: $500,000
AG	Tukwila Elementary School Transportation Improvements	Traffic calming and safety improvements surrounding Tukwila Elementary School.				$ 3,220,000
AH	Cascade View Elementary School Transportation Improvements	Traffic calming and safety improvements surrounding Cascade View Elementary School				$ 1,050,000
AI	School Safety Traffic Calming Program	Traffic calming and safety improvements surrounding schools in Tukwila				$ 770,000
AJ	Southcenter Boulevard Road Diet	Resurface and rechannel Southcenter Boulevard to increase multimodal options and improve safety. Add pedestrian and bicycle facilities where appropriate.	Southcenter Boulevard	61st Ave S	66th Ave S	$ 686,000

Figure 48. Map of Top Priority Projects

TOP PRIORITY PROJECT LIST

Here are the top priority projects derived from previous plans, community outreach, and technical analysis.



CIP Projects identified in bold are included in the City's Capital Improvement Program (CIP) near-term (six-year) budget. The CIP is a dynamic process, with anticipated projects being changed, added, and deleted from the CIP when reviewed every two years.

BICYCLE

	A	Buffered Lane in 42nd Ave S Section 3
	B	Buffered Lane in 42nd Ave S Section 4
	C	S Norfolk St Bike Facilities
	D	E Marginal Way Bike Lanes (E Marginal Way S North Section)
	E	Southcenter Boulevard Bike Lanes Section 2

VEHICLE

CIP	F	**42nd Ave S Bridge Replacement**
CIP	G	**Southcenter Blvd/65th Ave S Signal**
	H	SR 518 EB Off-ramp / Klickitat Drive Intersection Improvements
	I	E Marginal Way/S 112th Street Intersection Modifications
	J	S 115th Street / E Marginal Way Intersection Improvements
	K	Boeing Access Road/E Marginal Way/ Tukwila International Boulevard Intersection Feasibility Study
CIP	L	**Andover Park E/Minkler Blvd Intersection**
CIP	M	**Andover Park E/Industry Dr Intersection**
CIP	N	**E Marginal Way (BAR - S 112 St)**
CIP	O	**124th and 50th Intersection Improvements**

PEDESTRIAN

CIP	P	**S 152nd St Safe Routes to School**
CIP	Q	**46th Ave S Safe Routes to School**
CIP	R	**S 144th St Bridge - Sidewalks**
	S	Macadam Rd S Section 1 Sidewalk
	T	S 146th St Sidewalk
	U	40th Ave S Sidewalk
	V	Strander Blvd Sidewalk
	W	S 124th St Sidewalk
	X	Minkler Blvd Section 2 Sidewalk
	Y	Tukwila International Blvd Section 2 Sidewalk
	Z	E Marginal Way S Section 2 Sidewalk
	AA	37th Ave S Sidewalk
	AB	S 142nd St Sidewalk
	AC	S 141st St Section 1 Sidewalk

COMPLETE STREET

CIP	AD	**Ryan Way Road Diet**
	AE	S 144th Street Complete Street
	AF	Klickitat Dr Complete Street
	AG	Tukwila Elementary School Transportation Improvements
	AH	Cascade View Elementary School Transportation Improvements
	AI	School Safety Traffic Calming Program
	AJ	Southcenter Boulevard Road Diet

Chapter 6: Funding

Funding

Transportation infrastructure and maintenance reflects one of Tukwila's largest budget items. Transportation is funded through a mix of dedicated transportation funds (i.e., funding must be allocated to the expansion and maintenance of the City's transportation system) and general funds. This distinction is important since general funds have the greatest flexibility and can be allocated by City Council to most any need within Tukwila. Thus, general fund dollars are often highly competitive and subject to the most pressing needs in the City. Dedicated transportation funds range from impact fees paid by developers, to the tax collected by the City on commercial parking (largely parking for Sea-Tac Airport) to local, state, and federal grants. **Figure 49** shows the dedicated transportation funding by source for 2023. As shown, grants, the solid waste utility tax, parking tax, and traffic impact fees constitute more than 80% of Tukwila's dedicated transportation funding. Of those sources, grants, the parking tax, and traffic impact fees can be somewhat volatile depending on economic cycles.

Figure 49. 2023 Dedicated Transportation Revenues

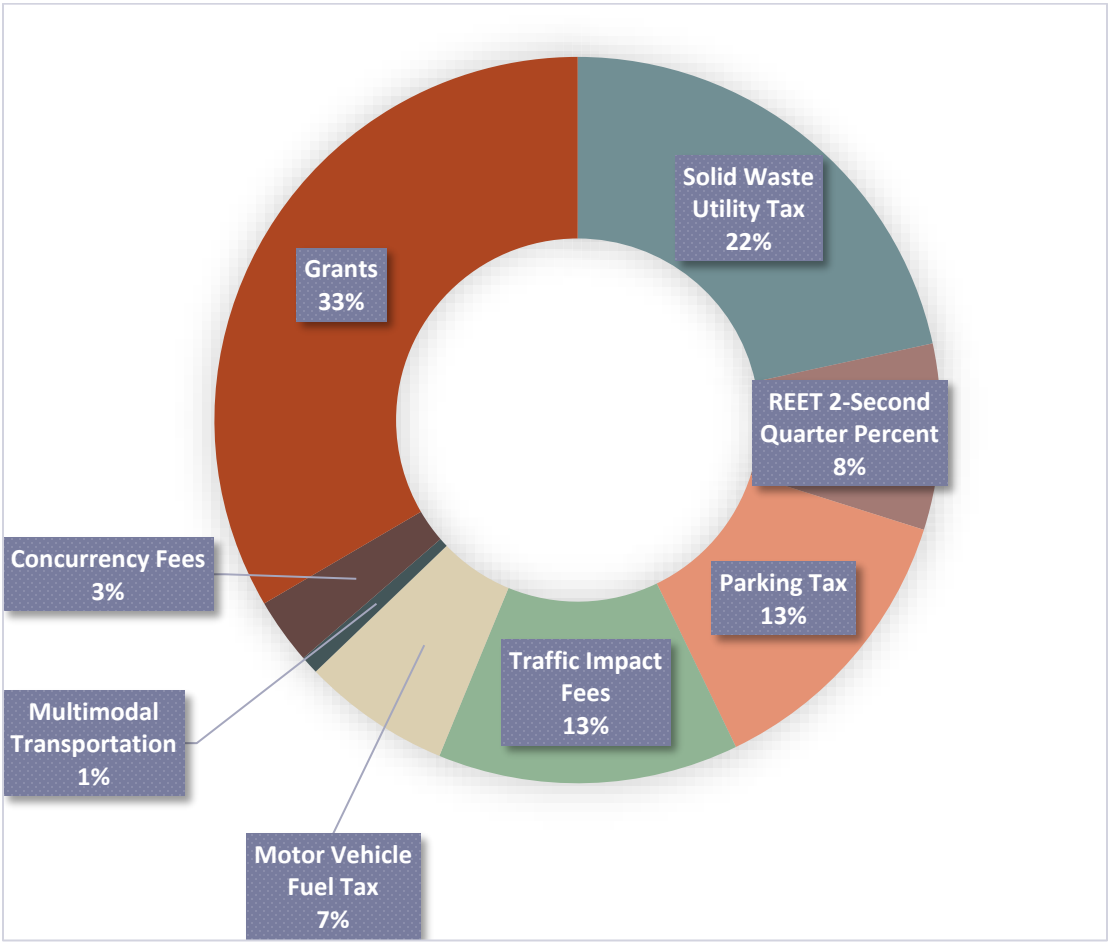
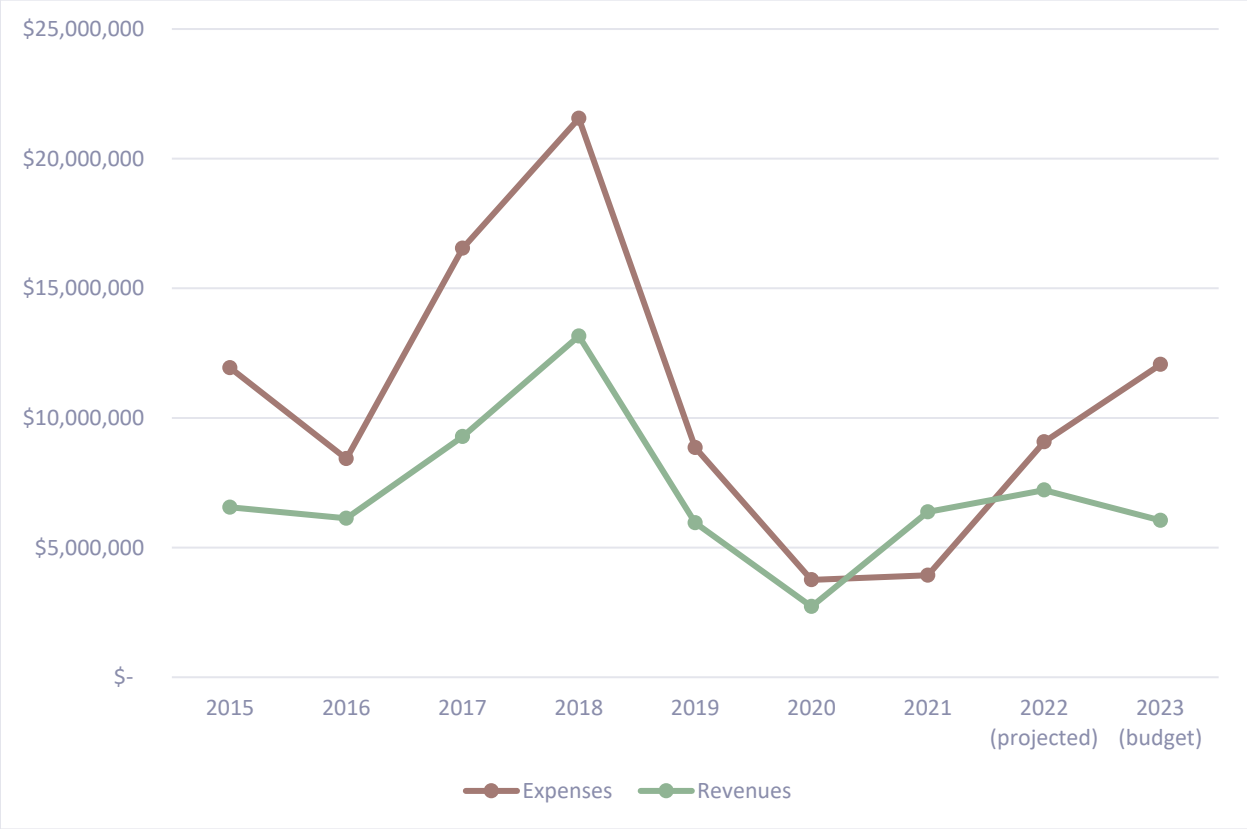


Figure 50 shows an analysis of transportation expenses versus dedicated transportation revenues over the past nine years. The expenses cover all aspects of maintenance and enhancements to the transportation system and include items such as repaving streets, improving sidewalks and bicycle facilities, safety improvements, bridge inspections and repairs, and safety projects. As shown in the figure, in all but one year, Tukwila's transportation expenses exceeded revenues with the difference generally being made up by the general fund. In aggregate, the average annual revenues for Tukwila over the past 9 years are $7.05 million and the average expenditures are $10.68 million. As shown in **Figure 49**, Tukwila blends dedicated transportation revenues with general funds to build and maintain its transportation network. This mixed funding approach is common for many communities in Washington State and allows the city to be nimble in how it takes advantage of grant funds that may require a local match.

Figure 50. Historic Transportation Revenues and Expenses



Annualizing the 20-year capital and maintenance program yields an average annual expenditure of $7-10.7 million (in constant dollar terms). This suggests that Tukwila's transportation investment will be similar year-over-year compared to the past 9 years. Thus, the share of general fund investment is also expected to be about the same, year-over-year. Looking forward, it is reasonable that Tukwila could sustain the current level of transportation revenues and expenses, which over 20 years could fund capital and maintenance program in the range of **$140 million-$214 million**. However, there are some transportation funding challenges the City must consider when planning and implementing the projects identified in the Transportation Element during future biennial budgeting. Specific challenges include:

- The grant funding over the past several years has been very robust with a historic infusion of federal funding; future federal budgets may have fewer grant funding dollars available.

- While Washington State has regularly raised the gas tax over the past 20 years, the share allocated to cities has not changed since 1990; every year, inflation erodes the purchasing power of the gas tax and as vehicles become more fuel efficient (further eroding the purchasing power by the increasing popularity of hybrid and electric vehicles) the gas tax will continue to be less meaningful as a funding source.
- There may be more competition for general funds in the future, making them less available for transportation projects.

Despite these challenges, there are both untapped dedicated transportation revenue sources that Tukwila could consider pursuing, along with potential replacements for the gas tax that could restore funding and ensure that electric vehicles also help fund the system.

- Both the state and federal government are exploring a "road user charge" which would either supplement or entirely replace the gas tax. Any new funding source is likely to raise additional revenues compared to the existing gas tax to account for the lack of indexing to inflation in the prior decades.
- There are several dedicated transportation funding programs that could be leveraged by Tukwila to increase transportation revenues or reduce reliance on general fund transfers:
    - Transportation benefit district sales tax
    - Transportation benefit district car tab fee
    - Other utility taxes (in addition to the sewer tax)
    - Dedicated transportation property tax levy
    - Local improvement district

Transportation Demand Management (TDM)

This Background Report has thus far focused on completing Tukwila's multimodal transportation network via the layered network approach. The network proposed for each mode represents the supply side of the transportation network. On the opposite side of the coin is the demand for the multimodal transportation network. The demand side is addressed with TDM.

The concept of TDM has evolved from a focus on commuters and strategies for reducing single occupancy vehicle demand at peak times to a focus on maximizing the modal choices of all

travelers and trip types. This new focus includes a broader set of diverse strategies. The Federal Highway Administration (FHWA) defines TDM as:

> *"… providing travelers, regardless of whether they drive alone, with travel choices, such as work location, route, time of travel and mode. In the broadest sense, demand management is defined as providing travelers with effective choices to improve travel reliability."*

The emphasis for TDM is on personal mobility rather than vehicular mobility. TDM strives to treat roadway, transit, bicycle facilities and sidewalk capacity as valuable, limited assets to be carefully managed. TDM strategies that strive to manage the demand on the limited multimodal transportation network include, encouraging ride sharing (car- and vanpooling); providing active transportation subsidies (e.g., transit passes); providing telecommuting, flex schedules, and compressed work weeks; and enforcing parking fees/restrictions.

Other TDM strategies can range from simple marketing programs to complex land use decisions. City land use policies can reduce dependence on private automobile travel by focusing growth in specific locations and changing land use development patterns. Land use densities, mixed-use activity, urban design, transit station areas, and other concentrated points of activity support frequent transit service and pedestrian facilities. The City's TDM program is focused on maximizing multimodal options for all trip types and travelers.

TDM Strategies

There are various ways that commuters can travel to work and individuals can travel for other purposes that reduce the number of single occupancy vehicle trips:

- **Transit Service** – Public transit options are provided by Sound Transit and King County Metro. As part of the ST3 regional transit package and King County Metro's long-range plan (Metro Connects), transit options will expand to include new commuter express bus services and more geographic coverage within the city.
- **Vanpool and Rideshare Programs** – Tukwila partners with King County Metro for vanpools and rideshare solutions primarily for commute trips, though other trip purposes, such as to school, are being explored. The vanpool program requires a minimum of 5 and a maximum of 15 individuals per vehicle with similar commutes.

King County Metro also offers rideshare solutions to local businesses to fulfill first and last mile connectivity to and from transit services.

- **Walking/Rolling/Biking** – Every trip begins and ends with walking. The existing pedestrian network supports walking for some trip types, particularly in areas with higher density and a mix of land uses, however, the City recognizes that the pedestrian network is not complete. Sound Transit and King County Metro buses are equipped to accommodate passengers with bicycles. Bicycling can be a viable mode for commuters who live further than walking distance from transit services and whose schedules are too inflexible to use vanpool programs. As the pedestrian and bicycling networks are constructed and development occurs in dense, mixed-use areas, these modal options are anticipated to be increasingly viable and popular. Many of the prioritized projects, policies, and actions in this plan provide guidance and next steps to both construct the pedestrian/bicycling networks and increase the attractiveness and viability of walking/biking as travel options.
- **Alternative Work Schedules** – Alternative work schedule options are beneficial to both employees and employers. Businesses can provide coverage for additional hours, and employees are able to work their schedules around transit and vanpool/ridesharing availability. Alternative schedules include flextime, compressed work weeks, and staggered shifts. These options are a significant component of the CTR program in Tukwila.

Alternative Work Schedule Definitions:

- **Flextime:** Employees work a set number of hours with start/end times and days of the week agreed upon with the employer.
- **Compressed Work Week:** Employees work fewer days by working longer shifts, reducing their total VMT by eliminating some trips.
- **Staggered Shifts:** Employees start and end their workday outside the peak periods of commute travel.

- **Telecommuting and Remote Working** – In the Puget Sound region, full-time and part-time telecommuting has increased over the last decade. The COVID pandemic forced many businesses, non-profits, and government agencies to quickly implement telework for employees that can work remotely. To facilitate this shift, unique solutions were implemented to address technology and resource barriers. Many

businesses, non-profits, and government agencies are likely to have significantly higher levels of telework than before the pandemic due to the widespread development of these programs.

Commute Trip Reduction (CTR) Program

CTR Program Overview – In 1991, the Washington State legislature passed the Commute Trip Reduction (CTR) Law to reduce traffic congestion, improve air quality, and decrease fuel consumption. In 2006, the Washington State Legislature passed the Commute Trip Reduction Efficiency Act (RCW 70A.15.4000). The goal of the CTR Efficiency Act is to improve the efficiency of the overall transportation system by focusing on the most congested areas of the state and increasing the planning coordination between local, regional, and state organizations.

The Washington State CTR Law is unlike many of the required trip reduction programs established in other states through federal air pollution regulations. Washington's CTR program relies on a partnership between the public and private sectors to make progress towards meeting goals. The CTR Law is incorporated into the Washington State Clean Air Act.

CTR Guidelines

Who's affected?

Employers with 100 or more full-time employees (scheduled 35+ hours/week) that begin their workday between 6:00 AM and 9:00 AM at least two days per week at a single worksite for 12 continuous months of the year.

What is required for CTR impacted employers?

- Appoint/maintain an Employee Transportation Coordinator (ETC) to be the contact between the employer and the city.
- Biannually submit a program report to the city for review/approval.
- Exercise a good faith effort by collaborating with the city.
- Biannually conduct a CTR employee survey to measure commute mode share.

Tukwila's CTR Program – The City of Tukwila adopted its CTR ordinance (Ordinance No. 2201) in 2008. As a result, employees are commuting greater distances, extending the hours of peak congestion.

Tukwila's CTR program provides information and connects employees to a variety of alternative commute options including flex schedules, compressed work weeks, teleworking, transit, and ridesharing. The City also actively coordinates with transit organizations such as King County Metro that administer marketing campaigns.

TDM and Transportation System Performance – Tracking progress on implementing TDM strategies will be incorporated into the systemwide performance measures developed for the Six-Year Transportation Improvement Program (TIP) to maximize the efficiency of the current and future transportation system.

Appendix A: Tukwila Population Characteristics

Note: American Community Survey 5-year estimates (2020) were used for consistency across demographic statistics presented under the Demographics section of the document as well as Appendix A. The Decennial Census asks fewer questions than the ACS and there are limited statistics that can be pulled from the Decennial Census aside from total population. To present more information on population characteristics and to maintain consistency, all data was sourced from the 2020 ACS 5-year estimates

Table A1. Total Population (B01003)

	Estimate
Total	20,265

Source: 2016-2020 American Community Survey, U.S. Census Bureau's American Community Survey Office.

Table A2. Median Age by Sex (B01002)

	Estimate
Total:	36
Male	36
Female	37

Source: 2016-2020 American Community Survey, U.S. Census Bureau's American Community Survey Office.

Table A3. Age (B01001)

	Estimate	Percent
Total:	20,265	
Under 5 Years	1,279	6.3%
5 To 9 Years	1,077	5.3%
10 To 14 Years	1,318	6.5%
15 To 17 Years	618	3.0%
18 And 19 Years	479	2.4%
20 Years	153	0.8%
21 Years	250	1.2%
22 To 24 Years	881	4.3%
25 To 29 Years	2,094	10.3%
30 To 34 Years	1,644	8.1%
35 To 39 Years	1,810	8.9%
40 To 44 Years	1,553	7.7%
45 To 49 Years	1,361	6.7%
50 To 54 Years	1,097	5.4%
55 To 59 Years	1,215	6.0%
60 And 61 Years	534	2.6%
62 To 64 Years	529	2.6%
65 And 66 Years	430	2.1%
67 To 69 Years	349	1.7%
70 To 74 Years	637	3.1%
75 To 79 Years	513	2.5%
80 To 84 Years	225	1.1%
85 Years and Over	219	1.1%

Source: 2016-2020 American Community Survey, U.S. Census Bureau's American Community Survey Office.

Table A4. Race (B02001)

	Estimate	Percent
White Alone	6,234	30.8%
Black or African American Alone	4,157	20.5%
American Indian and Alaska Native Alone	67	0.3%
Asian Alone	5,320	26.3%
Native Hawaiian and Other Pacific Islander Alone	444	2.2%
Some Other Race Alone	2,697	13.3%
Two or More Races:	1,346	6.6%
Two Races Including Some Other Race	180	0.9%
Two Races Excluding Some Other Race, and Three or More Races	1,166	5.8%

Source: 2016-2020 American Community Survey, U.S. Census Bureau's American Community Survey Office.

Table A5. Place of Birth By Nativity and Citizenship Status (B05002)

	Estimate	Percent
Native:	11,828	58.4%
Born Outside the United States:	406	2.0%
Puerto Rico	0	0.0%
U.S. Island Areas	117	0.6%
Born Abroad of American Parent(S)	289	1.4%
Foreign Born:	8,437	41.6%
Naturalized U.S. Citizen	4,547	22.4%
Europe	373	1.8%
Asia	2,295	11.3%
Africa	1,370	6.8%
Oceania	154	0.8%
Latin America	328	1.6%
Northern America	27	0.1%
Not A U.S. Citizen	3,890	19.2%
Europe	103	0.5%
Asia	1,869	9.2%
Africa	446	2.2%
Oceania	45	0.2%
Latin America	1,424	7.0%
Northern America	3	0.0%

Source: 2016-2020 American Community Survey, U.S. Census Bureau's American Community Survey Office.

Appendix B: Vehicle LOS Results for the Urban Center Corridor Analysis, and Mid-Day & PM Peak Hour

Table B1. Existing 2018 Corridor LOS - Weekday Mid-day Peak Hour

Corridor ID	Southcenter Corridor	Intersection ID	Intersection Delay (s)	Average Delay* (s)	Corridor LOS
1	61st Avenue S Bridge/Tukwila Parkway from Southcenter Boulevard to Andover Park W	31	38	35	C
		22	44		
		52	17		
2	Southcenter Parkway/Strander Boulevard from Nordstrom Entrance to 61st Place S	29	2	12	B
		33	19		
		34	13		
3	Andover Park W from Tukwila Parkway to Strander Boulevard	36	4	17	B
		37	5		
		38	32		
		52	17		
4	Andover Park E from Tukwila Parkway to Strander Boulevard	39	31	25	C
		53	17		
5	Strander Boulevard from Southcenter Parkway to W Valley Highway	34	13	24	C
		35	13		
		38	32		
		39	31		
		40	26		
6	Andover Park W from Strander Boulevard to S 180th Street	38	32	30	C
		42	30		
		45	27		
7	Andover Park E from Strander Boulevard to S 180th Street	39	31	26	C
		43	23		
		46	23		
8	Southcenter Parkway from S 168th Street to S 180th Street	41	11	10	A
		44	17		
		54	4		
9	Minkler Boulevard from Southcenter Parkway to Andover Park E	41	11	21	C
		42	30		
		43	23		
10	S 180th Street from Southcenter Parkway to W Valley Highway	44	17	29	C
		45	27		
		46	23		
		47	40		
11	W Valley Highway from Southcenter Boulevard to Strander Boulevard	25	29	28	C
		32	27		
		40	26		

Notes:

*The tabulated corridor average delay is volume weighted.

Source: Fehr & Peers, IDAX Data Solutions, StreetLight Data, 2018.

Table B2. Existing 2018 Corridor LOS - Weekday PM Peak Hour

Corridor ID	Southcenter Corridor	Intersection ID	Intersection Delay (s)	Average Delay* (s)	Corridor LOS
1	61st Avenue S Bridge/Tukwila Parkway from Southcenter Boulevard to Andover Park W	31	38	55	D
		22	96		
		52	22		
2	Southcenter Parkway/Strander Boulevard from Nordstrom Entrance to 61st Place S	29	3	14	B
		33	19		
		34	16		
3	Andover Park W from Tukwila Parkway to Strander Boulevard	36	4	18	B
		37	4		
		38	30		
		52	22		
4	Andover Park E from Tukwila Parkway to Strander Boulevard	39	30	24	C
		53	15		
5	Strander Boulevard from Southcenter Parkway to W Valley Highway	34	16	24	C
		35	17		
		38	30		
		39	30		
		40	28		
6	Andover Park W from Strander Boulevard to S 180th Street	38	30	30	C
		42	26		
		45	32		
7	Andover Park E from Strander Boulevard to S 180th Street	39	30	27	C
		43	20		
		46	27		
8	Southcenter Parkway from S 168th Street to S 180th Street	41	12	13	B
		44	22		
		54	5		
9	Minkler Boulevard from Southcenter Parkway to Andover Park E	41	12	18	B
		42	26		
		43	20		
10	S 180th Street from Southcenter Parkway to W Valley Highway	44	22	40	D
		45	32		
		46	27		
		47	61		
11	W Valley Highway from Southcenter Boulevard to Strander Boulevard	25	80	53	D
		32	35		
		40	28		

Notes:

*The tabulated corridor average delay is volume weighted.

Source: Fehr & Peers, IDAX Data Solutions, StreetLight Data, 2018.

Table B3. Existing 2018 Corridor LOS - Weekend Mid-day Peak Hour

Corridor ID	Southcenter Corridor	Intersection ID	Intersection Delay (s)	Average Delay* (s)	Corridor LOS
1	61st Avenue S Bridge/Tukwila Parkway from Southcenter Boulevard to Andover Park W	31	35	56	E
		22	98		
		52	22		
2	Southcenter Parkway/Strander Boulevard from Nordstrom Entrance to 61st Place S	29	6	20	B
		33	32		
		34	21		
3	Andover Park W from Tukwila Parkway to Strander Boulevard	36	6	22	C
		37	12		
		38	38		
		52	22		
4	Andover Park E from Tukwila Parkway to Strander Boulevard	39	39	30	C
		53	18		
5	Strander Boulevard from Southcenter Parkway to W Valley Highway	34	21	28	C
		35	20		
		38	38		
		39	39		
		40	26		
6	Andover Park W from Strander Boulevard to S 180th Street	38	38	41	D
		42	26		
		45	51		
7	Andover Park E from Strander Boulevard to S 180th Street	39	39	49	D
		43	23		
		46	70		
8	Southcenter Parkway from S 168th Street to S 180th Street	41	23	15	B
		44	19		
		54	4		
9	Minkler Boulevard from Southcenter Parkway to Andover Park E	41	23	24	C
		42	26		
		43	23		
10	S 180th Street from Southcenter Parkway to W Valley Highway	44	19	56	E
		45	51		
		46	70		
		47	70		
11	W Valley Highway from Southcenter Boulevard to Strander Boulevard	25	34	30	C
		32	26		
		40	26		

Notes:

*The tabulated corridor average delay is volume weighted.

Source: Fehr & Peers, IDAX Data Solutions, StreetLight Data, 2018.

Table B4. Existing 2018 Corridor LOS - Weekend PM Peak Hour

Corridor ID	Southcenter Corridor	Intersection ID	Intersection Delay (s)	Average Delay* (s)	Corridor LOS
1	61st Avenue S Bridge/Tukwila Parkway from Southcenter Boulevard to Andover Park W	31	46	65	E
		22	98		
		52	44		
2	Southcenter Parkway/Strander Boulevard from Nordstrom Entrance to 61st Place S	29	13	30	C
		33	54		
		34	22		
3	Andover Park W from Tukwila Parkway to Strander Boulevard	36	6	27	C
		37	8		
		38	37		
		52	44		
4	Andover Park E from Tukwila Parkway to Strander Boulevard	39	40	31	C
		53	16		
5	Strander Boulevard from Southcenter Parkway to W Valley Highway	34	22	29	C
		35	19		
		38	37		
		39	40		
		40	28		
6	Andover Park W from Strander Boulevard to S 180th Street	38	37	30	C
		42	30		
		45	23		
7	Andover Park E from Strander Boulevard to S 180th Street	39	40	36	D
		43	23		
		46	41		
8	Southcenter Parkway from S 168th Street to S 180th Street	41	21	16	B
		44	21		
		54	4		
9	Minkler Boulevard from Southcenter Parkway to Andover Park E	41	21	24	C
		42	30		
		43	23		
10	S 180th Street from Southcenter Parkway to W Valley Highway	44	21	48	D
		45	23		
		46	41		
		47	83		
11	W Valley Highway from Southcenter Boulevard to Strander Boulevard	25	53	41	D
		32	34		
		40	28		

Notes:

*The tabulated corridor average delay is volume weighted.

Source: Fehr & Peers, IDAX Data Solutions, StreetLight Data, 2018.

Table B5. 2044 Growth Targets Corridor LOS - Weekend PM Peak Hour

Corridor ID	Southcenter Corridor	Intersection ID	Intersection Delay (s)	Average Delay* (s)	Corridor LOS
1	**61st Avenue S Bridge/Tukwila Parkway from Southcenter Boulevard to Andover Park W**	31	54	**89**	**F**
		22	127		
		52	87		
2	Southcenter Parkway/Strander Boulevard from Nordstrom Entrance to 61st Place S	29	20	50	D
		33	98		
		34	31		
3	Andover Park W from Tukwila Parkway to Strander Boulevard	36	20	59	E
		37	29		
		38	75		
		52	87		
4	Andover Park E from Tukwila Parkway to Strander Boulevard	39	56	43	D
		53	25		
5	Strander Boulevard from Southcenter Parkway to W Valley Highway	34	31	47	D
		35	40		
		38	75		
		39	56		
		40	33		
6	Andover Park W from Strander Boulevard to S 180th Street	38	75	54	D
		42	42		
		45	35		
7	Andover Park E from Strander Boulevard to S 180th Street	39	56	52	D
		43	15		
		46	73		
8	Southcenter Parkway from S 168th Street to S 180th Street	41	73	41	D
		44	25		
		54	21		
9	Minkler Boulevard from Southcenter Parkway to Andover Park E	41	73	48	D
		42	42		
		43	15		
10	S 180th Street from Southcenter Parkway to W Valley Highway	44	25	62	E
		45	35		
		46	73		
		47	94		
11	**W Valley Highway from Southcenter Boulevard to Strander Boulevard**	25	158	**112**	**F**
		32	98		
		40	33		

Notes:

*The tabulated corridor average delay is volume weighted.

Bold text highlight corridors with LOS exceeding the City's current policy.

Source: Fehr & Peers, 2024.

Intersection 22 **61st Avenue S/Southcenter Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	630	633	100.5%	36.8	2.5	D
	Through						
	Right Turn	77	75	97.9%	37.8	5.4	D
	Subtotal	707	709	100.2%	37.0	2.5	D
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	344	341	99.2%	27.1	5.9	C
	Right Turn	833	818	98.2%	33.3	35.3	C
	Subtotal	1,177	1,159	98.5%	31.5	26.5	C
WB	Left Turn	185	185	99.8%	53.0	13.9	D
	Through	577	590	102.3%	10.8	1.2	B
	Right Turn						
	Subtotal	762	775	101.7%	21.1	3.4	C
Total		2,646	2,642	99.9%	29.7	11.3	C

Intersection 25 **W Valley Highway/Southcenter Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	95	99	104.6%	40.3	10.2	D
	Through	464	454	97.8%	27.9	3.2	C
	Right Turn	491	486	98.9%	13.1	4.1	B
	Subtotal	1,050	1,039	98.9%	22.1	2.8	C
SB	Left Turn	160	156	97.6%	38.9	5.9	D
	Through	437	426	97.5%	27.1	1.9	C
	Right Turn	308	310	100.6%	13.0	2.7	B
	Subtotal	905	892	98.6%	24.4	2.3	C
EB	Left Turn	130	120	92.5%	43.6	5.0	D
	Through	464	458	98.7%	34.2	2.8	C
	Right Turn	126	128	101.7%	7.6	1.7	A
	Subtotal	720	706	98.1%	31.1	2.0	C
WB	Left Turn	237	243	102.7%	75.3	30.9	E
	Through	715	717	100.3%	35.4	5.9	D
	Right Turn	237	227	95.9%	12.8	2.8	B
	Subtotal	1,189	1,188	99.9%	39.5	9.5	D
Total		3,864	3,825	99.0%	30.0	3.2	C

Intersection 29 **Southcenter Parkway/Northwest Mall Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	713	719	100.8%	1.7	0.3	A
	Right Turn	45	48	105.6%	1.6	0.2	A
	Subtotal	758	766	101.1%	1.7	0.3	A
SB	Left Turn	20	16	81.5%	8.0	3.3	A
	Through	535	519	97.0%	0.6	0.1	A
	Right Turn						
	Subtotal	555	536	96.5%	0.8	0.2	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	90	87	96.6%	13.3	3.0	B
	Through						
	Right Turn	53	53	100.8%	10.0	3.7	B
	Subtotal	143	140	98.1%	12.1	3.2	B
Total		1,456	1,442	99.0%	2.4	0.5	A

Intersection 30 **Northwest Mall Driveway/Tukwila Parkway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	15	15	100.7%	21.9	22.1	C
	Through						
	Right Turn	108	107	99.1%	10.2	3.0	B
	Subtotal	123	122	99.3%	10.9	3.6	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	751	756	100.6%	1.4	0.1	A
	Right Turn	15	16	104.7%	1.3	1.1	A
	Subtotal	766	771	100.7%	1.4	0.1	A
WB	Left Turn	93	90	96.9%	12.1	2.4	B
	Through	540	522	96.6%	5.5	0.6	A
	Right Turn						
	Subtotal	633	612	96.7%	6.5	0.7	A
Total		1,522	1,505	98.9%	4.2	0.5	A

Intersection 31 **61st Avenue S/Tukwila Parkway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	651	639	98.2%	67.8	18.9	E
	Through						
	Right Turn	367	357	97.4%	34.7	16.0	C
	Subtotal	1,018	997	97.9%	56.7	18.0	E
EB	Left Turn	314	322	102.4%	42.4	6.7	D
	Through	545	542	99.4%	16.2	4.6	B
	Right Turn						
	Subtotal	859	863	100.5%	25.8	3.7	C
WB	Left Turn						
	Through	266	253	95.2%	28.9	5.8	C
	Right Turn	393	387	98.4%	14.6	3.1	B
	Subtotal	659	640	97.1%	20.4	4.5	C
Total		2,536	2,500	98.6%	37.0	7.7	D

Intersection 32 **W Valley Highway/I-405 NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	164	159	97.2%	59.5	9.4	E
	Through	604	590	97.6%	17.4	5.2	B
	Right Turn	30	34	112.0%	14.2	8.2	B
	Subtotal	798	783	98.1%	25.4	4.1	C
SB	Left Turn	36	36	100.8%	82.6	16.6	F
	Through	697	696	99.9%	25.4	3.4	C
	Right Turn	67	63	93.7%	13.3	4.8	B
	Subtotal	800	796	99.4%	26.7	3.5	C
EB	Left Turn	413	415	100.5%	47.5	5.2	D
	Through	32	33	103.8%	48.4	13.3	D
	Right Turn	552	556	100.8%	13.2	3.4	B
	Subtotal	997	1,005	100.8%	28.9	3.1	C
WB	Left Turn	16	16	97.5%	61.7	22.7	E
	Through	5	5	96.0%	30.6	33.7	C
	Right Turn	33	36	110.3%	9.2	4.7	A
	Subtotal	54	57	105.2%	30.2	12.4	C
Total		2,649	2,639	99.6%	27.3	2.0	C

Intersection 33 **Southcenter Parkway/I-5 Exit 153 Off-ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	389	390	100.3%	12.1	2.1	B
	Right Turn	85	83	97.8%	2.8	1.1	A
	Subtotal	474	473	99.9%	10.5	1.7	B
SB	Left Turn	34	32	92.9%	44.7	13.8	D
	Through	591	574	97.1%	12.1	1.8	B
	Right Turn						
	Subtotal	625	605	96.8%	14.0	1.5	B
EB	Left Turn	308	319	103.4%	39.8	4.5	D
	Through	67	66	97.8%	41.3	7.0	D
	Right Turn	65	67	103.2%	1.2	0.2	A
	Subtotal	440	451	102.5%	34.0	4.5	C
WB	Left Turn	75	69	92.5%	41.4	4.4	D
	Through						
	Right Turn	61	59	97.0%	4.0	0.5	A
	Subtotal	136	129	94.6%	25.0	6.4	C
Total		1,675	1,658	99.0%	19.3	2.4	B

Intersection 34 **Southcenter Parkway/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	679	682	100.4%	7.2	0.9	A
	Right Turn	301	303	100.7%	7.8	1.4	A
	Subtotal	980	985	100.5%	7.4	1.0	A
SB	Left Turn	231	231	100.2%	40.6	5.1	D
	Through	759	732	96.5%	6.4	1.0	A
	Right Turn						
	Subtotal	990	964	97.3%	15.4	1.3	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	159	156	98.1%	41.3	4.5	D
	Through						
	Right Turn	249	250	100.4%	5.5	1.3	A
	Subtotal	408	406	99.5%	19.1	1.6	B
Total		2,378	2,354	99.0%	12.7	0.9	B

Intersection 35 **61st Place S/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	66	62	94.5%	27.4	4.9	C
	Through	19	19	99.5%	38.2	10.9	D
	Right Turn	41	41	100.2%	10.0	4.9	A
	Subtotal	126	122	97.1%	22.6	5.7	C
SB	Left Turn	53	52	98.9%	31.0	7.1	C
	Through	29	29	100.7%	35.9	10.7	D
	Right Turn	90	93	102.8%	13.7	6.2	B
	Subtotal	172	174	101.2%	23.6	5.5	C
EB	Left Turn	107	103	96.2%	10.9	2.5	B
	Through	355	360	101.4%	10.1	2.4	B
	Right Turn	100	101	100.7%	4.7	2.2	A
	Subtotal	562	564	100.3%	9.2	1.8	A
WB	Left Turn	68	65	95.1%	10.0	2.4	B
	Through	261	261	100.1%	10.5	1.8	B
	Right Turn	105	100	95.0%	7.1	3.0	A
	Subtotal	434	426	98.1%	9.6	1.9	A
Total		1,294	1,286	99.4%	12.7	1.8	B

Intersection 36 **Andover Park W/Tire Center Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	87	80	91.8%	10.1	2.5	B
	Through	391	380	97.1%	3.5	0.7	A
	Right Turn						
	Subtotal	478	459	96.1%	4.7	1.0	A
SB	Left Turn						
	Through	535	518	96.8%	2.3	0.5	A
	Right Turn	68	71	104.0%	1.8	1.4	A
	Subtotal	603	589	97.6%	2.3	0.6	A
EB	Left Turn						
	Through						
	Right Turn	145	148	102.3%	7.8	3.1	A
	Subtotal	145	148	102.3%	7.8	3.1	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,226	1,197	97.6%	4.0	0.8	A

Intersection 37 **Andover Park W/Southeast Mall Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	478	459	96.1%	2.3	0.4	A
	Right Turn						
	Subtotal	478	459	96.1%	2.3	0.4	A
SB	Left Turn						
	Through	628	616	98.1%	5.9	1.9	A
	Right Turn	52	51	97.7%	5.6	3.7	A
	Subtotal	680	667	98.0%	5.9	1.9	A
EB	Left Turn						
	Through						
	Right Turn	48	47	97.9%	11.6	5.0	B
	Subtotal	48	47	97.9%	11.6	5.0	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,206	1,173	97.2%	4.8	1.3	A

Intersection 38 **Andover Park W/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	70	64	91.7%	49.2	6.1	D
	Through	293	289	98.5%	37.3	9.5	D
	Right Turn	68	64	94.1%	22.9	9.4	C
	Subtotal	431	417	96.7%	36.9	8.4	D
SB	Left Turn	160	155	96.8%	53.7	8.0	D
	Through	441	435	98.6%	39.0	4.5	D
	Right Turn	75	72	96.4%	33.5	7.5	C
	Subtotal	676	662	97.9%	42.1	4.4	D
EB	Left Turn	75	74	98.4%	54.2	12.6	D
	Through	321	325	101.1%	16.0	2.7	B
	Right Turn	53	54	101.1%	6.6	1.6	A
	Subtotal	449	452	100.7%	21.4	3.5	C
WB	Left Turn	121	124	102.1%	54.3	10.3	D
	Through	289	289	100.0%	16.8	2.5	B
	Right Turn	110	99	89.5%	9.3	1.7	A
	Subtotal	520	511	98.3%	24.7	3.9	C
Total		2,076	2,042	98.4%	32.5	2.6	C

Intersection 39 **Andover Park E/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	116	107	92.2%	45.4	7.4	D
	Through	372	363	97.5%	31.6	5.4	C
	Right Turn	103	102	99.1%	24.4	4.9	C
	Subtotal	591	572	96.8%	33.2	3.8	C
SB	Left Turn	81	80	98.6%	48.5	6.3	D
	Through	370	378	102.1%	29.5	5.1	C
	Right Turn	67	66	97.9%	27.3	7.3	C
	Subtotal	518	523	101.0%	32.3	4.9	C
EB	Left Turn	55	53	96.0%	55.3	14.8	E
	Through	382	377	98.6%	29.9	3.7	C
	Right Turn	119	117	98.1%	22.0	3.7	C
	Subtotal	556	546	98.2%	30.7	4.1	C
WB	Left Turn	190	193	101.6%	51.2	9.4	D
	Through	397	400	100.8%	18.2	1.8	B
	Right Turn	54	50	92.2%	16.5	6.8	B
	Subtotal	641	643	100.3%	27.9	3.4	C
Total		2,306	2,284	99.0%	31.0	2.0	C

Intersection 40 **W Valley Highway/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	231	239	103.6%	44.1	9.6	D
	Through	544	534	98.1%	14.0	5.6	B
	Right Turn	10	11	112.0%	7.9	8.9	A
	Subtotal	785	784	99.9%	23.5	6.5	C
SB	Left Turn	3	3	100.0%	28.9	32.9	C
	Through	766	776	101.3%	31.0	8.2	C
	Right Turn	330	326	98.7%	12.3	3.4	B
	Subtotal	1,099	1,105	100.5%	25.8	6.4	C
EB	Left Turn	304	296	97.3%	40.6	5.9	D
	Through	11	12	110.0%	44.8	25.1	D
	Right Turn	216	213	98.8%	13.2	3.4	B
	Subtotal	531	521	98.2%	29.8	4.4	C
WB	Left Turn	11	9	82.7%	39.5	19.6	D
	Through	3	3	100.0%	27.4	32.1	C
	Right Turn						
	Subtotal	14	12	86.4%	46.8	21.7	D
Total		2,429	2,423	99.7%	26.0	5.3	C

Intersection 41 **Southcenter Parkway/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	9	92.0%	5.9	4.5	A
	Through	547	534	97.7%	8.5	1.1	A
	Right Turn	74	73	98.0%	8.3	2.7	A
	Subtotal	631	616	97.6%	8.4	1.1	A
SB	Left Turn	130	128	98.5%	10.8	1.9	B
	Through	567	537	94.7%	6.0	0.9	A
	Right Turn	63	62	97.9%	5.4	2.7	A
	Subtotal	760	727	95.7%	6.8	0.9	A
EB	Left Turn	23	23	99.6%	38.1	8.5	D
	Through						
	Right Turn	35	37	106.3%	36.7	9.7	D
	Subtotal	58	60	103.6%	37.5	5.3	D
WB	Left Turn	59	57	96.1%	36.3	10.2	D
	Through	17	18	108.2%	41.3	15.9	D
	Right Turn	126	127	100.8%	15.3	4.9	B
	Subtotal	202	202	100.0%	23.6	5.3	C
Total		1,651	1,605	97.2%	10.8	0.9	B

Intersection 42 **Andover Park W/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	50	48	95.8%	34.1	8.2	C
	Through	323	314	97.2%	34.1	6.4	C
	Right Turn	36	36	99.2%	25.8	10.8	C
	Subtotal	409	398	97.2%	33.5	5.5	C
SB	Left Turn	72	70	97.1%	26.0	9.4	C
	Through	382	382	99.9%	32.7	6.2	C
	Right Turn	55	56	101.1%	30.4	7.6	C
	Subtotal	509	507	99.6%	31.5	5.8	C
EB	Left Turn	72	68	94.4%	32.0	4.5	C
	Through	178	180	101.2%	35.9	6.3	D
	Right Turn	107	107	100.1%	12.1	3.3	B
	Subtotal	357	355	99.5%	28.3	4.3	C
WB	Left Turn	23	23	99.6%	35.9	15.8	D
	Through	197	202	102.6%	36.7	4.0	D
	Right Turn	88	90	102.4%	8.2	2.2	A
	Subtotal	308	315	102.3%	28.3	3.6	C
Total		1,583	1,575	99.5%	30.6	3.0	C

Intersection 43 **Andover Park E/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	152	151	99.1%	22.6	4.7	C
	Through	422	405	96.0%	23.0	3.4	C
	Right Turn	17	18	102.9%	20.3	7.5	C
	Subtotal	591	573	97.0%	22.8	3.7	C
SB	Left Turn	32	34	105.9%	16.0	3.6	B
	Through	425	428	100.6%	21.4	2.9	C
	Right Turn	65	67	103.1%	16.3	4.0	B
	Subtotal	522	529	101.2%	20.4	2.4	C
EB	Left Turn	66	64	97.1%	36.1	9.9	D
	Through	55	57	104.2%	28.9	7.9	C
	Right Turn	165	165	100.1%	18.8	7.2	B
	Subtotal	286	287	100.2%	24.5	6.9	C
WB	Left Turn	55	55	99.3%	33.7	12.2	C
	Through	91	95	104.8%	23.2	4.7	C
	Right Turn	70	71	101.4%	13.0	3.3	B
	Subtotal	216	221	102.3%	21.9	4.0	C
Total		1,615	1,609	99.7%	22.3	2.2	C

Intersection 44 **Southcenter Parkway/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	197	187	95.0%	22.2	3.7	C
	Right Turn	237	235	99.0%	6.9	1.3	A
	Subtotal	434	422	97.2%	13.7	2.6	B
SB	Left Turn	293	277	94.7%	19.3	2.5	B
	Through	253	242	95.8%	19.7	3.1	B
	Right Turn						
	Subtotal	546	520	95.2%	19.5	2.6	B
EB	Left Turn						
	Through	115	116	100.7%	26.3	3.9	C
	Right Turn						
	Subtotal	115	116	100.7%	26.3	3.9	C
WB	Left Turn	285	280	98.1%	27.3	3.6	C
	Through						
	Right Turn	303	299	98.7%	5.6	1.5	A
	Subtotal	588	579	98.4%	16.3	2.4	B
Total		1,683	1,636	97.2%	17.4	1.7	B

Intersection 45 **Andover Park W/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	4	4	87.5%	51.1	30.8	D
	Through	48	45	94.2%	44.2	13.9	D
	Right Turn	76	78	102.8%	11.2	4.3	B
	Subtotal	128	127	99.1%	26.1	7.0	C
SB	Left Turn	355	354	99.7%	43.6	8.7	D
	Through	61	59	96.7%	51.9	15.2	D
	Right Turn	44	44	100.9%	43.5	15.8	D
	Subtotal	460	457	99.4%	44.7	9.7	D
EB	Left Turn	69	65	93.8%	49.6	6.6	D
	Through	499	480	96.2%	16.3	1.7	B
	Right Turn	16	16	101.3%	9.9	6.3	A
	Subtotal	584	561	96.0%	20.3	1.9	C
WB	Left Turn	78	78	99.4%	52.4	7.8	D
	Through	536	525	97.9%	20.9	3.3	C
	Right Turn	368	361	98.0%	18.1	3.4	B
	Subtotal	982	963	98.1%	22.7	2.7	C
Total		2,154	2,108	97.9%	26.9	2.5	C

Intersection 46 **Andover Park W/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	255	250	98.1%	48.3	12.5	D
	Through						
	Right Turn	210	209	99.4%	48.4	22.0	D
	Subtotal	465	459	98.7%	48.3	16.7	D
EB	Left Turn	92	85	92.4%	49.2	8.3	D
	Through	838	829	98.9%	8.4	1.3	A
	Right Turn						
	Subtotal	930	914	98.3%	11.9	1.7	B
WB	Left Turn						
	Through	772	760	98.5%	19.6	2.2	B
	Right Turn	314	311	98.9%	18.6	2.1	B
	Subtotal	1,086	1,071	98.6%	19.3	2.1	B
Total		2,481	2,444	98.5%	22.1	4.4	C

Intersection 47 **W Valley Highway/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	384	372	96.8%	65.5	14.5	E
	Through	402	401	99.7%	24.5	2.6	C
	Right Turn	148	144	97.2%	6.6	1.5	A
	Subtotal	934	917	98.1%	38.6	7.1	D
SB	Left Turn	263	275	104.5%	48.6	4.0	D
	Through	477	491	102.9%	27.5	3.4	C
	Right Turn	104	103	98.9%	20.5	3.9	C
	Subtotal	844	869	102.9%	33.4	1.8	C
EB	Left Turn	88	79	89.4%	58.3	14.0	E
	Through	648	642	99.0%	51.3	12.6	D
	Right Turn	490	484	98.8%	41.6	16.7	D
	Subtotal	1,226	1,204	98.2%	48.0	13.1	D
WB	Left Turn	102	101	98.6%	54.2	6.8	D
	Through	663	664	100.1%	38.5	3.6	D
	Right Turn	152	143	94.1%	10.1	2.0	B
	Subtotal	917	907	98.9%	36.0	3.1	D
Total		3,921	3,897	99.4%	39.9	5.2	D

Intersection 52 **Andover Pk W/Tukwila Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	411	398	96.7%	37.5	3.5	D
	Through						
	Right Turn	158	152	96.3%	6.2	1.1	A
	Subtotal	569	550	96.6%	29.0	2.7	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	282	282	99.9%	11.6	3.5	B
	Right Turn	300	296	98.7%	7.6	2.4	A
	Subtotal	582	578	99.3%	9.5	2.7	A
WB	Left Turn	217	206	95.1%	14.2	1.9	B
	Through	303	295	97.5%	7.0	2.3	A
	Right Turn						
	Subtotal	520	502	96.5%	9.9	2.0	A
Total		1,671	1,629	97.5%	16.4	1.6	B

Intersection 53 **Andover Pk E/Tukwila Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	216	206	95.3%	43.7	3.2	D
	Through						
	Right Turn	352	341	97.0%	12.3	2.0	B
	Subtotal	568	547	96.3%	24.0	2.1	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	310	301	97.1%	21.2	2.0	C
	Right Turn	130	132	101.4%	14.1	5.0	B
	Subtotal	440	433	98.4%	19.1	2.5	B
WB	Left Turn	328	333	101.6%	15.6	2.9	B
	Through	304	296	97.5%	6.7	1.7	A
	Right Turn						
	Subtotal	632	630	99.6%	11.6	2.4	B
Total		1,640	1,610	98.2%	17.7	1.7	B

Intersection 54 **Southcenter Pkwy/S 168th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1	0	0.0%	0.0	0.0	A
	Through	944	948	100.5%	4.8	1.7	A
	Right Turn	1	1	80.0%	4.0	11.9	A
	Subtotal	946	949	100.3%	4.8	1.7	A
SB	Left Turn	20	20	100.0%	47.8	7.5	D
	Through	1,002	972	97.0%	1.7	0.4	A
	Right Turn	7	6	90.0%	3.1	4.9	A
	Subtotal	1,029	998	97.0%	2.6	0.4	A
EB	Left Turn	5	5	102.0%	47.8	33.8	D
	Through						
	Right Turn	2	2	85.0%	36.8	43.7	D
	Subtotal	7	7	97.1%	50.0	27.2	D
WB	Left Turn	5	6	110.0%	43.4	28.2	D
	Through						
	Right Turn	21	24	112.9%	49.2	13.2	D
	Subtotal	26	29	112.3%	46.1	12.0	D
Total		2,008	1,983	98.8%	4.5	1.1	A

Intersection 22 **61st Avenue S/Southcenter Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	821	802	97.6%	40.3	8.7	D
	Through						
	Right Turn	82	80	97.6%	46.4	10.2	D
	Subtotal	903	882	97.6%	41.0	8.6	D
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	446	385	86.4%	95.6	9.8	F
	Right Turn	1,337	1,118	83.6%	186.7	17.4	F
	Subtotal	1,783	1,503	84.3%	163.6	12.2	F
WB	Left Turn	235	229	97.2%	119.0	47.0	F
	Through	691	697	100.8%	17.3	6.4	B
	Right Turn						
	Subtotal	926	925	99.9%	42.9	15.6	D
Total		3,612	3,309	91.6%	96.1	6.8	F

Intersection 25 **W Valley Highway/Southcenter Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	113	115	101.6%	69.5	11.9	E
	Through	804	781	97.2%	67.6	12.9	E
	Right Turn	424	423	99.7%	48.5	12.8	D
	Subtotal	1,341	1,319	98.3%	61.7	12.5	E
SB	Left Turn	294	260	88.4%	166.3	21.6	F
	Through	849	738	86.9%	190.7	10.9	F
	Right Turn	360	314	87.1%	210.1	14.6	F
	Subtotal	1,503	1,311	87.2%	190.5	10.0	F
EB	Left Turn	123	123	99.8%	43.5	4.9	D
	Through	645	638	98.8%	30.0	3.1	C
	Right Turn	194	201	103.8%	13.1	2.7	B
	Subtotal	962	962	99.9%	28.0	2.0	C
WB	Left Turn	178	168	94.4%	48.8	8.1	D
	Through	695	704	101.2%	31.8	2.9	C
	Right Turn	529	529	100.0%	25.2	12.3	C
	Subtotal	1,402	1,401	99.9%	31.7	5.7	C
Total		5,208	4,992	95.9%	80.5	3.4	F

Intersection 29 **Southcenter Parkway/Northwest Mall Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	531	531	100.0%	1.6	0.2	A
	Right Turn	125	121	96.8%	1.7	0.2	A
	Subtotal	656	652	99.4%	1.6	0.2	A
SB	Left Turn	50	43	85.8%	5.3	1.2	A
	Through	579	518	89.5%	0.6	0.1	A
	Right Turn						
	Subtotal	629	561	89.2%	1.0	0.2	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	112	111	99.5%	11.6	3.2	B
	Through						
	Right Turn	100	97	97.0%	7.6	2.5	A
	Subtotal	212	208	98.3%	9.8	2.9	A
Total		1,497	1,421	94.9%	2.6	0.5	A

Intersection 30 **Northwest Mall Driveway/Tukwila Parkway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	8	80.0%	16.2	19.3	C
	Through						
	Right Turn	140	138	98.7%	6.8	2.6	A
	Subtotal	150	146	97.5%	7.3	2.8	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	626	624	99.6%	1.0	0.2	A
	Right Turn	5	5	102.0%	0.6	0.1	A
	Subtotal	631	629	99.6%	1.0	0.2	A
WB	Left Turn	197	170	86.1%	12.3	1.7	B
	Through	619	553	89.3%	6.2	0.4	A
	Right Turn						
	Subtotal	816	722	88.5%	7.7	0.6	A
Total		1,597	1,497	93.8%	4.8	0.5	A

Intersection 31 **61st Avenue S/Tukwila Parkway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	911	771	84.6%	70.5	5.5	E
	Through						
	Right Turn	661	574	86.8%	32.5	3.2	C
	Subtotal	1,572	1,344	85.5%	54.2	5.5	D
EB	Left Turn	371	368	99.2%	44.1	7.6	D
	Through	395	395	100.0%	19.4	3.0	B
	Right Turn						
	Subtotal	766	763	99.6%	31.8	5.5	C
WB	Left Turn						
	Through	155	148	95.2%	24.8	5.9	C
	Right Turn	532	517	97.1%	7.3	1.9	A
	Subtotal	687	664	96.7%	11.4	2.3	B
Total		3,025	2,771	91.6%	38.0	2.3	D

Intersection 32 **W Valley Highway/I-405 NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	452	449	99.4%	56.9	7.6	E
	Through	947	932	98.4%	30.9	14.9	C
	Right Turn	10	10	96.0%	25.5	18.2	C
	Subtotal	1,409	1,390	98.7%	39.3	11.9	D
SB	Left Turn	27	25	93.7%	68.7	22.8	E
	Through	918	823	89.7%	34.6	4.3	C
	Right Turn	276	253	91.7%	22.6	3.6	C
	Subtotal	1,221	1,102	90.2%	32.6	4.4	C
EB	Left Turn	344	339	98.6%	54.6	8.0	D
	Through	12	14	117.5%	53.2	20.4	D
	Right Turn	512	521	101.8%	12.8	2.5	B
	Subtotal	868	875	100.7%	29.8	4.7	C
WB	Left Turn	16	15	91.9%	56.3	18.6	E
	Through	19	21	108.4%	63.8	14.9	E
	Right Turn	50	52	103.6%	21.8	11.1	C
	Subtotal	85	87	102.5%	39.0	11.2	D
Total		3,583	3,454	96.4%	34.9	5.5	C

Intersection 33 **Southcenter Parkway/I-5 Exit 153 Off-ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	456	456	100.1%	10.8	1.3	B
	Right Turn	165	156	94.8%	4.9	1.4	A
	Subtotal	621	613	98.7%	9.3	1.1	A
SB	Left Turn	26	24	91.5%	42.7	8.9	D
	Through	665	603	90.7%	16.1	2.7	B
	Right Turn						
	Subtotal	691	627	90.7%	17.2	2.4	B
EB	Left Turn	136	131	96.3%	37.4	6.6	D
	Through	93	93	100.0%	37.4	6.8	D
	Right Turn	132	130	98.1%	1.4	0.3	A
	Subtotal	361	353	97.9%	24.8	3.5	C
WB	Left Turn	184	189	102.7%	48.9	8.2	D
	Through						
	Right Turn	64	65	101.3%	4.2	0.9	A
	Subtotal	248	254	102.3%	37.8	8.6	D
Total		1,921	1,847	96.1%	19.0	1.6	B

Intersection 34 **Southcenter Parkway/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	842	842	100.0%	10.7	1.3	B
	Right Turn	409	411	100.4%	13.7	2.6	B
	Subtotal	1,251	1,253	100.1%	11.6	1.6	B
SB	Left Turn	314	297	94.6%	43.5	9.4	D
	Through	1,246	1,203	96.5%	5.2	0.7	A
	Right Turn						
	Subtotal	1,560	1,500	96.1%	12.6	2.6	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	341	338	99.0%	48.6	6.7	D
	Through						
	Right Turn	592	590	99.7%	12.6	1.8	B
	Subtotal	933	928	99.5%	25.9	3.0	C
Total		3,744	3,680	98.3%	15.6	1.7	B

Intersection 35 **61st Place S/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	168	169	100.7%	36.0	8.9	D
	Through	52	52	100.0%	35.3	9.1	D
	Right Turn	122	120	98.7%	17.5	4.1	B
	Subtotal	342	342	99.9%	29.2	6.3	C
SB	Left Turn	72	72	100.6%	26.7	6.3	C
	Through	30	29	97.0%	36.0	8.6	D
	Right Turn	128	129	100.8%	15.5	4.3	B
	Subtotal	230	231	100.2%	21.8	6.0	C
EB	Left Turn	107	105	98.4%	15.2	2.3	B
	Through	319	315	98.8%	10.4	2.7	B
	Right Turn	180	168	93.6%	4.8	1.0	A
	Subtotal	606	589	97.2%	9.6	1.8	A
WB	Left Turn	72	66	91.5%	16.3	4.2	B
	Through	480	477	99.4%	16.7	2.7	B
	Right Turn	220	218	99.2%	14.6	3.7	B
	Subtotal	772	761	98.6%	16.1	2.6	B
Total		1,950	1,922	98.6%	17.1	2.7	B

Intersection 36 **Andover Park W/Tire Center Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	114	119	104.7%	8.9	2.5	A
	Through	534	525	98.3%	4.2	1.0	A
	Right Turn						
	Subtotal	648	644	99.4%	5.0	1.3	A
SB	Left Turn						
	Through	474	438	92.4%	1.8	0.2	A
	Right Turn	42	42	100.7%	1.6	0.5	A
	Subtotal	516	480	93.1%	1.8	0.2	A
EB	Left Turn						
	Through						
	Right Turn	73	72	98.5%	4.6	1.0	A
	Subtotal	73	72	98.5%	4.6	1.0	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,237	1,197	96.7%	3.6	0.7	A

Intersection 37 **Andover Park W/Southeast Mall Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	648	645	99.6%	2.3	0.5	A
	Right Turn						
	Subtotal	648	645	99.6%	2.3	0.5	A
SB	Left Turn						
	Through	514	478	93.0%	4.3	2.4	A
	Right Turn	33	33	100.0%	2.4	1.3	A
	Subtotal	547	511	93.4%	4.2	2.3	A
EB	Left Turn						
	Through						
	Right Turn	90	83	91.9%	8.6	4.3	A
	Subtotal	90	83	91.9%	8.6	4.3	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,285	1,239	96.4%	3.6	1.4	A

Intersection 38 **Andover Park W/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	141	143	101.3%	46.4	5.5	D
	Through	398	396	99.4%	31.3	5.5	C
	Right Turn	70	65	93.3%	17.1	5.8	B
	Subtotal	609	604	99.1%	33.7	3.5	C
SB	Left Turn	137	129	93.9%	49.4	6.2	D
	Through	343	319	92.9%	39.2	6.3	D
	Right Turn	124	113	91.5%	33.1	6.4	C
	Subtotal	604	561	92.8%	40.4	5.6	D
EB	Left Turn	111	114	102.8%	52.2	6.2	D
	Through	299	294	98.2%	16.6	2.8	B
	Right Turn	103	101	98.4%	5.6	0.9	A
	Subtotal	513	509	99.2%	21.8	2.6	C
WB	Left Turn	126	116	91.7%	50.1	10.4	D
	Through	507	504	99.4%	22.8	4.0	C
	Right Turn	139	136	98.1%	18.7	5.9	B
	Subtotal	772	756	97.9%	26.1	4.1	C
Total		2,498	2,429	97.2%	30.5	3.1	C

Intersection 39 **Andover Park E/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	170	169	99.2%	45.8	5.4	D
	Through	437	430	98.4%	31.9	4.0	C
	Right Turn	111	111	99.6%	30.2	6.6	C
	Subtotal	718	709	98.8%	34.8	3.5	C
SB	Left Turn	134	130	97.0%	41.5	5.8	D
	Through	281	274	97.5%	32.2	2.4	C
	Right Turn	100	95	95.1%	22.7	6.3	C
	Subtotal	515	499	96.9%	33.0	2.0	C
EB	Left Turn	76	71	92.9%	45.8	5.7	D
	Through	339	329	97.2%	22.6	3.0	C
	Right Turn	105	102	97.2%	14.0	5.4	B
	Subtotal	520	502	96.6%	24.4	2.9	C
WB	Left Turn	144	134	92.8%	57.4	17.2	E
	Through	472	460	97.5%	22.0	3.3	C
	Right Turn	124	118	95.2%	17.9	3.4	B
	Subtotal	740	712	96.2%	28.3	3.4	C
Total		2,493	2,422	97.2%	30.4	1.4	C

Intersection 40 **W Valley Highway/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	258	260	100.7%	45.1	6.9	D
	Through	721	720	99.9%	21.7	4.1	C
	Right Turn	7	8	112.9%	5.8	8.4	A
	Subtotal	986	988	100.2%	27.5	4.6	C
SB	Left Turn	28	24	84.3%	60.6	20.4	E
	Through	878	831	94.6%	34.8	5.8	C
	Right Turn	457	432	94.5%	16.9	2.6	B
	Subtotal	1,363	1,286	94.4%	29.1	4.4	C
EB	Left Turn	328	312	95.2%	41.2	3.4	D
	Through	13	13	99.2%	36.7	15.0	D
	Right Turn	298	291	97.7%	14.5	4.5	B
	Subtotal	639	616	96.4%	28.6	2.9	C
WB	Left Turn	17	17	98.2%	56.8	25.1	E
	Through	10	9	91.0%	36.4	22.5	D
	Right Turn	20	21	106.0%	11.5	8.2	B
	Subtotal	47	47	100.0%	31.0	12.4	C
Total		3,035	2,937	96.8%	28.4	2.5	C

Intersection 41 **Southcenter Parkway/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	5	5	96.0%	7.0	7.4	A
	Through	777	778	100.1%	10.4	2.0	B
	Right Turn	83	85	101.8%	10.0	2.1	A
	Subtotal	865	867	100.2%	10.4	2.0	B
SB	Left Turn	193	181	93.8%	21.5	5.9	C
	Through	977	952	97.4%	4.4	1.4	A
	Right Turn	8	8	93.8%	3.2	4.6	A
	Subtotal	1,178	1,140	96.8%	7.1	2.1	A
EB	Left Turn	7	5	77.1%	35.6	18.0	D
	Through						
	Right Turn	5	4	86.0%	27.9	29.2	C
	Subtotal	12	10	80.8%	35.6	17.5	D
WB	Left Turn	189	183	96.6%	46.1	9.3	D
	Through	2	4	195.0%	13.3	25.1	B
	Right Turn	147	146	99.5%	16.4	7.5	B
	Subtotal	338	333	98.4%	34.0	9.2	C
Total		2,393	2,350	98.2%	12.1	2.8	B

Intersection 42 **Andover Park W/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	64	65	101.3%	27.8	4.9	C
	Through	374	368	98.5%	28.5	4.0	C
	Right Turn	31	33	107.7%	20.4	9.6	C
	Subtotal	469	467	99.5%	28.0	3.9	C
SB	Left Turn	45	41	91.8%	27.4	8.7	C
	Through	379	354	93.3%	27.6	5.3	C
	Right Turn	93	89	95.8%	19.9	4.3	B
	Subtotal	517	484	93.6%	26.1	5.1	C
EB	Left Turn	54	52	96.1%	28.9	6.8	C
	Through	142	140	98.3%	31.5	3.4	C
	Right Turn	62	60	96.6%	6.6	1.0	A
	Subtotal	258	251	97.4%	24.9	2.1	C
WB	Left Turn	47	49	104.9%	28.5	5.2	C
	Through	136	136	100.1%	31.0	4.1	C
	Right Turn	91	88	97.1%	6.4	1.0	A
	Subtotal	274	274	99.9%	23.1	3.1	C
Total		1,518	1,476	97.2%	25.9	2.5	C

Intersection 43 **Andover Park E/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	99	100	100.7%	23.6	4.1	C
	Through	364	358	98.3%	22.4	2.4	C
	Right Turn	19	16	82.1%	17.3	7.7	B
	Subtotal	482	473	98.1%	22.5	2.3	C
SB	Left Turn	15	14	90.7%	15.1	6.9	B
	Through	491	473	96.4%	20.8	2.1	C
	Right Turn	103	99	96.0%	16.8	4.8	B
	Subtotal	609	586	96.2%	20.1	2.2	C
EB	Left Turn	66	60	90.9%	29.6	7.0	C
	Through	10	10	104.0%	12.8	9.2	B
	Right Turn	142	141	99.3%	10.2	2.6	B
	Subtotal	218	211	97.0%	16.3	3.8	B
WB	Left Turn	74	73	98.4%	23.1	5.8	C
	Through	72	75	104.7%	22.1	4.5	C
	Right Turn	50	50	100.2%	9.9	3.6	A
	Subtotal	196	198	101.2%	19.8	3.3	B
Total		1,505	1,468	97.6%	20.3	1.8	C

Intersection 44 **Southcenter Parkway/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	328	338	103.0%	29.3	4.1	C
	Right Turn	252	256	101.4%	6.4	1.4	A
	Subtotal	580	594	102.3%	19.9	2.6	B
SB	Left Turn	322	313	97.1%	22.6	3.3	C
	Through	586	571	97.4%	25.2	3.0	C
	Right Turn						
	Subtotal	908	884	97.3%	24.3	3.0	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	639	621	97.2%	27.1	3.9	C
	Through						
	Right Turn	379	383	100.9%	8.3	2.5	A
	Subtotal	1,018	1,003	98.6%	20.1	2.7	C
Total		2,506	2,481	99.0%	21.5	1.9	C

Intersection 45 **Andover Park W/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	23	24	103.0%	51.1	13.4	D
	Through	72	68	94.2%	56.4	10.7	E
	Right Turn	70	67	95.0%	12.0	5.7	B
	Subtotal	165	158	95.8%	37.2	6.3	D
SB	Left Turn	330	309	93.6%	52.6	8.9	D
	Through	27	25	91.1%	71.4	19.8	E
	Right Turn	183	177	96.7%	58.0	19.5	E
	Subtotal	540	510	94.5%	55.8	11.3	E
EB	Left Turn	76	76	99.9%	61.2	7.2	E
	Through	484	475	98.2%	15.2	4.2	B
	Right Turn	8	8	97.5%	8.6	14.0	A
	Subtotal	568	559	98.4%	22.2	3.7	C
WB	Left Turn	37	38	102.2%	72.2	14.6	E
	Through	824	813	98.7%	24.1	3.0	C
	Right Turn	206	216	104.6%	20.8	4.4	C
	Subtotal	1,067	1,067	100.0%	25.3	3.0	C
Total		2,340	2,294	98.0%	32.0	2.7	C

Intersection 46 **Andover Park W/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	295	280	94.9%	52.0	10.0	D
	Through						
	Right Turn	170	168	98.9%	58.8	16.1	E
	Subtotal	465	448	96.4%	54.5	12.0	D
EB	Left Turn	126	120	95.4%	63.3	15.4	E
	Through	758	729	96.1%	9.2	2.3	A
	Right Turn						
	Subtotal	884	849	96.0%	16.8	2.6	B
WB	Left Turn						
	Through	897	900	100.4%	22.0	3.5	C
	Right Turn	184	181	98.3%	20.6	4.0	C
	Subtotal	1,081	1,081	100.0%	21.7	3.4	C
Total		2,430	2,378	97.9%	26.6	2.4	C

Intersection 47 **W Valley Highway/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	352	356	101.0%	62.1	11.3	E
	Through	583	579	99.3%	33.0	2.1	C
	Right Turn	123	116	94.5%	8.5	3.7	A
	Subtotal	1,058	1,051	99.3%	40.8	5.0	D
SB	Left Turn	470	445	94.7%	164.8	46.2	F
	Through	714	713	99.9%	48.6	10.0	D
	Right Turn	100	101	100.5%	38.8	13.5	D
	Subtotal	1,284	1,259	98.0%	89.6	20.9	F
EB	Left Turn	67	62	92.2%	60.8	10.9	E
	Through	652	637	97.7%	62.0	10.6	E
	Right Turn	502	480	95.7%	68.8	19.3	E
	Subtotal	1,221	1,179	96.6%	65.0	12.5	E
WB	Left Turn	166	160	96.3%	65.8	11.3	E
	Through	784	790	100.8%	47.7	7.6	D
	Right Turn	289	286	98.9%	19.2	5.2	B
	Subtotal	1,239	1,236	99.7%	43.9	7.5	D
Total		4,802	4,725	98.4%	60.9	4.9	E

Intersection 52 **Andover Pk W/Tukwila Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	471	462	98.0%	41.9	3.2	D
	Through						
	Right Turn	163	163	99.8%	6.8	1.1	A
	Subtotal	634	624	98.5%	32.5	2.4	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	387	343	88.7%	23.0	3.3	C
	Right Turn	313	284	90.6%	21.8	3.2	C
	Subtotal	700	627	89.6%	22.4	3.0	C
WB	Left Turn	281	272	96.9%	16.8	3.4	B
	Through	397	383	96.4%	6.7	1.5	A
	Right Turn						
	Subtotal	678	655	96.6%	11.0	1.7	B
Total		2,012	1,906	94.7%	21.7	1.1	C

Intersection 53 **Andover Pk E/Tukwila Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	298	280	94.1%	24.4	7.1	C
	Through						
	Right Turn	390	387	99.3%	7.6	1.7	A
	Subtotal	688	667	97.0%	14.9	3.7	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	382	351	91.9%	22.1	6.8	C
	Right Turn	168	155	92.2%	13.8	5.7	B
	Subtotal	550	506	92.0%	19.7	6.2	B
WB	Left Turn	219	219	99.8%	16.2	2.3	B
	Through	380	374	98.4%	9.0	1.3	A
	Right Turn						
	Subtotal	599	593	98.9%	11.6	1.5	B
Total		1,837	1,766	96.1%	15.2	2.8	B

Intersection 54 **Southcenter Pkwy/S 168th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	3	3	93.3%	39.6	30.1	D
	Through	1,048	1,044	99.7%	5.9	1.2	A
	Right Turn	6	6	95.0%	3.1	4.6	A
	Subtotal	1,057	1,053	99.6%	6.1	1.3	A
SB	Left Turn	22	20	91.4%	51.4	9.7	D
	Through	1,333	1,294	97.1%	2.2	0.7	A
	Right Turn	3	4	123.3%	0.8	0.9	A
	Subtotal	1,358	1,318	97.0%	3.2	0.9	A
EB	Left Turn	5	5	94.0%	53.1	34.5	D
	Through						
	Right Turn						
	Subtotal	5	5	94.0%	53.1	34.5	D
WB	Left Turn	12	11	88.3%	34.7	13.1	C
	Through						
	Right Turn	20	19	95.0%	51.5	16.2	D
	Subtotal	32	30	92.5%	43.8	7.4	D
Total		2,452	2,405	98.1%	5.1	1.0	A

Intersection 22 **61st Avenue S/Southcenter Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	938	887	94.6%	30.2	4.8	C
	Through						
	Right Turn	70	71	101.1%	29.6	5.5	C
	Subtotal	1,008	958	95.1%	30.1	4.7	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	311	238	76.6%	105.3	12.1	F
	Right Turn	1,398	1,064	76.1%	214.6	17.5	F
	Subtotal	1,709	1,302	76.2%	195.4	13.8	F
WB	Left Turn	160	156	97.3%	52.3	10.5	D
	Through	559	557	99.7%	12.9	1.8	B
	Right Turn						
	Subtotal	719	713	99.2%	22.0	3.8	C
Total		3,436	2,973	86.5%	98.1	3.9	F

Intersection 25 **W Valley Highway/Southcenter Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	65	64	98.3%	56.8	7.6	E
	Through	387	384	99.3%	29.3	3.7	C
	Right Turn	472	480	101.7%	13.2	2.6	B
	Subtotal	924	928	100.5%	23.0	2.5	C
SB	Left Turn	127	133	104.3%	52.3	4.5	D
	Through	480	481	100.2%	30.4	5.5	C
	Right Turn	398	408	102.4%	20.6	6.9	C
	Subtotal	1,005	1,021	101.6%	29.5	5.3	C
EB	Left Turn	86	88	102.2%	52.2	10.3	D
	Through	619	611	98.7%	43.1	5.0	D
	Right Turn	113	114	100.4%	8.0	1.4	A
	Subtotal	818	813	99.3%	39.1	5.2	D
WB	Left Turn	226	235	103.9%	58.6	7.0	E
	Through	824	824	100.0%	40.8	7.4	D
	Right Turn	179	176	98.5%	16.5	6.8	B
	Subtotal	1,229	1,235	100.5%	40.8	6.4	D
Total		3,976	3,997	100.5%	33.8	2.9	C

Intersection 29 **Southcenter Parkway/Northwest Mall Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,048	938	89.5%	0.4	0.1	A
	Right Turn	225	196	87.3%	0.4	0.1	A
	Subtotal	1,273	1,134	89.1%	0.4	0.1	A
SB	Left Turn	155	125	80.7%	14.3	4.5	B
	Through	781	647	82.8%	0.5	0.2	A
	Right Turn						
	Subtotal	936	772	82.5%	2.8	1.0	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	66	66	99.2%	46.9	19.3	E
	Through						
	Right Turn	157	155	98.9%	35.9	22.0	E
	Subtotal	223	221	99.0%	39.3	21.2	E
Total		2,432	2,127	87.4%	5.6	2.5	A

Intersection 30 **Northwest Mall Driveway/Tukwila Parkway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	5	4	78.0%	16.8	31.7	C
	Through						
	Right Turn	134	134	99.7%	13.8	10.3	B
	Subtotal	139	138	98.9%	14.1	10.3	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	925	842	91.1%	4.4	1.1	A
	Right Turn	280	251	89.7%	3.6	1.0	A
	Subtotal	1,205	1,094	90.7%	4.2	1.1	A
WB	Left Turn	170	141	82.9%	50.3	27.9	F
	Through	931	768	82.5%	8.1	2.5	A
	Right Turn						
	Subtotal	1,101	909	82.6%	14.7	6.3	B
Total		2,445	2,140	87.5%	9.4	3.3	A

Intersection 31 **61st Avenue S/Tukwila Parkway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	810	625	77.2%	67.5	8.1	E
	Through						
	Right Turn	748	595	79.5%	30.6	4.8	C
	Subtotal	1,558	1,220	78.3%	49.4	6.4	D
EB	Left Turn	367	341	92.9%	45.6	3.0	D
	Through	692	636	92.0%	19.2	2.4	B
	Right Turn						
	Subtotal	1,059	977	92.3%	28.7	2.7	C
WB	Left Turn						
	Through	353	318	90.1%	32.6	3.2	C
	Right Turn	641	615	96.0%	16.6	2.7	B
	Subtotal	994	933	93.9%	22.1	2.0	C
Total		3,611	3,130	86.7%	34.8	2.0	C

Intersection 32 **W Valley Highway/I-405 NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	85	75	87.6%	59.2	10.8	E
	Through	461	460	99.7%	17.4	2.4	B
	Right Turn	85	82	96.4%	13.1	4.6	B
	Subtotal	631	616	97.6%	22.0	2.2	C
SB	Left Turn	20	19	92.5%	71.5	20.8	E
	Through	727	739	101.7%	21.0	3.7	C
	Right Turn	72	76	105.3%	10.5	4.1	B
	Subtotal	819	833	101.7%	21.2	3.8	C
EB	Left Turn	449	455	101.3%	51.2	5.4	D
	Through	21	21	101.9%	58.1	17.4	E
	Right Turn	371	365	98.4%	5.6	1.4	A
	Subtotal	841	841	100.0%	31.8	2.8	C
WB	Left Turn	10	11	108.0%	83.8	33.5	F
	Through	10	9	88.0%	52.8	33.6	D
	Right Turn	14	15	105.7%	7.3	2.7	A
	Subtotal	34	34	101.2%	43.4	9.3	D
Total		2,325	2,325	100.0%	25.7	1.6	C

Intersection 33 **Southcenter Parkway/I-5 Exit 153 Off-ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	799	654	81.8%	18.0	2.8	B
	Right Turn	250	206	82.2%	10.2	2.7	B
	Subtotal	1,049	859	81.9%	16.2	2.5	B
SB	Left Turn	121	101	83.5%	61.9	9.7	E
	Through	726	608	83.8%	19.7	2.3	B
	Right Turn						
	Subtotal	847	709	83.8%	25.6	3.1	C
EB	Left Turn	250	249	99.4%	100.8	53.1	F
	Through	122	119	97.9%	100.1	51.1	F
	Right Turn	210	216	102.7%	2.1	0.4	A
	Subtotal	582	584	100.3%	66.6	37.1	E
WB	Left Turn	164	167	102.1%	55.4	7.8	E
	Through						
	Right Turn	224	228	101.8%	7.0	1.3	A
	Subtotal	388	396	101.9%	28.8	4.3	C
Total		2,866	2,548	88.9%	32.3	8.1	C

Intersection 34 **Southcenter Parkway/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	997	955	95.8%	14.4	2.6	B
	Right Turn	456	430	94.2%	22.2	9.4	C
	Subtotal	1,453	1,385	95.3%	16.9	4.7	B
SB	Left Turn	407	308	75.6%	53.2	17.2	D
	Through	1,382	1,031	74.6%	10.4	2.2	B
	Right Turn						
	Subtotal	1,789	1,339	74.8%	20.2	5.1	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	327	321	98.0%	52.9	3.8	D
	Through						
	Right Turn	527	519	98.4%	16.1	2.7	B
	Subtotal	854	839	98.3%	30.0	2.2	C
Total		4,096	3,563	87.0%	21.1	3.2	C

Intersection 35 **61st Place S/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	123	121	98.3%	36.3	5.1	D
	Through	39	40	103.6%	33.8	11.9	C
	Right Turn	41	39	95.9%	9.1	4.5	A
	Subtotal	203	201	98.8%	31.1	2.7	C
SB	Left Turn	35	31	88.6%	50.6	24.5	D
	Through	47	47	100.4%	55.4	18.8	E
	Right Turn	206	208	101.2%	34.0	15.2	C
	Subtotal	288	287	99.5%	39.7	15.6	D
EB	Left Turn	204	175	85.6%	19.9	3.4	B
	Through	496	413	83.3%	13.5	3.2	B
	Right Turn	163	144	88.6%	5.8	2.0	A
	Subtotal	863	732	84.8%	13.4	2.6	B
WB	Left Turn	53	51	96.0%	14.0	5.6	B
	Through	399	380	95.3%	16.0	2.4	B
	Right Turn	125	125	99.9%	12.3	3.7	B
	Subtotal	577	556	96.4%	15.1	1.8	B
Total		1,931	1,775	91.9%	20.0	3.7	C

Intersection 36 **Andover Park W/Tire Center Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	75	64	85.3%	8.4	2.8	A
	Through	488	436	89.3%	3.3	0.4	A
	Right Turn						
	Subtotal	563	500	88.8%	3.9	0.6	A
SB	Left Turn						
	Through	587	533	90.8%	4.6	2.1	A
	Right Turn	37	30	81.1%	4.1	4.9	A
	Subtotal	624	563	90.2%	4.6	2.0	A
EB	Left Turn						
	Through						
	Right Turn	180	187	103.7%	15.2	11.6	C
	Subtotal	180	187	103.7%	15.2	11.6	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,367	1,250	91.4%	6.1	2.8	A

Intersection 37 **Andover Park W/Southeast Mall Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	563	500	88.8%	2.2	0.3	A
	Right Turn						
	Subtotal	563	500	88.8%	2.2	0.3	A
SB	Left Turn						
	Through	743	698	94.0%	11.9	4.7	B
	Right Turn	24	21	87.5%	9.2	6.1	A
	Subtotal	767	719	93.8%	11.8	4.7	B
EB	Left Turn						
	Through						
	Right Turn	102	97	95.5%	57.3	54.6	F
	Subtotal	102	97	95.5%	57.3	54.6	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,432	1,317	91.9%	11.9	7.4	B

Intersection 38 **Andover Park W/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	66	59	89.1%	50.4	7.8	D
	Through	332	294	88.4%	40.9	4.9	D
	Right Turn	92	87	94.6%	31.0	9.9	C
	Subtotal	490	439	89.7%	40.5	4.9	D
SB	Left Turn	190	176	92.4%	79.2	11.9	E
	Through	502	471	93.9%	46.6	7.8	D
	Right Turn	153	148	96.8%	40.1	7.4	D
	Subtotal	845	795	94.1%	53.1	8.0	D
EB	Left Turn	128	106	83.0%	63.5	7.8	E
	Through	381	320	84.0%	15.4	3.3	B
	Right Turn	63	56	88.4%	7.1	1.8	A
	Subtotal	572	482	84.3%	24.2	3.2	C
WB	Left Turn	96	95	99.3%	53.6	9.3	D
	Through	358	350	97.6%	22.5	4.1	C
	Right Turn	103	100	97.2%	18.3	7.4	B
	Subtotal	557	545	97.8%	26.9	4.1	C
Total		2,464	2,261	91.8%	38.1	2.6	D

Intersection 39 **Andover Park E/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	198	184	93.1%	53.8	9.9	D
	Through	360	327	90.7%	34.5	4.3	C
	Right Turn	85	77	90.5%	27.8	7.2	C
	Subtotal	643	588	91.4%	40.0	3.5	D
SB	Left Turn	37	34	91.1%	63.7	14.7	E
	Through	411	399	97.1%	53.0	5.7	D
	Right Turn	75	71	95.2%	47.3	11.8	D
	Subtotal	523	504	96.4%	53.0	5.2	D
EB	Left Turn	124	107	86.6%	61.1	8.7	E
	Through	383	331	86.4%	26.1	4.1	C
	Right Turn	167	151	90.1%	18.9	5.2	B
	Subtotal	674	589	87.4%	30.8	4.3	C
WB	Left Turn	211	215	102.1%	68.2	10.7	E
	Through	378	383	101.2%	21.4	3.4	C
	Right Turn	96	94	97.8%	16.6	3.5	B
	Subtotal	685	692	101.0%	35.5	5.2	D
Total		2,525	2,373	94.0%	39.0	2.1	D

Intersection 40 **W Valley Highway/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	196	196	99.7%	42.0	6.7	D
	Through	313	322	103.0%	19.8	4.7	B
	Right Turn	10	13	125.0%	15.9	15.4	B
	Subtotal	519	530	102.2%	28.0	5.3	C
SB	Left Turn	50	50	99.8%	52.4	18.7	D
	Through	626	629	100.4%	31.7	6.8	C
	Right Turn	362	364	100.6%	12.2	3.4	B
	Subtotal	1,038	1,042	100.4%	25.9	5.4	C
EB	Left Turn	224	196	87.6%	36.9	6.4	D
	Through	22	21	93.2%	37.7	23.2	D
	Right Turn	238	204	85.8%	7.5	1.5	A
	Subtotal	484	421	87.0%	22.2	2.8	C
WB	Left Turn	10	10	100.0%	27.9	21.6	C
	Through	17	20	115.9%	35.1	18.0	D
	Right Turn	15	16	104.0%	10.3	6.9	B
	Subtotal	42	45	107.9%	26.3	12.1	C
Total		2,083	2,039	97.9%	25.7	4.0	C

Intersection 41 **Southcenter Parkway/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	11	107.0%	13.5	12.3	B
	Through	970	939	96.8%	17.8	2.6	B
	Right Turn	106	104	97.7%	18.1	3.7	B
	Subtotal	1,086	1,054	97.0%	17.8	2.6	B
SB	Left Turn	170	130	76.7%	29.2	6.7	C
	Through	1,055	824	78.1%	14.2	2.5	B
	Right Turn	84	67	79.3%	14.4	4.5	B
	Subtotal	1,309	1,021	78.0%	16.1	2.3	B
EB	Left Turn	56	52	93.2%	51.1	8.5	D
	Through						
	Right Turn	32	33	104.1%	43.0	10.0	D
	Subtotal	88	86	97.2%	47.2	7.3	D
WB	Left Turn	219	200	91.1%	57.9	8.1	E
	Through	10	10	104.0%	36.1	36.6	D
	Right Turn	217	199	91.6%	32.0	3.9	C
	Subtotal	446	409	91.6%	45.3	6.1	D
Total		2,929	2,569	87.7%	22.8	2.2	C

Intersection 42 **Andover Park W/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	96	91	95.0%	29.7	6.6	C
	Through	280	253	90.2%	31.4	5.5	C
	Right Turn	10	10	97.0%	20.9	16.8	C
	Subtotal	386	353	91.6%	30.8	5.5	C
SB	Left Turn	100	92	91.9%	21.5	6.1	C
	Through	364	340	93.3%	25.5	4.6	C
	Right Turn	169	159	94.0%	18.8	3.7	B
	Subtotal	633	590	93.2%	23.1	4.5	C
EB	Left Turn	93	80	85.6%	32.3	6.7	C
	Through	131	116	88.6%	32.6	5.5	C
	Right Turn	75	62	82.5%	9.3	3.1	A
	Subtotal	299	258	86.2%	26.8	4.4	C
WB	Left Turn	27	26	95.2%	38.3	12.1	D
	Through	174	165	95.0%	32.2	6.6	C
	Right Turn	83	79	95.7%	6.3	1.7	A
	Subtotal	284	270	95.2%	25.9	4.3	C
Total		1,602	1,472	91.9%	26.2	2.0	C

Intersection 43 **Andover Park E/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	166	158	94.9%	22.5	3.1	C
	Through	565	518	91.8%	23.2	2.7	C
	Right Turn	21	20	96.7%	13.5	7.1	B
	Subtotal	752	696	92.6%	22.7	2.6	C
SB	Left Turn	15	16	108.7%	23.1	10.6	C
	Through	568	549	96.7%	25.7	2.7	C
	Right Turn	74	68	92.0%	22.7	3.8	C
	Subtotal	657	633	96.4%	25.3	2.5	C
EB	Left Turn	40	33	83.3%	30.5	13.0	C
	Through	50	47	93.4%	25.7	8.7	C
	Right Turn	151	138	91.1%	13.3	3.7	B
	Subtotal	241	218	90.3%	18.6	6.0	B
WB	Left Turn	17	16	94.7%	31.7	14.3	C
	Through	44	44	99.5%	22.5	7.0	C
	Right Turn	15	16	106.0%	10.3	6.0	B
	Subtotal	76	76	99.7%	21.2	6.0	C
Total		1,726	1,623	94.0%	23.2	2.2	C

Intersection 44 **Southcenter Parkway/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	311	312	100.3%	29.0	3.8	C
	Right Turn	215	219	101.6%	7.1	1.2	A
	Subtotal	526	531	100.9%	19.9	2.3	B
SB	Left Turn	417	334	80.1%	21.0	3.4	C
	Through	491	401	81.7%	20.7	2.6	C
	Right Turn						
	Subtotal	908	735	81.0%	20.9	2.2	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	352	345	98.0%	25.8	5.9	C
	Through						
	Right Turn	675	632	93.6%	11.0	1.1	B
	Subtotal	1,027	977	95.1%	16.2	2.0	B
Total		2,461	2,242	91.1%	18.6	1.3	B

Intersection 45 **Andover Park W/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	6	7	113.3%	33.3	27.5	C
	Through	20	20	101.5%	44.7	16.6	D
	Right Turn	100	104	104.4%	10.9	3.2	B
	Subtotal	126	132	104.4%	17.2	3.3	B
SB	Left Turn	415	384	92.5%	33.0	6.2	C
	Through	15	14	93.3%	33.9	12.5	C
	Right Turn	81	76	94.3%	29.7	10.4	C
	Subtotal	511	474	92.8%	32.6	6.3	C
EB	Left Turn	117	106	90.7%	57.4	7.8	E
	Through	642	575	89.6%	18.5	3.0	B
	Right Turn	20	19	93.5%	13.0	9.7	B
	Subtotal	779	700	89.8%	24.5	3.2	C
WB	Left Turn	65	62	95.2%	102.4	26.4	F
	Through	1,100	1,032	93.8%	72.0	18.3	E
	Right Turn	275	252	91.7%	76.0	18.0	E
	Subtotal	1,440	1,346	93.5%	74.4	18.0	E
Total		2,856	2,651	92.8%	50.6	8.3	D

Intersection 46 **Andover Park W/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	396	382	96.3%	81.3	32.7	F
	Through						
	Right Turn	315	294	93.4%	118.5	63.4	F
	Subtotal	711	676	95.0%	98.1	45.7	F
EB	Left Turn	230	206	89.4%	69.7	14.8	E
	Through	927	856	92.3%	9.5	1.8	A
	Right Turn						
	Subtotal	1,157	1,062	91.8%	21.3	3.8	C
WB	Left Turn						
	Through	1,125	1,079	95.9%	92.3	19.1	F
	Right Turn	342	311	90.9%	97.1	19.1	F
	Subtotal	1,467	1,390	94.7%	93.3	18.9	F
Total		3,335	3,127	93.8%	69.5	9.7	E

Intersection 47 **W Valley Highway/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	399	379	94.9%	210.7	69.7	F
	Through	227	230	101.5%	25.1	4.1	C
	Right Turn	100	106	105.6%	3.7	0.6	A
	Subtotal	726	715	98.4%	120.7	37.4	F
SB	Left Turn	170	176	103.5%	55.0	6.3	E
	Through	333	327	98.2%	28.4	3.3	C
	Right Turn	135	143	105.9%	21.4	5.0	C
	Subtotal	638	646	101.2%	34.3	4.3	C
EB	Left Turn	45	40	88.4%	69.8	11.8	E
	Through	830	793	95.5%	41.1	13.3	D
	Right Turn	463	427	92.3%	29.2	11.4	C
	Subtotal	1,338	1,260	94.2%	38.1	12.2	D
WB	Left Turn	43	43	99.3%	125.0	59.8	F
	Through	953	918	96.3%	100.0	51.3	F
	Right Turn	158	156	98.7%	69.9	56.2	E
	Subtotal	1,154	1,116	96.7%	97.3	52.1	F
Total		3,856	3,737	96.9%	70.5	17.7	E

Intersection 52 **Andover Pk W/Tukwila Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	470	424	90.1%	47.3	4.9	D
	Through						
	Right Turn	132	125	94.3%	5.7	1.1	A
	Subtotal	602	548	91.1%	38.5	5.1	D
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	348	298	85.7%	15.6	3.8	B
	Right Turn	361	306	84.8%	10.9	3.2	B
	Subtotal	709	604	85.2%	13.2	3.5	B
WB	Left Turn	285	277	97.0%	17.7	3.6	B
	Through	404	392	96.9%	9.1	1.2	A
	Right Turn						
	Subtotal	689	668	97.0%	12.7	1.6	B
Total		2,000	1,820	91.0%	21.6	2.3	C

Intersection 53 **Andover Pk E/Tukwila Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	200	184	91.9%	28.9	5.7	C
	Through						
	Right Turn	315	282	89.7%	5.1	0.9	A
	Subtotal	515	466	90.5%	14.3	2.5	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	359	312	87.0%	30.6	6.1	C
	Right Turn	121	109	90.4%	23.4	6.1	C
	Subtotal	480	422	87.9%	28.8	5.7	C
WB	Left Turn	363	358	98.7%	18.1	3.2	B
	Through	489	483	98.7%	10.2	1.7	B
	Right Turn						
	Subtotal	852	841	98.7%	13.7	1.9	B
Total		1,847	1,729	93.6%	17.6	2.5	B

Intersection 54 **Southcenter Pkwy/S 168th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	5	3	60.0%	23.7	38.4	C
	Through	1,403	1,340	95.5%	4.4	0.9	A
	Right Turn	3	3	83.3%	0.7	1.3	A
	Subtotal	1,411	1,345	95.3%	4.5	0.9	A
SB	Left Turn	18	14	80.0%	59.3	20.8	E
	Through	1,485	1,164	78.4%	1.9	0.6	A
	Right Turn	6	4	73.3%	1.1	0.8	A
	Subtotal	1,509	1,183	78.4%	2.7	0.7	A
EB	Left Turn	6	5	86.7%	61.5	51.4	E
	Through						
	Right Turn	4	4	100.0%	44.2	42.5	D
	Subtotal	10	9	92.0%	62.9	40.7	E
WB	Left Turn	5	4	84.0%	37.2	50.7	D
	Through						
	Right Turn	13	12	95.4%	51.8	20.3	D
	Subtotal	18	17	92.2%	54.7	18.4	D
Total		2,948	2,554	86.6%	4.4	0.8	A

Intersection 22 **61st Avenue S/Southcenter Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	962	892	92.7%	36.1	3.3	D
	Through						
	Right Turn	250	238	95.2%	38.2	5.3	D
	Subtotal	1,212	1,130	93.2%	36.5	3.4	D
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	421	329	78.2%	101.4	9.2	F
	Right Turn	1,374	1,062	77.3%	207.9	17.2	F
	Subtotal	1,795	1,391	77.5%	181.3	15.2	F
WB	Left Turn	175	174	99.4%	88.9	27.4	F
	Through	550	547	99.4%	16.8	2.8	B
	Right Turn						
	Subtotal	725	721	99.4%	35.4	9.4	D
Total		3,732	3,241	86.8%	97.8	4.0	F

Intersection 25 **W Valley Highway/Southcenter Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	79	77	97.3%	60.3	8.6	E
	Through	474	471	99.4%	34.1	3.9	C
	Right Turn	606	589	97.1%	26.2	5.6	C
	Subtotal	1,159	1,137	98.1%	32.1	3.4	C
SB	Left Turn	173	174	100.3%	48.1	7.2	D
	Through	483	503	104.1%	32.3	6.5	C
	Right Turn	305	305	100.1%	23.4	7.3	C
	Subtotal	961	982	102.1%	32.3	5.5	C
EB	Left Turn	144	134	92.7%	70.2	26.5	E
	Through	809	800	98.9%	97.0	43.9	F
	Right Turn	59	59	99.5%	50.5	47.6	D
	Subtotal	1,012	992	98.0%	90.2	41.8	F
WB	Left Turn	222	218	98.3%	76.5	23.7	E
	Through	880	874	99.3%	63.6	12.8	E
	Right Turn	197	193	98.1%	34.3	13.9	C
	Subtotal	1,299	1,285	98.9%	61.1	13.2	E
Total		4,431	4,396	99.2%	53.4	6.6	D

Intersection 29 **Southcenter Parkway/Northwest Mall Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,052	1,013	96.3%	0.3	0.1	A
	Right Turn	196	190	96.7%	0.3	0.1	A
	Subtotal	1,248	1,203	96.4%	0.3	0.1	A
SB	Left Turn	139	115	82.9%	13.9	3.6	B
	Through	1,054	887	84.2%	0.8	0.2	A
	Right Turn						
	Subtotal	1,193	1,002	84.0%	2.3	0.5	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	145	135	93.0%	123.0	49.1	F
	Through						
	Right Turn	100	101	100.8%	112.7	51.5	F
	Subtotal	245	236	96.2%	119.0	50.3	F
Total		2,686	2,441	90.9%	12.8	4.2	B

Intersection 30 **Northwest Mall Driveway/Tukwila Parkway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	5	4	88.0%	19.0	30.0	C
	Through						
	Right Turn	275	257	93.3%	102.3	72.2	F
	Subtotal	280	261	93.2%	102.1	72.2	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	1,102	1,072	97.3%	8.8	7.7	A
	Right Turn	50	47	93.0%	5.6	5.1	A
	Subtotal	1,152	1,119	97.1%	8.6	7.6	A
WB	Left Turn	155	130	83.7%	24.0	6.5	C
	Through	1,188	999	84.1%	6.3	0.4	A
	Right Turn						
	Subtotal	1,343	1,129	84.0%	8.4	1.0	A
Total		2,775	2,508	90.4%	16.3	7.7	C

Intersection 31 **61st Avenue S/Tukwila Parkway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	776	611	78.7%	66.2	8.9	E
	Through						
	Right Turn	773	625	80.8%	33.7	3.1	C
	Subtotal	1,549	1,236	79.8%	49.6	6.4	D
EB	Left Turn	620	592	95.5%	59.8	11.7	E
	Through	757	731	96.6%	22.6	5.9	C
	Right Turn						
	Subtotal	1,377	1,323	96.1%	40.3	7.1	D
WB	Left Turn						
	Through	570	504	88.4%	87.8	19.0	F
	Right Turn	592	543	91.6%	17.5	4.3	B
	Subtotal	1,162	1,047	90.1%	50.5	10.7	D
Total		4,088	3,606	88.2%	46.1	5.3	D

Intersection 32 **W Valley Highway/I-405 NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	152	149	97.9%	57.8	8.2	E
	Through	601	571	95.1%	16.3	4.3	B
	Right Turn	12	12	100.8%	18.7	12.3	B
	Subtotal	765	732	95.7%	24.8	3.1	C
SB	Left Turn	10	11	111.0%	69.7	50.9	E
	Through	655	662	101.0%	25.8	3.1	C
	Right Turn	99	99	100.4%	12.0	4.2	B
	Subtotal	764	772	101.1%	24.7	3.7	C
EB	Left Turn	538	547	101.7%	68.8	17.2	E
	Through	37	36	97.3%	83.0	30.2	F
	Right Turn	453	455	100.5%	7.9	1.8	A
	Subtotal	1,028	1,038	101.0%	44.8	11.2	D
WB	Left Turn	23	22	95.7%	65.7	27.8	E
	Through	10	10	97.0%	50.2	34.1	D
	Right Turn	20	22	111.0%	11.7	6.1	B
	Subtotal	53	54	101.7%	44.1	12.4	D
Total		2,610	2,597	99.5%	33.7	4.4	C

Intersection 33 **Southcenter Parkway/I-5 Exit 153 Off-ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	621	612	98.6%	19.7	3.5	B
	Right Turn	223	219	98.3%	12.1	5.6	B
	Subtotal	844	831	98.5%	17.7	3.8	B
SB	Left Turn	117	103	87.8%	61.2	12.5	E
	Through	1,082	905	83.6%	27.3	3.1	C
	Right Turn						
	Subtotal	1,199	1,007	84.0%	31.0	3.2	C
EB	Left Turn	320	278	86.7%	230.5	46.5	F
	Through	103	100	97.1%	237.3	49.8	F
	Right Turn	137	131	95.5%	20.7	25.1	C
	Subtotal	560	508	90.8%	181.9	42.7	F
WB	Left Turn	201	203	100.8%	55.7	5.4	E
	Through						
	Right Turn	307	313	101.8%	7.9	1.4	A
	Subtotal	508	515	101.4%	28.0	2.6	C
Total		3,111	2,862	92.0%	53.5	7.2	D

Intersection 34 **Southcenter Parkway/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,092	1,074	98.4%	16.6	2.5	B
	Right Turn	450	436	96.8%	22.4	7.4	C
	Subtotal	1,542	1,510	97.9%	18.3	3.7	B
SB	Left Turn	360	325	90.3%	44.2	12.1	D
	Through	1,225	1,090	89.0%	15.3	2.8	B
	Right Turn						
	Subtotal	1,585	1,415	89.3%	21.7	3.1	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	345	342	99.1%	47.9	8.0	D
	Through						
	Right Turn	498	496	99.7%	16.0	2.8	B
	Subtotal	843	838	99.5%	29.2	3.3	C
Total		3,970	3,763	94.8%	22.1	2.2	C

Intersection 35 **61st Place S/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	142	139	98.2%	34.8	7.3	C
	Through	22	23	102.3%	38.0	17.8	D
	Right Turn	63	63	100.6%	10.0	5.4	A
	Subtotal	227	225	99.3%	27.9	5.4	C
SB	Left Turn	79	80	101.1%	46.5	12.9	D
	Through	30	30	99.3%	43.4	22.6	D
	Right Turn	186	190	102.0%	24.5	15.6	C
	Subtotal	295	299	101.5%	32.8	14.9	C
EB	Left Turn	140	131	93.6%	20.4	3.8	C
	Through	472	447	94.6%	12.9	1.2	B
	Right Turn	175	163	93.0%	6.6	1.2	A
	Subtotal	787	740	94.1%	13.0	1.2	B
WB	Left Turn	78	77	98.7%	14.8	4.3	B
	Through	391	385	98.4%	19.0	3.6	B
	Right Turn	189	180	95.1%	14.3	4.4	B
	Subtotal	658	641	97.5%	17.2	3.1	B
Total		1,967	1,906	96.9%	19.1	3.2	B

Intersection 36 **Andover Park W/Tire Center Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	153	141	92.2%	9.3	1.8	A
	Through	479	463	96.7%	4.5	0.7	A
	Right Turn						
	Subtotal	632	605	95.6%	5.7	0.9	A
SB	Left Turn						
	Through	563	511	90.8%	4.5	1.8	A
	Right Turn	52	46	88.8%	3.2	1.4	A
	Subtotal	615	558	90.7%	4.3	1.7	A
EB	Left Turn						
	Through						
	Right Turn	176	176	99.8%	10.1	3.6	B
	Subtotal	176	176	99.8%	10.1	3.6	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,423	1,338	94.0%	5.7	1.4	A

Intersection 37 **Andover Park W/Southeast Mall Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	632	605	95.7%	2.8	0.5	A
	Right Turn						
	Subtotal	632	605	95.7%	2.8	0.5	A
SB	Left Turn						
	Through	689	640	92.9%	11.0	4.7	B
	Right Turn	50	47	93.6%	7.2	3.1	A
	Subtotal	739	687	92.9%	10.7	4.5	B
EB	Left Turn						
	Through						
	Right Turn	91	92	101.1%	27.0	12.5	D
	Subtotal	91	92	101.1%	27.0	12.5	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,462	1,384	94.6%	8.4	3.2	A

Intersection 38 **Andover Park W/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	111	109	98.6%	59.2	7.8	E
	Through	392	372	94.9%	43.8	8.8	D
	Right Turn	78	70	89.5%	27.4	9.6	C
	Subtotal	581	551	94.9%	44.7	7.3	D
SB	Left Turn	150	138	92.1%	78.4	10.7	E
	Through	514	479	93.1%	47.1	7.1	D
	Right Turn	116	111	95.5%	41.7	6.7	D
	Subtotal	780	727	93.3%	52.2	6.6	D
EB	Left Turn	100	95	95.0%	68.9	7.0	E
	Through	465	444	95.5%	17.5	3.1	B
	Right Turn	49	50	101.2%	7.2	3.3	A
	Subtotal	614	589	95.8%	24.6	3.5	C
WB	Left Turn	76	70	92.1%	56.3	8.2	E
	Through	431	424	98.4%	23.1	3.0	C
	Right Turn	140	138	98.3%	18.9	6.2	B
	Subtotal	647	632	97.7%	25.6	3.0	C
Total		2,622	2,499	95.3%	37.2	4.0	D

Intersection 39 **Andover Park E/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	190	180	94.5%	72.3	14.1	E
	Through	477	462	96.8%	47.3	8.8	D
	Right Turn	163	153	94.0%	43.3	14.4	D
	Subtotal	830	795	95.7%	52.0	9.7	D
SB	Left Turn	101	95	93.9%	60.0	8.1	E
	Through	349	339	97.1%	43.4	4.9	D
	Right Turn	81	78	96.3%	39.5	7.6	D
	Subtotal	531	512	96.4%	45.5	4.9	D
EB	Left Turn	83	79	94.6%	67.7	11.2	E
	Through	539	514	95.3%	28.0	2.7	C
	Right Turn	157	147	93.8%	22.7	5.6	C
	Subtotal	779	739	94.9%	31.1	3.0	C
WB	Left Turn	148	142	96.2%	56.2	5.2	E
	Through	430	429	99.7%	22.2	5.2	C
	Right Turn	75	78	104.5%	20.2	8.3	C
	Subtotal	653	650	99.5%	29.5	5.0	C
Total		2,793	2,695	96.5%	39.7	3.6	D

Intersection 40 **W Valley Highway/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	270	263	97.5%	44.9	6.1	D
	Through	372	367	98.6%	17.1	4.3	B
	Right Turn	10	9	92.0%	6.2	6.3	A
	Subtotal	652	639	98.1%	29.0	4.2	C
SB	Left Turn						
	Through	593	603	101.7%	35.0	5.0	C
	Right Turn	351	352	100.4%	11.6	2.4	B
	Subtotal	944	956	101.2%	26.6	4.0	C
EB	Left Turn	431	403	93.4%	40.5	7.3	D
	Through	24	24	101.7%	41.1	16.0	D
	Right Turn	292	273	93.6%	10.6	2.8	B
	Subtotal	747	700	93.8%	29.1	5.1	C
WB	Left Turn	10	11	107.0%	33.5	15.0	C
	Through	15	18	118.0%	39.4	18.0	D
	Right Turn	10	11	109.0%	7.2	6.1	A
	Subtotal	35	39	112.3%	27.1	6.5	C
Total		2,378	2,335	98.2%	28.0	3.5	C

Intersection 41 **Southcenter Parkway/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	15	14	93.3%	17.3	8.8	B
	Through	913	912	99.9%	18.0	2.7	B
	Right Turn	139	141	101.6%	18.5	4.1	B
	Subtotal	1,067	1,067	100.0%	18.0	2.8	B
SB	Left Turn	221	200	90.5%	33.3	7.6	C
	Through	1,134	1,041	91.8%	13.0	2.0	B
	Right Turn	154	141	91.8%	12.2	3.5	B
	Subtotal	1,509	1,382	91.6%	15.8	2.3	B
EB	Left Turn	70	69	99.0%	57.8	10.2	E
	Through						
	Right Turn	30	33	110.7%	48.5	16.1	D
	Subtotal	100	103	102.5%	55.5	10.4	E
WB	Left Turn	137	127	92.8%	48.3	6.8	D
	Through	15	17	112.0%	53.9	18.8	D
	Right Turn	155	144	92.8%	24.7	6.0	C
	Subtotal	307	288	93.7%	37.6	6.5	D
Total		2,983	2,839	95.2%	20.6	1.9	C

Intersection 42 **Andover Park W/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	48	40	82.5%	36.5	11.9	D
	Through	319	309	96.9%	33.5	6.9	C
	Right Turn	25	25	98.4%	24.0	9.4	C
	Subtotal	392	373	95.3%	33.2	6.9	C
SB	Left Turn	83	74	89.2%	30.8	7.6	C
	Through	345	321	93.0%	31.6	7.7	C
	Right Turn	117	110	94.3%	25.4	7.8	C
	Subtotal	545	505	92.7%	30.2	7.7	C
EB	Left Turn	129	121	93.7%	31.0	6.7	C
	Through	214	206	96.2%	34.0	8.9	C
	Right Turn	112	109	96.9%	16.4	6.8	B
	Subtotal	455	435	95.7%	29.1	7.3	C
WB	Left Turn	28	27	96.8%	37.9	13.4	D
	Through	115	115	100.2%	36.7	9.2	D
	Right Turn	104	101	96.6%	6.4	1.2	A
	Subtotal	247	243	98.3%	24.6	6.9	C
Total		1,639	1,557	95.0%	29.9	5.6	C

Intersection 43 **Andover Park E/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	154	149	96.9%	25.6	3.3	C
	Through	647	628	97.1%	24.2	1.6	C
	Right Turn	15	13	85.3%	12.7	9.5	B
	Subtotal	816	790	96.8%	24.3	1.7	C
SB	Left Turn						
	Through	596	577	96.8%	25.4	3.4	C
	Right Turn	47	45	95.1%	20.3	8.4	C
	Subtotal	643	621	96.6%	25.0	3.6	C
EB	Left Turn	57	53	93.7%	30.5	5.8	C
	Through	10	13	126.0%	23.7	11.2	C
	Right Turn	255	238	93.1%	14.9	4.3	B
	Subtotal	322	304	94.3%	18.4	4.2	B
WB	Left Turn	9	7	80.0%	20.5	19.3	C
	Through	46	46	100.9%	24.6	8.4	C
	Right Turn	18	18	101.1%	10.0	5.6	A
	Subtotal	73	72	98.4%	19.6	5.4	B
Total		1,854	1,787	96.4%	23.3	1.2	C

Intersection 44 **Southcenter Parkway/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	326	326	99.9%	28.4	3.7	C
	Right Turn	319	319	99.9%	11.1	2.0	B
	Subtotal	645	644	99.9%	20.1	2.6	C
SB	Left Turn	518	475	91.7%	24.0	5.3	C
	Through	557	515	92.5%	22.6	5.4	C
	Right Turn						
	Subtotal	1,075	990	92.1%	23.3	5.3	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	346	335	96.7%	29.5	6.1	C
	Through						
	Right Turn	458	451	98.5%	10.3	3.1	B
	Subtotal	804	786	97.7%	18.7	4.0	B
Total		2,524	2,420	95.9%	20.9	3.5	C

Intersection 45 **Andover Park W/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	20	20	100.0%	51.4	19.4	D
	Through	12	12	101.7%	63.9	29.4	E
	Right Turn	20	21	103.5%	8.1	4.0	A
	Subtotal	52	53	101.7%	40.9	15.6	D
SB	Left Turn	366	342	93.5%	42.1	6.3	D
	Through	6	7	108.3%	24.9	31.3	C
	Right Turn	81	76	93.7%	36.6	9.4	D
	Subtotal	453	425	93.7%	41.1	6.4	D
EB	Left Turn	69	66	95.5%	54.6	14.4	D
	Through	712	678	95.3%	12.8	3.6	B
	Right Turn	10	10	104.0%	7.0	7.1	A
	Subtotal	791	755	95.4%	16.6	3.0	B
WB	Left Turn	12	10	83.3%	65.8	16.6	E
	Through	841	817	97.1%	19.7	2.8	B
	Right Turn	308	292	94.8%	20.0	2.6	C
	Subtotal	1,161	1,119	96.4%	20.3	2.5	C
Total		2,457	2,351	95.7%	23.2	2.2	C

Intersection 46 **Andover Park W/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	417	395	94.6%	44.1	6.3	D
	Through						
	Right Turn	167	160	95.6%	47.0	8.9	D
	Subtotal	584	554	94.9%	45.0	6.5	D
EB	Left Turn	236	216	91.4%	116.4	73.5	F
	Through	862	816	94.7%	19.4	21.3	B
	Right Turn						
	Subtotal	1,098	1,032	94.0%	40.9	27.9	D
WB	Left Turn						
	Through	994	970	97.5%	38.9	4.1	D
	Right Turn	330	323	97.7%	44.4	5.5	D
	Subtotal	1,324	1,292	97.6%	40.2	4.5	D
Total		3,006	2,878	95.7%	41.1	10.6	D

Intersection 47 **W Valley Highway/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	324	327	101.0%	113.4	56.8	F
	Through	251	248	98.9%	28.1	5.0	C
	Right Turn	72	72	100.0%	3.9	1.2	A
	Subtotal	647	647	100.0%	71.5	31.6	E
SB	Left Turn	235	241	102.5%	54.8	5.6	D
	Through	394	404	102.5%	31.0	5.4	C
	Right Turn	172	175	101.9%	23.7	3.0	C
	Subtotal	801	820	102.4%	36.5	3.6	D
EB	Left Turn	91	84	92.1%	89.9	10.9	F
	Through	990	916	92.6%	69.9	10.1	E
	Right Turn	468	424	90.6%	59.3	6.7	E
	Subtotal	1,549	1,424	91.9%	68.2	8.3	E
WB	Left Turn	70	72	102.1%	153.5	65.9	F
	Through	992	946	95.3%	137.3	65.7	F
	Right Turn	198	189	95.3%	118.9	74.7	F
	Subtotal	1,260	1,206	95.7%	135.5	66.9	F
Total		4,257	4,097	96.2%	82.6	18.1	F

Intersection 52 **Andover Pk W/Tukwila Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	374	353	94.4%	64.1	27.4	E
	Through						
	Right Turn	127	125	98.5%	7.0	1.0	A
	Subtotal	501	478	95.4%	48.4	18.2	D
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	377	329	87.2%	17.0	6.2	B
	Right Turn	456	402	88.1%	16.3	6.6	B
	Subtotal	833	731	87.7%	16.6	6.3	B
WB	Left Turn	258	251	97.4%	72.9	80.3	E
	Through	404	384	94.9%	70.7	81.9	E
	Right Turn						
	Subtotal	662	635	95.9%	71.5	80.5	E
Total		1,996	1,844	92.4%	44.0	30.9	D

Intersection 53 **Andover Pk E/Tukwila Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	167	158	94.5%	41.6	21.8	D
	Through						
	Right Turn	301	294	97.8%	5.3	0.9	A
	Subtotal	468	452	96.6%	18.0	9.6	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	312	279	89.3%	20.2	4.2	C
	Right Turn	192	173	89.9%	13.6	3.2	B
	Subtotal	504	451	89.5%	17.7	3.4	B
WB	Left Turn	232	235	101.4%	13.2	2.2	B
	Through	495	485	98.0%	12.6	7.2	B
	Right Turn						
	Subtotal	727	720	99.1%	12.8	5.2	B
Total		1,699	1,624	95.6%	15.7	5.1	B

Intersection 54 **Southcenter Pkwy/S 168th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	2	2	110.0%	35.5	46.9	D
	Through	1,230	1,212	98.6%	4.1	1.0	A
	Right Turn	1	1	130.0%	2.8	9.0	A
	Subtotal	1,233	1,216	98.6%	4.3	1.0	A
SB	Left Turn	18	17	96.1%	58.8	14.9	E
	Through	1,255	1,130	90.0%	2.0	1.0	A
	Right Turn	9	8	85.6%	2.7	3.2	A
	Subtotal	1,282	1,155	90.1%	3.0	1.1	A
EB	Left Turn	7	8	108.6%	63.4	50.7	E
	Through						
	Right Turn						
	Subtotal	7	8	108.6%	47.0	39.8	D
WB	Left Turn	5	5	98.0%	28.8	29.2	C
	Through						
	Right Turn	13	14	103.8%	59.8	34.0	E
	Subtotal	18	18	102.2%	56.3	18.9	E
Total		2,540	2,397	94.4%	4.3	1.1	A

Intersection 22 **61st Avenue S/Southcenter Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1,360	922	67.8%	49.2	13.3	D
	Through						
	Right Turn	500	335	67.0%	54.2	13.3	D
	Subtotal	1,860	1,258	67.6%	50.5	13.1	D
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	800	414	51.7%	214.4	31.7	F
	Right Turn	1,750	932	53.3%	224.2	23.2	F
	Subtotal	2,550	1,346	52.8%	220.4	18.4	F
WB	Left Turn	290	205	70.7%	362.8	24.8	F
	Through	1,070	790	73.9%	26.3	3.1	C
	Right Turn						
	Subtotal	1,360	995	73.2%	99.0	6.5	F
Total		5,770	3,598	62.4%	127.2	5.2	F

Intersection 25 **W Valley Highway/Southcenter Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	150	124	82.5%	236.1	86.3	F
	Through	680	577	84.8%	73.8	18.7	E
	Right Turn	690	569	82.4%	50.4	10.2	D
	Subtotal	1,520	1,269	83.5%	81.2	20.1	F
SB	Left Turn	230	190	82.5%	339.6	58.1	F
	Through	640	587	91.8%	204.1	26.5	F
	Right Turn	400	352	87.9%	195.5	24.4	F
	Subtotal	1,270	1,129	88.9%	225.3	25.2	F
EB	Left Turn	250	179	71.7%	284.1	79.3	F
	Through	1,380	999	72.4%	195.4	9.5	F
	Right Turn	100	73	72.9%	154.8	25.6	F
	Subtotal	1,730	1,251	72.3%	206.6	15.9	F
WB	Left Turn	410	286	69.7%	182.3	34.8	F
	Through	1,610	1,148	71.3%	132.8	6.4	F
	Right Turn	360	251	69.7%	117.4	15.9	F
	Subtotal	2,380	1,684	70.8%	139.0	7.8	F
Total		6,900	5,333	77.3%	158.3	11.0	F

Intersection 29 **Southcenter Parkway/Northwest Mall Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,500	1,289	85.9%	7.6	3.7	A
	Right Turn	310	267	86.0%	0.8	0.4	A
	Subtotal	1,810	1,556	85.9%	6.5	3.1	A
SB	Left Turn	310	185	59.6%	107.0	57.1	F
	Through	1,330	813	61.1%	2.2	2.1	A
	Right Turn						
	Subtotal	1,640	998	60.8%	22.8	12.9	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	240	28	11.5%	578.0	194.3	F
	Through						
	Right Turn	170	18	10.5%	613.0	209.7	F
	Subtotal	410	46	11.1%	497.0	226.6	F
Total		3,860	2,599	67.3%	19.6	4.9	C

Intersection 30 **Northwest Mall Driveway/Tukwila Parkway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	2	24.0%	110.1	103.2	F
	Through						
	Right Turn	465	145	31.2%	229.8	65.4	F
	Subtotal	475	148	31.1%	229.4	65.4	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	1,590	1,228	77.2%	73.0	23.2	F
	Right Turn	80	62	77.0%	64.8	21.9	F
	Subtotal	1,670	1,290	77.2%	72.7	23.1	F
WB	Left Turn	170	107	63.2%	60.3	31.7	F
	Through	1,630	1,002	61.5%	5.1	0.6	A
	Right Turn						
	Subtotal	1,800	1,109	61.6%	10.6	4.1	B
Total		3,945	2,547	64.6%	53.9	10.9	F

Intersection 31 **61st Avenue S/Tukwila Parkway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	1,050	590	56.2%	86.5	9.3	F
	Through						
	Right Turn	990	545	55.1%	34.0	4.7	C
	Subtotal	2,040	1,135	55.6%	62.1	7.8	E
EB	Left Turn	885	582	65.7%	98.1	18.3	F
	Through	1,170	789	67.4%	22.9	6.6	C
	Right Turn						
	Subtotal	2,055	1,370	66.7%	54.1	5.6	D
WB	Left Turn						
	Through	810	566	69.8%	67.7	11.3	E
	Right Turn	975	676	69.4%	29.7	9.3	C
	Subtotal	1,785	1,242	69.6%	46.9	5.4	D
Total		5,880	3,747	63.7%	53.7	3.7	D

Intersection 32 **W Valley Highway/I-405 NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	230	211	91.6%	89.1	25.6	F
	Through	900	801	89.0%	92.2	52.8	F
	Right Turn	20	17	87.0%	94.9	60.2	F
	Subtotal	1,150	1,029	89.5%	91.7	46.4	F
SB	Left Turn	10	7	68.0%	68.2	44.4	E
	Through	990	818	82.6%	26.0	3.8	C
	Right Turn	150	121	80.8%	15.0	4.5	B
	Subtotal	1,150	946	82.2%	25.0	4.1	C
EB	Left Turn	600	455	75.8%	261.7	32.4	F
	Through	40	29	71.8%	258.7	36.2	F
	Right Turn	500	409	81.7%	111.6	17.4	F
	Subtotal	1,140	892	78.2%	194.2	19.1	F
WB	Left Turn	30	30	101.0%	77.4	21.9	E
	Through	10	11	107.0%	86.8	20.8	F
	Right Turn	20	22	112.0%	27.2	18.2	C
	Subtotal	60	63	105.7%	60.8	10.0	E
Total		3,500	2,930	83.7%	97.7	18.3	F

Intersection 33 **Southcenter Parkway/I-5 Exit 153 Off-ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	970	827	85.2%	88.6	37.7	F
	Right Turn	400	343	85.8%	74.0	22.1	E
	Subtotal	1,370	1,170	85.4%	84.3	31.0	F
SB	Left Turn	160	82	51.4%	63.8	6.5	E
	Through	1,410	758	53.7%	30.0	5.5	C
	Right Turn						
	Subtotal	1,570	840	53.5%	33.4	5.2	C
EB	Left Turn	350	256	73.2%	336.8	40.7	F
	Through	110	87	79.0%	359.3	36.6	F
	Right Turn	150	104	69.4%	290.3	41.8	F
	Subtotal	610	447	73.3%	329.9	27.1	F
WB	Left Turn	320	311	97.2%	73.3	32.1	E
	Through						
	Right Turn	490	489	99.7%	51.3	51.6	D
	Subtotal	810	800	98.7%	60.7	40.5	E
Total		4,360	3,257	74.7%	97.8	16.7	F

Intersection 34 **Southcenter Parkway/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,340	1,173	87.6%	29.7	6.5	C
	Right Turn	590	519	87.9%	64.8	25.2	E
	Subtotal	1,930	1,692	87.7%	40.6	12.3	D
SB	Left Turn	430	266	61.7%	37.9	5.1	D
	Through	1,470	931	63.3%	12.4	2.0	B
	Right Turn						
	Subtotal	1,900	1,196	63.0%	18.3	2.5	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	450	413	91.8%	51.4	4.6	D
	Through						
	Right Turn	660	613	92.8%	18.6	2.2	B
	Subtotal	1,110	1,026	92.4%	32.4	2.6	C
Total		4,940	3,915	79.2%	31.0	5.4	C

Intersection 35 **61st Place S/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	160	149	93.4%	63.8	67.7	E
	Through	30	27	90.3%	88.8	95.1	F
	Right Turn	70	67	95.1%	88.9	157.7	F
	Subtotal	260	243	93.5%	69.2	88.7	E
SB	Left Turn	130	122	93.8%	177.9	268.6	F
	Through	50	46	92.6%	166.6	258.6	F
	Right Turn	300	283	94.5%	146.7	241.2	F
	Subtotal	480	452	94.1%	152.5	240.2	F
EB	Left Turn	200	159	79.3%	44.9	51.8	D
	Through	690	562	81.5%	32.9	36.7	C
	Right Turn	250	197	78.6%	13.9	15.8	B
	Subtotal	1,140	917	80.5%	30.7	32.7	C
WB	Left Turn	130	118	90.7%	28.6	3.7	C
	Through	640	558	87.2%	33.8	5.9	C
	Right Turn	310	280	90.4%	34.3	6.8	C
	Subtotal	1,080	956	88.6%	33.3	5.4	C
Total		2,960	2,569	86.8%	40.4	18.5	D

Intersection 36 **Andover Park W/Tire Center Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	240	207	86.3%	19.3	13.0	C
	Through	780	687	88.1%	15.0	13.2	B
	Right Turn						
	Subtotal	1,020	894	87.7%	16.1	13.0	C
SB	Left Turn						
	Through	790	596	75.4%	9.0	4.2	A
	Right Turn	70	49	69.7%	10.2	3.8	B
	Subtotal	860	644	74.9%	9.2	4.1	A
EB	Left Turn						
	Through						
	Right Turn	290	286	98.7%	59.7	44.9	F
	Subtotal	290	286	98.7%	59.7	44.9	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,170	1,825	84.1%	20.3	10.8	C

Intersection 37 **Andover Park W/Southeast Mall Driveway** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,020	894	87.7%	7.6	6.7	A
	Right Turn						
	Subtotal	1,020	894	87.7%	7.6	6.7	A
SB	Left Turn						
	Through	1,010	828	81.9%	22.6	5.5	C
	Right Turn	70	57	81.4%	21.1	3.1	C
	Subtotal	1,080	885	81.9%	22.5	5.3	C
EB	Left Turn						
	Through						
	Right Turn	130	120	92.0%	257.5	134.8	F
	Subtotal	130	120	92.0%	257.5	134.8	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,230	1,899	85.1%	29.1	9.3	D

Intersection 38 **Andover Park W/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	180	149	83.0%	136.4	83.0	F
	Through	630	561	89.0%	98.8	87.0	F
	Right Turn	130	115	88.2%	80.5	76.2	F
	Subtotal	940	825	87.7%	103.2	84.0	F
SB	Left Turn	200	169	84.6%	86.0	12.2	F
	Through	780	645	82.7%	56.6	8.5	E
	Right Turn	160	133	83.1%	48.2	10.0	D
	Subtotal	1,140	947	83.1%	60.5	8.9	E
EB	Left Turn	150	124	82.5%	231.0	125.0	F
	Through	670	558	83.3%	32.3	10.8	C
	Right Turn	70	60	86.3%	9.7	2.1	A
	Subtotal	890	742	83.4%	60.8	23.1	E
WB	Left Turn	130	121	92.7%	90.3	19.4	F
	Through	740	673	90.9%	74.7	17.1	E
	Right Turn	240	210	87.6%	86.9	20.7	F
	Subtotal	1,110	1,003	90.4%	79.3	17.6	E
Total		4,080	3,517	86.2%	75.0	21.5	E

Intersection 39 **Andover Park E/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	280	250	89.3%	107.3	25.7	F
	Through	690	622	90.2%	74.9	29.1	E
	Right Turn	240	221	92.1%	75.1	30.3	E
	Subtotal	1,210	1,093	90.4%	83.1	27.3	F
SB	Left Turn	110	103	93.3%	65.0	22.3	E
	Through	390	358	91.8%	44.4	7.0	D
	Right Turn	90	82	91.2%	41.2	10.4	D
	Subtotal	590	543	92.0%	48.9	7.0	D
EB	Left Turn	100	80	79.7%	68.8	13.4	E
	Through	670	583	87.1%	48.7	7.0	D
	Right Turn	200	178	88.9%	47.2	7.9	D
	Subtotal	970	841	86.7%	50.3	7.4	D
WB	Left Turn	240	220	91.8%	62.5	9.1	E
	Through	700	639	91.2%	28.3	4.2	C
	Right Turn	120	119	99.0%	26.2	5.8	C
	Subtotal	1,060	978	92.2%	35.5	4.0	D
Total		3,830	3,455	90.2%	56.4	9.6	E

Intersection 40 **W Valley Highway/Strander Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	410	406	99.0%	52.8	19.5	D
	Through	560	569	101.7%	18.5	5.9	B
	Right Turn	20	21	104.0%	16.3	10.5	B
	Subtotal	990	996	100.6%	31.5	8.8	C
SB	Left Turn						
	Through	870	721	82.9%	39.2	9.1	D
	Right Turn	460	381	82.8%	16.5	3.3	B
	Subtotal	1,330	1,102	82.8%	31.4	7.0	C
EB	Left Turn	560	494	88.1%	51.4	11.9	D
	Through	30	28	92.3%	45.1	17.7	D
	Right Turn	380	337	88.7%	14.6	5.1	B
	Subtotal	970	858	88.5%	37.0	8.0	D
WB	Left Turn	10	9	89.0%	44.7	21.9	D
	Through	20	23	115.0%	44.9	20.1	D
	Right Turn	10	12	115.0%	19.8	12.0	B
	Subtotal	40	43	108.5%	39.2	10.7	D
Total		3,330	3,000	90.1%	33.1	6.6	C

Intersection 41 **Southcenter Parkway/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	20	18	90.5%	104.9	43.0	F
	Through	1,230	1,024	83.3%	142.3	41.8	F
	Right Turn	190	161	84.7%	151.7	37.9	F
	Subtotal	1,440	1,203	83.6%	143.2	41.2	F
SB	Left Turn	250	190	76.0%	51.6	10.1	D
	Through	1,280	942	73.6%	11.9	2.0	B
	Right Turn	170	125	73.6%	14.1	3.6	B
	Subtotal	1,700	1,257	74.0%	18.1	2.6	B
EB	Left Turn	120	113	93.9%	111.4	65.8	F
	Through						
	Right Turn	50	49	98.6%	90.2	82.7	F
	Subtotal	170	162	95.3%	104.3	68.3	F
WB	Left Turn	170	155	91.0%	43.3	8.3	D
	Through	20	20	98.0%	37.4	18.5	D
	Right Turn	190	171	89.9%	39.3	14.4	D
	Subtotal	380	345	90.8%	41.1	8.2	D
Total		3,690	2,968	80.4%	73.5	12.7	E

Intersection 42 **Andover Park W/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	70	60	86.1%	44.9	8.8	D
	Through	490	426	87.0%	46.5	7.7	D
	Right Turn	40	35	87.5%	36.2	10.1	D
	Subtotal	600	522	86.9%	45.5	7.8	D
SB	Left Turn	120	98	82.0%	38.0	8.5	D
	Through	490	409	83.4%	45.0	10.1	D
	Right Turn	170	145	85.0%	38.6	8.6	D
	Subtotal	780	652	83.5%	42.4	9.1	D
EB	Left Turn	140	122	87.0%	47.4	7.4	D
	Through	230	186	81.0%	50.4	9.2	D
	Right Turn	120	111	92.8%	19.8	7.7	B
	Subtotal	490	420	85.6%	41.6	7.8	D
WB	Left Turn	30	29	97.0%	41.0	13.1	D
	Through	200	189	94.7%	47.2	5.9	D
	Right Turn	130	119	91.5%	9.4	2.9	A
	Subtotal	360	337	93.7%	34.9	5.3	C
Total		2,230	1,930	86.6%	41.8	5.8	D

Intersection 43 **Andover Park E/Minkler Boulevard** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	250	228	91.3%	21.1	3.7	C
	Through	1,050	951	90.6%	9.8	1.1	A
	Right Turn	20	19	96.5%	9.8	3.5	A
	Subtotal	1,320	1,199	90.8%	12.1	1.4	B
SB	Left Turn						
	Through	640	579	90.5%	17.7	0.7	B
	Right Turn	50	46	91.8%	15.5	4.2	B
	Subtotal	690	625	90.6%	17.6	0.8	B
EB	Left Turn	70	55	78.6%	23.3	5.0	C
	Through	30	26	86.7%	23.5	11.4	C
	Right Turn	290	240	82.6%	14.3	3.5	B
	Subtotal	390	321	82.2%	16.6	3.7	B
WB	Left Turn	10	10	96.0%	10.4	10.9	B
	Through	60	60	99.8%	25.6	3.0	C
	Right Turn	20	19	95.0%	12.4	7.9	B
	Subtotal	90	89	98.3%	22.1	3.5	C
Total		2,490	2,233	89.7%	14.8	0.9	B

Intersection 44 **Southcenter Parkway/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	520	517	99.4%	28.5	3.5	C
	Right Turn	510	519	101.7%	15.9	3.5	B
	Subtotal	1,030	1,036	100.5%	22.2	2.5	C
SB	Left Turn	580	441	76.0%	30.4	3.9	C
	Through	630	494	78.5%	28.1	5.1	C
	Right Turn						
	Subtotal	1,210	935	77.3%	29.2	4.3	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	460	381	82.8%	35.3	7.3	D
	Through						
	Right Turn	600	489	81.5%	15.5	4.0	B
	Subtotal	1,060	870	82.1%	24.4	3.9	C
Total		3,300	2,841	86.1%	25.2	2.9	C

Intersection 45 **Andover Park W/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	50	50	99.8%	42.3	9.2	D
	Through	30	30	100.3%	37.1	7.0	D
	Right Turn	50	58	116.8%	10.5	2.5	B
	Subtotal	130	138	106.5%	27.3	3.4	C
SB	Left Turn	500	424	84.8%	46.4	10.2	D
	Through	10	9	85.0%	40.6	26.0	D
	Right Turn	100	84	84.3%	44.5	14.2	D
	Subtotal	610	517	84.7%	45.9	10.6	D
EB	Left Turn	80	69	85.9%	55.7	12.6	E
	Through	820	720	87.8%	15.5	4.5	B
	Right Turn	10	9	93.0%	14.3	10.9	B
	Subtotal	910	798	87.7%	19.1	3.8	B
WB	Left Turn	10	8	78.0%	83.4	18.7	F
	Through	1,060	866	81.7%	41.0	21.2	D
	Right Turn	390	323	82.7%	48.6	21.5	D
	Subtotal	1,460	1,197	82.0%	43.5	20.9	D
Total		3,110	2,650	85.2%	35.5	10.2	D

Intersection 46 **Andover Park W/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	470	412	87.7%	129.8	49.1	F
	Through						
	Right Turn	190	159	83.8%	162.4	54.7	F
	Subtotal	660	571	86.5%	138.3	49.6	F
EB	Left Turn	330	290	87.8%	68.3	11.2	E
	Through	1,040	911	87.6%	5.7	0.9	A
	Right Turn						
	Subtotal	1,370	1,201	87.7%	21.4	3.9	C
WB	Left Turn						
	Through	1,270	1,038	81.7%	86.8	10.2	F
	Right Turn	470	385	81.9%	89.1	8.7	F
	Subtotal	1,740	1,423	81.8%	87.4	9.5	F
Total		3,770	3,195	84.7%	72.7	10.0	E

Intersection 47 **W Valley Highway/S 180th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	400	396	99.0%	105.5	76.0	F
	Through	310	308	99.4%	32.1	3.7	C
	Right Turn	90	97	107.9%	4.2	1.2	A
	Subtotal	800	801	100.2%	63.1	37.0	E
SB	Left Turn	250	248	99.3%	73.3	27.4	E
	Through	410	408	99.4%	55.1	18.9	E
	Right Turn	180	178	98.7%	66.6	63.2	E
	Subtotal	840	834	99.3%	61.7	22.2	E
EB	Left Turn	105	92	88.0%	70.2	13.3	E
	Through	1,060	951	89.7%	29.7	3.8	C
	Right Turn	490	431	88.0%	16.1	2.8	B
	Subtotal	1,655	1,474	89.1%	28.4	3.4	C
WB	Left Turn	110	80	72.6%	205.9	22.6	F
	Through	1,520	1,175	77.3%	212.6	59.1	F
	Right Turn	310	232	74.9%	193.5	42.3	F
	Subtotal	1,940	1,487	76.7%	209.3	53.4	F
Total		5,235	4,596	87.8%	94.0	11.8	F

Intersection 52 **Andover Pk W/Tukwila Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	500	413	82.7%	203.8	114.1	F
	Through						
	Right Turn	150	128	85.3%	114.0	109.2	F
	Subtotal	650	541	83.3%	179.3	110.9	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	760	477	62.7%	29.9	6.3	C
	Right Turn	670	416	62.1%	32.8	8.9	C
	Subtotal	1,430	893	62.4%	31.2	6.9	C
WB	Left Turn	410	385	93.9%	95.6	68.6	F
	Through	670	618	92.3%	94.4	77.2	F
	Right Turn						
	Subtotal	1,080	1,003	92.9%	95.4	73.2	F
Total		3,160	2,437	77.1%	87.5	47.2	F

Intersection 53 **Andover Pk E/Tukwila Pkwy** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	240	203	84.5%	149.0	156.6	F
	Through						
	Right Turn	430	388	90.3%	14.1	16.6	B
	Subtotal	670	591	88.2%	48.8	37.5	D
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	600	396	66.1%	14.8	5.4	B
	Right Turn	310	210	67.6%	12.9	4.7	B
	Subtotal	910	606	66.6%	14.2	4.9	B
WB	Left Turn	400	415	103.6%	22.1	6.9	C
	Through	840	829	98.7%	20.4	23.7	C
	Right Turn						
	Subtotal	1,240	1,244	100.3%	21.0	16.2	C
Total		2,820	2,441	86.6%	25.2	14.3	C

Intersection 54 **Southcenter Pkwy/S 168th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,750	1,494	85.4%	33.2	15.9	C
	Right Turn						
	Subtotal	1,750	1,494	85.4%	33.2	15.9	C
SB	Left Turn	20	12	61.5%	65.5	23.6	E
	Through	1,550	1,078	69.5%	2.2	1.3	A
	Right Turn	10	8	75.0%	1.2	1.2	A
	Subtotal	1,580	1,098	69.5%	3.2	1.3	A
EB	Left Turn	40	40	99.8%	60.8	8.6	E
	Through						
	Right Turn						
	Subtotal	40	40	99.8%	60.8	8.6	E
WB	Left Turn	10	9	94.0%	60.1	29.1	E
	Through						
	Right Turn	20	24	120.0%	69.0	47.8	E
	Subtotal	30	33	111.3%	68.0	41.3	E
Total		3,400	2,665	78.4%	21.2	8.3	C

Appendix C: Vehicle LOS Results for the Study Intersection Analysis PM Peak Hour

Table C1. Existing 2018 PM Peak Hour LOS in Tukwila

ID	Intersection Location	Intersection Control	Average Delay (s)	LOS
1^	Boeing Access Road / E Marginal Way	Signal	37	D
2^	Boeing Access Road / Martin Luther King Way	Signal	43	D
3	S 112th Street / Tukwila International Boulevard	Signal	8	A
4	S 112th Street / E Marginal Way	TWSC	17	C
5	S 116th Way / Tukwila International Boulevard	Signal	20	B
6	S 116th Street / E Marginal Way	TWSC	39	E
7	S 130th Street / Tukwila International Blvd	Signal	9	A
8	S 130th Street / East Marginal Way	AWSC	10	A
9	42nd Avenue S / Interurban Avenue S	Signal	35	D
10	S 124th Street / 42nd Avenue S	AWSC	13	B
11	S 124th Street / 50th Pl S	AWSC	8	A
12	S 133rd Street / SR 599 Ramps	TWSC	24	C
13	52nd Avenue S / Interurban Avenue S	Signal	8	A
14	S 144th Street / Tukwila International Boulevard	Signal	27	C
15	S 144th Street / 42nd Avenue S	Signal	13	B
16	S 144th Street / 53rd Avenue S	TWSC	25	C
17	S 144th Street / Macadam Road S	TWSC	14	B
18	58th Avenue S / Interurban Avenue S	Signal	10	A
19	Southcenter Boulevard / Tukwila International Boulevard	Signal	33	C
20	Southcenter Blvd / 42nd Avenue S	Signal	24	C
21	**Southcenter Boulevard / I-405 SB Off-ramp**	**TWSC**	**92**	**F**
22*	Southcenter Boulevard / 61st Avenue S	Signal	96	F
23^	Southcenter Boulevard / 66th Avenue S	Signal	39	D
24	I-405 SB Ramps / W Valley Highway	Signal	43	D
25*	**Southcenter Boulevard / W Valley Highway**	**Signal**	**80**	**F**
26	S 160th Street / 42nd Avenue S	AWSC	12	B
27	SR 518 EB Off-ramp / Klickitat Drive	TWSC	28	D
28^	Klickitat Drive / 53rd Avenue S	Signal	53	D
29*	Southcenter Parkway / Northwest Mall Driveway	TWSC	3	A
30*	Tukwila Parkway / Northwest Mall Driveway	TWSC	5	A
31*	Tukwila Parkway / 61st Avenue S	Signal	38	D
32*	I-405 NB Ramps / W Valley Highway	Signal	35	D
33*	I-5 Exit 153 Off-ramp / Southcenter Parkway	Signal	19	B
34*	Strander Boulevard / Southcenter Parkway	Signal	16	B
35*	Strander Boulevard / 61st Place S	Signal	17	B
36*	Andover Park W / Tire Center Driveway	TWSC	4	A

ID	Intersection Location	Intersection Control	Average Delay (s)	LOS
37*	Andover Park W / Southeast Mall Driveway	TWSC	4	A
38*	Strander Boulevard / Andover Park W	Signal	30	C
39*	Strander Boulevard / Andover Park E	Signal	30	C
40*	Strander Boulevard / W Valley Highway	Signal	28	C
41*	Minkler Boulevard / Southcenter Parkway	Signal	12	B
42*	Minkler Boulevard / Andover Park W	Signal	26	C
43*	Minkler Boulevard / Andover Park E	Signal	20	C
44*	S 180th Street / Southcenter Parkway	Signal	22	C
45*	S 180th Street / Andover Park W	Signal	32	C
46*	S 180th Street / Andover Park E	Signal	27	C
47*	S 180th Street / W Valley Highway	Signal	61	E
48	Southcenter Parkway / S 184th Pl	Signal	20	B
49^	S 200th Street / Orillia Road S	Signal	41	D
50^	S 200th Street / Southcenter Parkway	Signal	22	C
51	Southcenter Boulevard / 65th Avenue S	TWSC	21	C
52*	Tukwila Parkway / Andover Park W	Signal	22	C
53*	Tukwila Parkway / Andover Park E	Signal	15	B
54*	Southcenter Parkway / S 168th Street	Signal	5	A

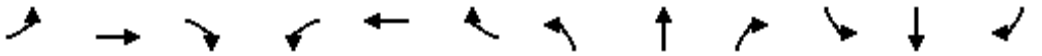
Notes:
^Intersections analyzed using HCM 2000 methodology instead of HCM 6th edition due to unusual geometry or unusual signal phasing.
*Study intersections within the Southcenter area where the City's corridor LOS policy applies. The tabulated vehicle delay values for these intersections are from SimTraffic analysis; these were used to determine corridor LOS based on a vehicle-volume-weighted average. For two-way stop-controlled intersections in this subset, the average intersection delay for all approaches is reported.
Bold text highlight study intersections with LOS exceeding the City's current policy or WSDOT standards.
Source: Fehr & Peers, IDAX Data Solutions, StreetLight Data, 2018.

Table C2. 2044 Growth Targets - PM Peak Hour LOS in Tukwila

ID	Intersection Location	Intersection Control	Average Delay (s)	LOS
1^	Boeing Access Road / E Marginal Way	Signal	54	D
2^	Boeing Access Road / Martin Luther King Way	Signal	56	E
3	S 112th Street / Tukwila International Boulevard	Signal	13	B
4	S 112th Street / E Marginal Way	TWSC	21	C
5	S 116th Way / Tukwila International Boulevard	Signal	31	C
6	**S 116th Street / E Marginal Way**	**TWSC**	**125**	**F**
7	S 130th Street / Tukwila International Blvd	Signal	17	B
8	S 130th Street / East Marginal Way	AWSC	19	C
9	42nd Avenue S / Interurban Avenue S	Signal	49	D
10	**S 124th Street / 42nd Avenue S**	**AWSC**	**39**	**E**
11	S 124th Street / 50th Pl S	AWSC	9	A
12	**S 133rd Street / SR 599 Ramps**	**TWSC**	**>150**	**F**
13	52nd Avenue S / Interurban Avenue S	Signal	9	A
14	S 144th Street / Tukwila International Boulevard	Signal	39	D
15	S 144th Street / 42nd Avenue S	Signal	18	B
16	**S 144th Street / 53rd Avenue S**	**TWSC**	**>150**	**F**
17	**S 144th Street / Macadam Road S**	**TWSC**	**56**	**F**
18	58th Avenue S / Interurban Avenue S	Signal	14	B
19	Southcenter Boulevard / Tukwila International Boulevard	Signal	62	E
20	Southcenter Blvd / 42nd Avenue S	Signal	73	E
21	**Southcenter Boulevard / I-405 SB Off-ramp**	**TWSC**	**>150**	**F**
23^	Southcenter Boulevard / 66th Avenue S	Signal	66	E
24	I-405 SB Ramps / W Valley Highway	Signal	63	E
26	S 160th Street / 42nd Avenue S	AWSC	21	C

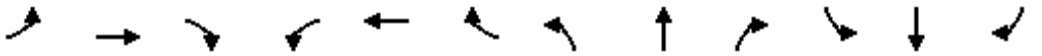
ID	Intersection Location	Intersection Control	Average Delay (s)	LOS
27	**SR 518 EB Off-ramp / Klickitat Drive**	**TWSC**	**60**	**F**
28^	Klickitat Drive / 53rd Avenue S	Signal	72	E
40*	**Strander Boulevard / W Valley Highway**	**Signal**	**118**	**F**
48	Southcenter Parkway / S 184th Pl	Signal	26	C
49^	S 200th Street / Orillia Road S	Signal	74	E
50^	S 200th Street / Southcenter Parkway	Signal	74	E
51	**Southcenter Boulevard / 65th Avenue S**	**Signal**	**83**	**E**

Notes:
^Intersections analyzed using HCM 2000 methodology instead of HCM 6th edition due to unusual geometry or unusual signal phasing.
Bold text highlight study intersections with LOS exceeding the City's current policy or WSDOT standards.
Source: Fehr & Peers, 2024.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	483	13	308	789	180	0	59	231	566	289	769
Future Volume (vph)	121	483	13	308	789	180	0	59	231	566	289	769
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00		0.95	1.00	0.97	1.00	0.88
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	3487		1752	3505	1568		3167	1417	3400	1845	2760
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	3487		1752	3505	1568		3167	1417	3400	1845	2760
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	126	503	14	321	822	188	0	61	241	590	301	801
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	217	0	0	22
Lane Group Flow (vph)	126	515	0	321	822	188	0	61	24	590	301	779
Confl. Peds. (#/hr)			3	3			2		4	4		2
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	14%	14%	14%	3%	3%	3%
Turn Type	Split	NA		Split	NA	Free		NA	Prot	Split	NA	custom
Protected Phases	2	2		3	3			1	1	4	4	1 2 4
Permitted Phases		2				Free						
Actuated Green, G (s)	29.3	29.3		39.7	39.7	130.7		13.1	13.1	32.6	32.6	83.0
Effective Green, g (s)	29.3	29.3		39.7	39.7	130.7		13.1	13.1	32.6	32.6	83.0
Actuated g/C Ratio	0.22	0.22		0.30	0.30	1.00		0.10	0.10	0.25	0.25	0.64
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	762	781		532	1064	1568		317	142	848	460	1752
v/s Ratio Prot	0.04	c0.15		0.18	c0.23			0.02	0.02	c0.17	0.16	c0.28
v/s Ratio Perm						0.12						
v/c Ratio	0.17	0.66		0.60	0.77	0.12		0.19	0.17	0.70	0.65	0.44
Uniform Delay, d1	40.8	46.2		38.8	41.4	0.0		53.9	53.8	44.5	44.0	12.1
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	2.0		1.9	3.5	0.2		0.3	0.6	2.5	3.3	0.2
Delay (s)	41.0	48.2		40.7	44.9	0.2		54.2	54.4	47.0	47.3	12.3
Level of Service	D	D		D	D	A		D	D	D	D	B
Approach Delay (s)		46.8			37.6			54.4			30.7	
Approach LOS		D			D			D			C	

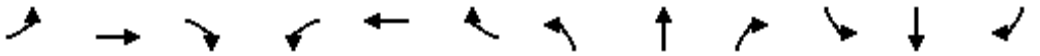
Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	327	686	597	222	187	26	102	717	239	76	850	394
Future Volume (vph)	327	686	597	222	187	26	102	717	239	76	850	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.88	1.00	0.95		1.00	0.95		1.00	0.91	0.88
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	2748	1752	3435		1770	3392		1770	5085	2710
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	2748	1752	3435		1770	3392		1770	5085	2710
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	341	715	622	231	195	27	106	747	249	79	885	410
RTOR Reduction (vph)	0	0	443	0	6	0	0	22	0	0	0	299
Lane Group Flow (vph)	341	715	179	231	216	0	106	974	0	79	885	111
Confl. Peds. (#/hr)	2		2	2		2	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	3	7		8	4		2	6		5	1	
Permitted Phases			7									1
Actuated Green, G (s)	30.9	36.1	36.1	21.1	26.3		18.3	45.0		7.2	33.9	33.9
Effective Green, g (s)	30.9	36.1	36.1	21.1	26.3		18.3	45.0		7.2	33.9	33.9
Actuated g/C Ratio	0.25	0.29	0.29	0.17	0.21		0.15	0.36		0.06	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	436	1018	791	294	720		258	1217		101	1374	732
v/s Ratio Prot	c0.19	c0.20		c0.13	0.06		0.06	c0.29		0.04	c0.17	
v/s Ratio Perm			0.07									0.04
v/c Ratio	0.78	0.70	0.23	0.79	0.30		0.41	0.80		0.78	0.64	0.15
Uniform Delay, d1	44.1	39.9	34.0	50.0	41.8		48.7	36.2		58.3	40.4	34.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.9	2.2	0.1	12.9	0.2		1.1	3.8		31.6	1.0	0.1
Delay (s)	53.0	42.1	34.2	62.9	42.0		49.7	39.9		89.9	41.5	34.9
Level of Service	D	D	C	E	D		D	D		F	D	C
Approach Delay (s)		41.4			52.7			40.9			42.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	125.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	4	17	85	3	9	4	570	69	27	1634	5
Future Volume (veh/h)	2	4	17	85	3	9	4	570	69	27	1634	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	2	4	1	87	3	1	4	582	43	28	1667	5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	4	4	4	2	2	2	3	3	3	2	2	2
Cap, veh/h	274	135	34	275	128	43	10	2008	893	57	2168	7
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.01	0.57	0.57	0.03	0.60	0.60
Sat Flow, veh/h	1377	1418	355	1398	1339	446	1767	3526	1568	1781	3634	11
Grp Volume(v), veh/h	2	0	5	87	0	4	4	582	43	28	815	857
Grp Sat Flow(s),veh/h/ln	1377	0	1773	1398	0	1785	1767	1763	1568	1781	1777	1868
Q Serve(g_s), s	0.1	0.0	0.1	3.0	0.0	0.1	0.1	4.2	0.6	0.8	16.9	17.0
Cycle Q Clear(g_c), s	0.2	0.0	0.1	3.1	0.0	0.1	0.1	4.2	0.6	0.8	16.9	17.0
Prop In Lane	1.00		0.20	1.00		0.25	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	274	0	169	275	0	170	10	2008	893	57	1060	1115
V/C Ratio(X)	0.01	0.00	0.03	0.32	0.00	0.02	0.42	0.29	0.05	0.49	0.77	0.77
Avail Cap(c_a), veh/h	837	0	894	847	0	901	321	4695	2089	503	2545	2677
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.4	0.0	20.3	21.7	0.0	20.3	24.6	5.5	4.7	23.6	7.5	7.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.0	10.5	0.0	0.0	2.4	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.9	0.0	0.0	0.1	1.0	0.1	0.3	3.8	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.4	0.0	20.4	22.0	0.0	20.3	35.0	5.5	4.7	25.9	7.9	7.9
LnGrp LOS	C	A	C	C	A	C	D	A	A	C	A	A
Approach Vol, veh/h		7			91			629			1700	
Approach Delay, s/veh		20.4			21.9			5.7			8.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	33.2		9.7	5.3	34.6		9.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	14.0	66.0		25.0	9.0	71.0		25.0				
Max Q Clear Time (g_c+I1), s	2.8	6.2		2.2	2.1	19.0		5.1				
Green Ext Time (p_c), s	0.0	2.8		0.0	0.0	10.6		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			8.1									
HCM 6th LOS			A									

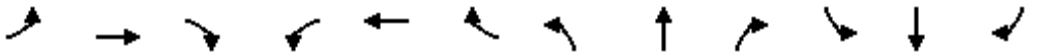
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	88	65	249	574	45
Future Vol, veh/h	18	88	65	249	574	45
Conflicting Peds, #/hr	0	0	1	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	18	90	66	254	586	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	996	610	633	0	-	0
Stage 1	610	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Critical Hdwy	6.47	6.27	4.17	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	2.263	-	-	-
Pot Cap-1 Maneuver	265	485	926	-	-	-
Stage 1	533	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	246	485	925	-	-	-
Mov Cap-2 Maneuver	246	-	-	-	-	-
Stage 1	495	-	-	-	-	-
Stage 2	675	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.7	1.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	925	-	416	-	-
HCM Lane V/C Ratio	0.072	-	0.26	-	-
HCM Control Delay (s)	9.2	-	16.7	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	263	98	21	0	0	0	27	315	60	642	722	518
Future Volume (veh/h)	263	98	21	0	0	0	27	315	60	642	722	518
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	184	218	3				28	321	0	655	737	0
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2				2	2	2	2	2	2
Cap, veh/h	284	298	253				41	842		717	2192	
Arrive On Green	0.16	0.16	0.16				0.02	0.24	0.00	0.40	0.62	0.00
Sat Flow, veh/h	1781	1870	1585				1781	3647	0	1781	3554	1585
Grp Volume(v), veh/h	184	218	3				28	321	0	655	737	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585				1781	1777	0	1781	1777	1585
Q Serve(g_s), s	6.7	7.7	0.1				1.1	5.3	0.0	24.2	7.0	0.0
Cycle Q Clear(g_c), s	6.7	7.7	0.1				1.1	5.3	0.0	24.2	7.0	0.0
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	284	298	253				41	842		717	2192	
V/C Ratio(X)	0.65	0.73	0.01				0.69	0.38		0.91	0.34	
Avail Cap(c_a), veh/h	845	887	751				230	919		1408	3268	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.4	27.8	24.6				33.8	22.3	0.0	19.7	6.5	0.0
Incr Delay (d2), s/veh	2.5	3.5	0.0				18.6	0.3	0.0	5.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.6	0.0				0.6	2.0	0.0	9.7	2.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.9	31.3	24.7				52.4	22.6	0.0	24.7	6.5	0.0
LnGrp LOS	C	C	C				D	C		C	A	
Approach Vol, veh/h		405						349	A		1392	A
Approach Delay, s/veh		30.6						24.9			15.1	
Approach LOS		C						C			B	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	33.0	20.5		16.1	6.6	46.9
Change Period (Y+Rc), s	4.5	5.5		4.5	4.5	5.5
Max Green Setting (Gmax), s	55.5	16.5		33.5	9.5	62.5
Max Q Clear Time (g_c+I1), s	26.2	7.3		9.7	3.1	9.0
Green Ext Time (p_c), s	2.3	1.2		1.9	0.0	5.9

Intersection Summary	
HCM 6th Ctrl Delay	19.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	0	154	0	0	17	18	303	6	45	642	19
Future Vol, veh/h	56	0	154	0	0	17	18	303	6	45	642	19
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	6	6	6	0	0	0	9	9	9	7	7	7
Mvmt Flow	57	0	157	0	0	17	18	309	6	46	655	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1118	1112	669	1187	1118	316	676	0	0	317	0	0
Stage 1	759	759	-	350	350	-	-	-	-	-	-	-
Stage 2	359	353	-	837	768	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.1	6.5	6.2	4.19	-	-	4.17	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.5	4	3.3	2.281	-	-	2.263	-	-
Pot Cap-1 Maneuver	181	205	451	167	209	729	883	-	-	1215	-	-
Stage 1	393	409	-	671	636	-	-	-	-	-	-	-
Stage 2	651	624	-	364	414	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	168	192	449	103	196	726	881	-	-	1213	-	-
Mov Cap-2 Maneuver	168	192	-	103	196	-	-	-	-	-	-	-
Stage 1	384	393	-	656	622	-	-	-	-	-	-	-
Stage 2	621	610	-	227	397	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	38.7	10.1	0.5	0.5
HCM LOS	E	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	881	-	-	311	726	1213	-	-
HCM Lane V/C Ratio	0.021	-	-	0.689	0.024	0.038	-	-
HCM Control Delay (s)	9.2	-	-	38.7	10.1	8.1	-	-
HCM Lane LOS	A	-	-	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	4.8	0.1	0.1	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	265	39	418	0	79	932
Future Volume (veh/h)	265	39	418	0	79	932
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	270	37	427	0	81	951
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	359	49	981	0	506	1744
Arrive On Green	0.23	0.23	0.28	0.00	0.08	0.49
Sat Flow, veh/h	1539	211	3741	0	1781	3647
Grp Volume(v), veh/h	308	0	427	0	81	951
Grp Sat Flow(s),veh/h/ln	1755	0	1777	0	1781	1777
Q Serve(g_s), s	5.9	0.0	3.6	0.0	1.0	6.7
Cycle Q Clear(g_c), s	5.9	0.0	3.6	0.0	1.0	6.7
Prop In Lane	0.88	0.12		0.00	1.00	
Lane Grp Cap(c), veh/h	409	0	981	0	506	1744
V/C Ratio(X)	0.75	0.00	0.44	0.00	0.16	0.55
Avail Cap(c_a), veh/h	1453	0	5884	0	1598	5884
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	12.9	0.0	10.8	0.0	7.1	6.4
Incr Delay (d2), s/veh	2.8	0.0	0.3	0.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.9	0.0	0.2	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.7	0.0	11.1	0.0	7.2	6.7
LnGrp LOS	B	A	B	A	A	A
Approach Vol, veh/h	308		427			1032
Approach Delay, s/veh	15.7		11.1			6.7
Approach LOS	B		B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.8	15.0			22.8	13.5
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	25.0	60.0			60.0	30.0
Max Q Clear Time (g_c+I1), s	3.0	5.6			8.7	7.9
Green Ext Time (p_c), s	0.1	2.8			7.5	0.9

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	102	61	42	93	4	64	40	47	12	160	35
Future Vol, veh/h	19	102	61	42	93	4	64	40	47	12	160	35
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	1	1	1	0	0	0	2	2	2	1	1	1
Mvmt Flow	19	104	62	43	95	4	65	41	48	12	163	36
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.5	9.4	9.3	9.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	10%	30%	6%
Vol Thru, %	26%	56%	67%	77%
Vol Right, %	31%	34%	3%	17%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	151	182	139	207
LT Vol	64	19	42	12
Through Vol	40	102	93	160
RT Vol	47	61	4	35
Lane Flow Rate	154	186	142	211
Geometry Grp	1	1	1	1
Degree of Util (X)	0.21	0.248	0.199	0.283
Departure Headway (Hd)	4.899	4.804	5.062	4.821
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	726	741	702	739
Service Time	2.978	2.88	3.143	2.894
HCM Lane V/C Ratio	0.212	0.251	0.202	0.286
HCM Control Delay	9.3	9.5	9.4	9.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	1	0.7	1.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	179	24	143	146	8	48	117	251	26	317	85
Future Volume (veh/h)	12	179	24	143	146	8	48	117	251	26	317	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1811	1811	1811	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	12	183	0	146	149	0	49	119	70	27	323	79
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	6	6	6	4	4	4	2	2	2
Cap, veh/h	721	757		172	175		146	519	438	349	409	100
Arrive On Green	0.40	0.40	0.00	0.20	0.20	0.00	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1795	1885	1598	875	893	1535	967	1841	1554	1192	1450	355
Grp Volume(v), veh/h	12	183	0	295	0	0	49	119	70	27	0	402
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1767	0	1535	967	1841	1554	1192	0	1805
Q Serve(g_s), s	0.4	6.4	0.0	16.0	0.0	0.0	4.9	4.9	3.4	1.8	0.0	20.5
Cycle Q Clear(g_c), s	0.4	6.4	0.0	16.0	0.0	0.0	25.4	4.9	3.4	6.7	0.0	20.5
Prop In Lane	1.00		1.00	0.49		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	721	757		347	0		146	519	438	349	0	509
V/C Ratio(X)	0.02	0.24		0.85	0.00		0.34	0.23	0.16	0.08	0.00	0.79
Avail Cap(c_a), veh/h	721	757		568	0		223	665	562	444	0	652
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.0	19.8	0.0	38.6	0.0	0.0	44.8	27.5	26.9	30.1	0.0	33.1
Incr Delay (d2), s/veh	0.0	0.8	0.0	6.6	0.0	0.0	1.3	0.2	0.2	0.1	0.0	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.0	0.0	7.6	0.0	0.0	1.2	2.2	1.2	0.5	0.0	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.0	20.5	0.0	45.2	0.0	0.0	46.1	27.7	27.1	30.1	0.0	38.1
LnGrp LOS	B	C		D	A		D	C	C	C	A	D
Approach Vol, veh/h		195	A		295	A		238			429	
Approach Delay, s/veh		20.4			45.2			31.3			37.6	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	44.0	32.1	23.6	32.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	40.0	36.0	32.0	36.0
Max Q Clear Time (g_c+I1), s	8.4	22.5	18.0	27.4
Green Ext Time (p_c), s	1.2	2.1	1.5	0.7

Intersection Summary	
HCM 6th Ctrl Delay	35.4
HCM 6th LOS	D

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	286	14	66	278	149	123
Future Vol, veh/h	286	14	66	278	149	123
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	11	11	6	6	2	2
Mvmt Flow	292	14	67	284	152	126
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	14.5	12.4	12.5
HCM LOS	B	B	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	95%	55%
Vol Thru, %	19%	0%	45%
Vol Right, %	81%	5%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	344	300	272
LT Vol	0	286	149
Through Vol	66	0	123
RT Vol	278	14	0
Lane Flow Rate	351	306	278
Geometry Grp	1	1	1
Degree of Util (X)	0.477	0.497	0.423
Departure Headway (Hd)	4.895	5.841	5.485
Convergence, Y/N	Yes	Yes	Yes
Cap	734	618	655
Service Time	2.934	3.874	3.524
HCM Lane V/C Ratio	0.478	0.495	0.424
HCM Control Delay	12.4	14.5	12.5
HCM Lane LOS	B	B	B
HCM 95th-tile Q	2.6	2.8	2.1

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	19	149	5	6	102	3
Future Vol, veh/h	19	149	5	6	102	3
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	152	5	6	104	3
Number of Lanes	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.6	7.6	8.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	97%	0%	0%	45%
Vol Thru, %	0%	100%	0%	55%
Vol Right, %	3%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	105	19	149	11
LT Vol	102	0	0	5
Through Vol	0	19	0	6
RT Vol	3	0	149	0
Lane Flow Rate	107	19	152	11
Geometry Grp	2	7	7	5
Degree of Util (X)	0.132	0.025	0.17	0.014
Departure Headway (Hd)	4.419	4.729	4.027	4.555
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	800	750	880	791
Service Time	2.505	2.505	1.803	2.555
HCM Lane V/C Ratio	0.134	0.025	0.173	0.014
HCM Control Delay	8.2	7.6	7.6	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.1	0.6	0

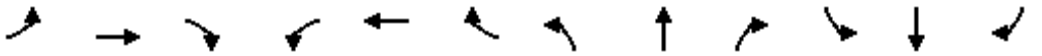
Intersection	
Int Delay, s/veh	10.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	105	74	6	54	120	464	5	31	50	144	20	15
Future Vol, veh/h	105	74	6	54	120	464	5	31	50	144	20	15
Conflicting Peds, #/hr	0	0	2	2	0	0	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	None
Storage Length	90	-	-	75	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	4	4	4	4	4	4	10	10	10
Mvmt Flow	107	76	6	55	122	473	5	32	51	147	20	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	122	0	0	84	0	0	546	527	81	567	530	123
Stage 1	-	-	-	-	-	-	295	295	-	232	232	-
Stage 2	-	-	-	-	-	-	251	232	-	335	298	-
Critical Hdwy	4.13	-	-	4.14	-	-	7.14	6.54	6.24	7.2	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.54	-	6.2	5.6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.54	-	6.2	5.6	-
Follow-up Hdwy	2.227	-	-	2.236	-	-	3.536	4.036	3.336	3.59	4.09	3.39
Pot Cap-1 Maneuver	1459	-	-	1500	-	0	445	453	973	422	443	907
Stage 1	-	-	-	-	-	0	709	665	-	753	698	-
Stage 2	-	-	-	-	-	0	749	709	-	662	653	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1459	-	-	1497	-	-	385	404	971	345	395	906
Mov Cap-2 Maneuver	-	-	-	-	-	-	385	404	-	345	395	-
Stage 1	-	-	-	-	-	-	656	615	-	698	672	-
Stage 2	-	-	-	-	-	-	687	683	-	551	604	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.3	2.3	11.9	23.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	609	1459	-	-	1497	-	369
HCM Lane V/C Ratio	0.144	0.073	-	-	0.037	-	0.495
HCM Control Delay (s)	11.9	7.7	-	-	7.5	-	23.9
HCM Lane LOS	B	A	-	-	A	-	C
HCM 95th %tile Q(veh)	0.5	0.2	-	-	0.1	-	2.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	3	36	4	1	10	28	838	13	18	968	60
Future Volume (veh/h)	49	3	36	4	1	10	28	838	13	18	968	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.96	0.96		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1900	1900	1900	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	50	3	6	4	1	2	29	855	12	18	988	38
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	0	0	0	4	4	4	5	5	5
Cap, veh/h	407	19	272	266	77	80	48	1746	25	32	1683	741
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.03	0.49	0.49	0.02	0.49	0.49
Sat Flow, veh/h	1264	107	1502	674	424	439	1753	3530	50	1739	3469	1527
Grp Volume(v), veh/h	53	0	6	7	0	0	29	424	443	18	988	38
Grp Sat Flow(s),veh/h/ln	1371	0	1502	1537	0	0	1753	1749	1831	1739	1735	1527
Q Serve(g_s), s	1.1	0.0	0.1	0.0	0.0	0.0	0.6	6.3	6.3	0.4	8.0	0.5
Cycle Q Clear(g_c), s	1.3	0.0	0.1	0.1	0.0	0.0	0.6	6.3	6.3	0.4	8.0	0.5
Prop In Lane	0.94		1.00	0.57		0.29	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	427	0	272	423	0	0	48	865	906	32	1683	741
V/C Ratio(X)	0.12	0.00	0.02	0.02	0.00	0.00	0.60	0.49	0.49	0.57	0.59	0.05
Avail Cap(c_a), veh/h	1152	0	1073	1209	0	0	805	2854	2988	709	5484	2413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6	0.0	13.2	13.2	0.0	0.0	18.9	6.6	6.6	19.1	7.3	5.3
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.0	11.3	0.4	0.4	15.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.0	0.0	0.0	0.4	1.4	1.5	0.3	1.8	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.8	0.0	13.2	13.2	0.0	0.0	30.1	7.0	7.0	34.2	7.6	5.4
LnGrp LOS	B	A	B	B	A	A	C	A	A	C	A	A
Approach Vol, veh/h		59			7			896			1044	
Approach Delay, s/veh		13.7			13.2			7.8			8.0	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.1	5.1	23.0		11.1	4.7	23.4				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		28.0	18.0	62.0		28.0	16.0	64.0				
Max Q Clear Time (g_c+I1), s		3.3	2.6	10.0		2.1	2.4	8.3				
Green Ext Time (p_c), s		0.2	0.0	9.0		0.0	0.0	6.4				

Intersection Summary												
HCM 6th Ctrl Delay			8.1									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	166	77	102	231	31	97	350	60	58	724	83
Future Volume (veh/h)	113	166	77	102	231	31	97	350	60	58	724	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1885	1885	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	115	169	65	104	236	28	99	357	18	59	739	25
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	1	1	1	4	4	4	2	2	2
Cap, veh/h	149	378	146	136	477	57	129	1094	476	84	1017	442
Arrive On Green	0.08	0.30	0.30	0.08	0.29	0.29	0.07	0.31	0.31	0.05	0.29	0.29
Sat Flow, veh/h	1781	1272	489	1795	1646	195	1753	3497	1523	1781	3554	1544
Grp Volume(v), veh/h	115	0	234	104	0	264	99	357	18	59	739	25
Grp Sat Flow(s),veh/h/ln	1781	0	1761	1795	0	1841	1753	1749	1523	1781	1777	1544
Q Serve(g_s), s	4.7	0.0	8.1	4.3	0.0	8.9	4.2	5.9	0.6	2.4	14.0	0.9
Cycle Q Clear(g_c), s	4.7	0.0	8.1	4.3	0.0	8.9	4.2	5.9	0.6	2.4	14.0	0.9
Prop In Lane	1.00		0.28	1.00		0.11	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	149	0	524	136	0	533	129	1094	476	84	1017	442
V/C Ratio(X)	0.77	0.00	0.45	0.76	0.00	0.50	0.77	0.33	0.04	0.70	0.73	0.06
Avail Cap(c_a), veh/h	356	0	822	383	0	884	468	1773	772	261	1375	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	0.0	21.3	34.0	0.0	22.1	34.1	19.7	17.9	35.2	24.1	19.4
Incr Delay (d2), s/veh	8.2	0.0	0.6	8.6	0.0	0.7	9.1	0.2	0.0	10.1	1.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	3.3	2.2	0.0	3.8	2.0	2.2	0.2	1.2	5.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.8	0.0	21.9	42.6	0.0	22.8	43.2	20.0	18.0	45.3	25.8	19.5
LnGrp LOS	D	A	C	D	A	C	D	B	B	D	C	B
Approach Vol, veh/h		349			368			474			823	
Approach Delay, s/veh		28.5			28.4			24.7			27.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	28.4	10.7	27.3	10.5	26.5	11.3	26.7
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	11.0	38.0	16.0	35.0	20.0	29.0	15.0	36.0
Max Q Clear Time (g_c+I1), s	4.4	7.9	6.3	10.1	6.2	16.0	6.7	10.9
Green Ext Time (p_c), s	0.0	3.3	0.2	1.4	0.2	5.2	0.2	1.7

Intersection Summary	
HCM 6th Ctrl Delay	27.0
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	191	47	56	194	55	42	108	70	54	196	41
Future Volume (veh/h)	37	191	47	56	194	55	42	108	70	54	196	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.91		0.83	0.90		0.83	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1870	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	38	195	36	57	198	43	43	110	53	55	200	35
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	2	2	2	2	3	3	1	1	1
Cap, veh/h	112	410	70	136	368	72	203	493	215	194	664	107
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.52	0.52	0.52	0.52	0.52	0.52
Sat Flow, veh/h	133	1334	227	201	1196	235	246	950	414	230	1278	207
Grp Volume(v), veh/h	269	0	0	298	0	0	206	0	0	290	0	0
Grp Sat Flow(s),veh/h/ln	1694	0	0	1632	0	0	1609	0	0	1715	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.1	0.0	0.0	8.3	0.0	0.0	3.7	0.0	0.0	5.2	0.0	0.0
Prop In Lane	0.14		0.13	0.19		0.14	0.21		0.26	0.19		0.12
Lane Grp Cap(c), veh/h	592	0	0	576	0	0	911	0	0	965	0	0
V/C Ratio(X)	0.45	0.00	0.00	0.52	0.00	0.00	0.23	0.00	0.00	0.30	0.00	0.00
Avail Cap(c_a), veh/h	933	0	0	902	0	0	911	0	0	965	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.3	0.0	0.0	16.7	0.0	0.0	7.6	0.0	0.0	7.9	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	3.1	0.0	0.0	1.3	0.0	0.0	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.8	0.0	0.0	17.4	0.0	0.0	8.1	0.0	0.0	8.7	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		269			298			206			290	
Approach Delay, s/veh		16.8			17.4			8.1			8.7	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	35.0	22.8	35.0	22.8
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	30.0	30.0	30.0	30.0
Max Q Clear Time (g_c+I1), s	5.7	9.1	7.2	10.3
Green Ext Time (p_c), s	1.3	1.7	1.9	1.9

Intersection Summary	
HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	86	315	236	53	144	137
Future Vol, veh/h	86	315	236	53	144	137
Conflicting Peds, #/hr	2	0	0	2	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	2	2
Mvmt Flow	88	321	241	54	147	140

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	297	0	-	0	769	272
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	499	-
Critical Hdwy	4.1	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1276	-	-	-	369	767
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	610	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1274	-	-	-	337	764
Mov Cap-2 Maneuver	-	-	-	-	337	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	609	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	24.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1274	-	-	-	463
HCM Lane V/C Ratio	0.069	-	-	-	0.619
HCM Control Delay (s)	8	0	-	-	24.6
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	4.1

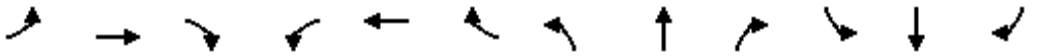
Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	131	328	16	156	133	14
Future Vol, veh/h	131	328	16	156	133	14
Conflicting Peds, #/hr	0	2	2	0	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	1	1	0	0	1	1
Mvmt Flow	134	335	16	159	136	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	471	0	497	306
Stage 1	-	-	-	-	304	-
Stage 2	-	-	-	-	193	-
Critical Hdwy	-	-	4.1	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.2	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1101	-	534	736
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	842	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1099	-	523	733
Mov Cap-2 Maneuver	-	-	-	-	523	-
Stage 1	-	-	-	-	749	-
Stage 2	-	-	-	-	827	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	14.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	538	-	-	1099	-
HCM Lane V/C Ratio	0.279	-	-	0.015	-
HCM Control Delay (s)	14.3	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	5	130	18	5	5	114	761	39	5	1486	71
Future Volume (veh/h)	36	5	130	18	5	5	114	761	39	5	1486	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1693	1693	1693	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	37	5	14	18	5	1	116	777	38	5	1516	70
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	14	14	14	4	4	4	5	5	5
Cap, veh/h	214	22	119	162	32	4	150	2231	109	12	1954	90
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	0.09	0.66	0.66	0.01	0.58	0.58
Sat Flow, veh/h	1293	294	1599	706	435	50	1753	3393	166	1739	3377	155
Grp Volume(v), veh/h	42	0	14	24	0	0	116	400	415	5	776	810
Grp Sat Flow(s),veh/h/ln	1588	0	1599	1190	0	0	1753	1749	1811	1739	1735	1798
Q Serve(g_s), s	0.0	0.0	0.5	0.2	0.0	0.0	3.7	5.8	5.8	0.2	19.6	19.8
Cycle Q Clear(g_c), s	1.2	0.0	0.5	1.4	0.0	0.0	3.7	5.8	5.8	0.2	19.6	19.8
Prop In Lane	0.88		1.00	0.75		0.04	1.00		0.09	1.00		0.09
Lane Grp Cap(c), veh/h	236	0	119	198	0	0	150	1150	1191	12	1004	1040
V/C Ratio(X)	0.18	0.00	0.12	0.12	0.00	0.00	0.77	0.35	0.35	0.43	0.77	0.78
Avail Cap(c_a), veh/h	766	0	697	796	0	0	611	1525	1579	607	1513	1568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	0.0	24.8	25.0	0.0	0.0	25.7	4.4	4.4	28.4	9.2	9.3
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.1	0.0	0.0	3.2	0.1	0.1	9.1	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.2	0.3	0.0	0.0	1.6	1.3	1.3	0.1	5.4	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.3	0.0	25.0	25.1	0.0	0.0	28.9	4.5	4.5	37.5	10.3	10.4
LnGrp LOS	C	A	C	C	A	A	C	A	A	D	B	B
Approach Vol, veh/h		56			24			931			1591	
Approach Delay, s/veh		25.2			25.1			7.5			10.4	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	42.7		9.3	9.9	38.2		9.3				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	20.0	50.0		25.0	20.0	50.0		30.0				
Max Q Clear Time (g_c+I1), s	2.2	7.8		3.2	5.7	21.8		3.4				
Green Ext Time (p_c), s	0.0	4.5		0.1	0.1	11.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		9.9	
HCM 6th LOS		A	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	257	254	159	283	130	227	424	80	116	898	100
Future Volume (veh/h)	225	257	254	159	283	130	227	424	80	116	898	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.94	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	230	262	78	162	289	113	232	433	32	118	916	44
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	3	3	3
Cap, veh/h	628	340	276	585	419	159	275	1418	593	150	1162	495
Arrive On Green	0.18	0.18	0.18	0.16	0.16	0.16	0.15	0.40	0.40	0.08	0.33	0.33
Sat Flow, veh/h	3456	1870	1520	3563	2547	965	1781	3554	1486	1767	3526	1501
Grp Volume(v), veh/h	230	262	78	162	210	192	232	433	32	118	916	44
Grp Sat Flow(s),veh/h/ln	1728	1870	1520	1781	1870	1642	1781	1777	1486	1767	1763	1501
Q Serve(g_s), s	5.5	12.5	4.2	3.7	9.9	10.4	11.9	7.8	1.2	6.2	22.1	1.9
Cycle Q Clear(g_c), s	5.5	12.5	4.2	3.7	9.9	10.4	11.9	7.8	1.2	6.2	22.1	1.9
Prop In Lane	1.00		1.00	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	628	340	276	585	307	270	275	1418	593	150	1162	495
V/C Ratio(X)	0.37	0.77	0.28	0.28	0.68	0.71	0.84	0.31	0.05	0.79	0.79	0.09
Avail Cap(c_a), veh/h	1396	756	614	1212	636	559	739	2834	1185	357	2061	878
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	36.6	33.2	34.4	37.0	37.2	38.7	19.3	17.4	42.2	28.6	21.8
Incr Delay (d2), s/veh	0.4	3.7	0.6	0.3	2.7	3.5	7.0	0.1	0.0	8.9	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	5.9	1.5	1.6	4.7	4.3	5.5	3.0	0.4	2.9	8.8	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.1	40.3	33.7	34.7	39.7	40.7	45.7	19.5	17.4	51.1	29.8	21.9
LnGrp LOS	C	D	C	C	D	D	D	B	B	D	C	C
Approach Vol, veh/h		570			564			697			1078	
Approach Delay, s/veh		36.9			38.6			28.1			31.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	41.5		21.1	18.5	35.0		19.5
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	19.6	75.0		38.0	39.0	55.0		32.0
Max Q Clear Time (g_c+I1), s	7.2	9.8		14.5	13.9	24.1		12.4
Green Ext Time (p_c), s	0.2	2.9		2.6	0.6	6.9		2.8

Intersection Summary	
HCM 6th Ctrl Delay	33.2
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	377	65	207	430	185	35	121	68	144	205	73
Future Volume (veh/h)	34	377	65	207	430	185	35	121	68	144	205	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	35	385	61	211	439	180	36	123	51	147	209	64
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	2	2	2	1	1	1	1	1	1
Cap, veh/h	235	519	82	401	504	207	66	198	82	187	311	95
Arrive On Green	0.04	0.33	0.33	0.10	0.40	0.40	0.04	0.16	0.16	0.10	0.23	0.23
Sat Flow, veh/h	1767	1562	247	1781	1258	516	1795	1254	520	1795	1377	422
Grp Volume(v), veh/h	35	0	446	211	0	619	36	0	174	147	0	273
Grp Sat Flow(s),veh/h/ln	1767	0	1809	1781	0	1774	1795	0	1774	1795	0	1799
Q Serve(g_s), s	0.8	0.0	14.5	4.8	0.0	21.3	1.3	0.0	6.1	5.3	0.0	9.2
Cycle Q Clear(g_c), s	0.8	0.0	14.5	4.8	0.0	21.3	1.3	0.0	6.1	5.3	0.0	9.2
Prop In Lane	1.00		0.14	1.00		0.29	1.00		0.29	1.00		0.23
Lane Grp Cap(c), veh/h	235	0	602	401	0	710	66	0	280	187	0	406
V/C Ratio(X)	0.15	0.00	0.74	0.53	0.00	0.87	0.55	0.00	0.62	0.79	0.00	0.67
Avail Cap(c_a), veh/h	572	0	955	620	0	937	406	0	937	406	0	950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	19.6	13.5	0.0	18.3	31.4	0.0	26.1	29.0	0.0	23.4
Incr Delay (d2), s/veh	0.1	0.0	0.7	0.4	0.0	7.2	2.6	0.0	2.3	2.7	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	5.6	1.7	0.0	9.0	0.6	0.0	2.6	2.3	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.8	0.0	20.3	13.9	0.0	25.5	34.0	0.0	28.3	31.7	0.0	25.4
LnGrp LOS	B	A	C	B	A	C	C	A	C	C	A	C
Approach Vol, veh/h		481			830			210			420	
Approach Delay, s/veh		19.9			22.5			29.3			27.6	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	15.5	11.9	27.0	7.4	19.9	7.4	31.5
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	15.0	35.0	15.0	35.0	15.0	35.0	15.0	35.0
Max Q Clear Time (g_c+I1), s	7.3	8.1	6.8	16.5	3.3	11.2	2.8	23.3
Green Ext Time (p_c), s	0.1	1.0	0.2	1.7	0.0	1.6	0.0	3.2

Intersection Summary	
HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	4

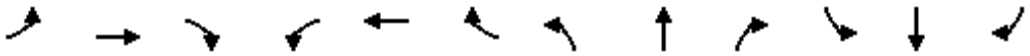
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑	↱↑	↰		↱			
Traffic Vol, veh/h	0	1523	0	0	579	0	97	0	190	0	0	0
Future Vol, veh/h	0	1523	0	0	579	0	97	0	190	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	1	1	1	0	0	0
Mvmt Flow	0	1554	0	0	591	0	99	0	194	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	-	-	-	0	2145	-	-
Stage 1	-	-	-	-	-	-	1554	-	-
Stage 2	-	-	-	-	-	-	591	-	-
Critical Hdwy	-	-	-	-	-	-	6.615	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	5.815	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.415	-	-
Follow-up Hdwy	-	-	-	-	-	-	3.5095	-	-
Pot Cap-1 Maneuver	0	-	0	0	-	-	~ 48	0	0
Stage 1	0	-	0	0	-	-	162	0	0
Stage 2	0	-	0	0	-	-	555	0	0
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	-	-	-	-	-	-	~ 48	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	129	0	-
Stage 1	-	-	-	-	-	-	162	0	-
Stage 2	-	-	-	-	-	-	555	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	91.8
HCM LOS			F

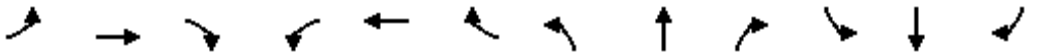
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT	WBR
Capacity (veh/h)	129	-	-	-	-
HCM Lane V/C Ratio	0.767	-	-	-	-
HCM Control Delay (s)	91.8	0	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	4.5	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	477	92	512	653	1	190	0	522	0	2	2
Future Volume (vph)	3	477	92	512	653	1	190	0	522	0	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7		5.0	5.7			5.0	5.0		5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	0.88		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.95		1.00	
Flpb, ped/bikes	0.98	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.98		1.00	1.00			1.00	0.85		0.93	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		1.00	
Satd. Flow (prot)	1706	3379		1770	3538			1770	2641		1772	
Flt Permitted	0.39	1.00		0.95	1.00			0.95	1.00		1.00	
Satd. Flow (perm)	705	3379		1770	3538			1770	2641		1772	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	3	497	96	533	680	1	198	0	544	0	2	2
RTOR Reduction (vph)	0	17	0	0	0	0	0	0	469	0	2	0
Lane Group Flow (vph)	3	576	0	533	681	0	0	198	75	0	2	0
Confl. Peds. (#/hr)	15		1	1		15			9	9		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA		Prot	NA		Split	NA	Perm		NA	
Protected Phases		4		3			2	2		1	1	
Permitted Phases	4				8				2		1	
Actuated Green, G (s)	21.4	21.4		43.1	69.5			13.7	13.7		1.1	
Effective Green, g (s)	21.4	21.4		43.1	69.5			13.7	13.7		1.1	
Actuated g/C Ratio	0.21	0.21		0.43	0.70			0.14	0.14		0.01	
Clearance Time (s)	5.7	5.7		5.0	5.7			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	2.0			2.0	2.0		2.0	
Lane Grp Cap (vph)	150	723		762	2458			242	361		19	
v/s Ratio Prot		c0.17		c0.30				c0.11			c0.00	
v/s Ratio Perm	0.00				0.19				0.03			
v/c Ratio	0.02	0.80		0.70	0.28			0.82	0.21		0.11	
Uniform Delay, d1	31.0	37.2		23.2	5.8			41.9	38.3		49.0	
Progression Factor	1.00	1.00		0.95	2.63			1.04	2.07		1.00	
Incremental Delay, d2	0.1	6.1		3.1	0.2			17.0	0.1		0.9	
Delay (s)	31.1	43.4		25.1	15.3			60.6	79.5		49.9	
Level of Service	C	D		C	B			E	E		D	
Approach Delay (s)		43.3			19.6			74.4			49.9	
Approach LOS		D			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	97	499	169	59	43	502	776	165	80	860	64
Future Volume (veh/h)	73	97	499	169	59	43	502	776	165	80	860	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1900	1900	1900	1856	1856	1856	1841	1841	1841
Adj Flow Rate, veh/h	74	99	475	172	60	24	512	792	153	82	878	24
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	4	4	4	0	0	0	3	3	3	4	4	4
Cap, veh/h	239	320	756	205	145	58	599	1145	221	104	1008	422
Arrive On Green	0.31	0.31	0.31	0.11	0.11	0.11	0.17	0.39	0.39	0.06	0.27	0.27
Sat Flow, veh/h	771	1031	1557	1810	1282	513	3428	2941	568	1753	3681	1541
Grp Volume(v), veh/h	173	0	475	172	0	84	512	475	470	82	878	24
Grp Sat Flow(s),veh/h/ln	1802	0	1557	1810	0	1795	1714	1763	1746	1753	1841	1541
Q Serve(g_s), s	9.2	0.0	28.3	11.6	0.0	5.4	18.1	28.1	28.1	5.8	28.4	1.4
Cycle Q Clear(g_c), s	9.2	0.0	28.3	11.6	0.0	5.4	18.1	28.1	28.1	5.8	28.4	1.4
Prop In Lane	0.43		1.00	1.00		0.29	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	559	0	756	205	0	203	599	686	680	104	1008	422
V/C Ratio(X)	0.31	0.00	0.63	0.84	0.00	0.41	0.86	0.69	0.69	0.79	0.87	0.06
Avail Cap(c_a), veh/h	559	0	756	232	0	230	1015	846	838	224	1149	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	0.0	23.9	54.3	0.0	51.6	50.1	31.9	31.9	58.0	43.3	33.5
Incr Delay (d2), s/veh	1.4	0.0	3.9	21.2	0.0	1.3	0.4	0.2	0.2	12.4	6.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	10.9	6.5	0.0	2.5	7.7	11.8	11.7	2.9	13.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.3	0.0	27.8	75.6	0.0	52.9	50.4	32.1	32.1	70.4	50.1	33.5
LnGrp LOS	C	A	C	E	A	D	D	C	C	E	D	C
Approach Vol, veh/h		648			256			1457			984	
Approach Delay, s/veh		29.5			68.1			38.5			51.4	
Approach LOS		C			E			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		42.8	25.8	38.2		18.1	11.4	52.7				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		17.0	37.0	39.0		16.0	16.0	60.0				
Max Q Clear Time (g_c+I1), s		30.3	20.1	30.4		13.6	7.8	30.1				
Green Ext Time (p_c), s		0.0	1.7	3.8		0.2	0.1	6.8				

Intersection Summary	
HCM 6th Ctrl Delay	42.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	26	10	22	22	23	5	210	19	32	388	30
Future Vol, veh/h	11	26	10	22	22	23	5	210	19	32	388	30
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles, %	3	3	3	5	5	5	1	1	1	3	3	3
Mvmt Flow	11	27	10	22	22	23	5	214	19	33	396	31
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	9.2	9.9	13.5
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	23%	33%	7%
Vol Thru, %	90%	55%	33%	86%
Vol Right, %	8%	21%	34%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	234	47	67	450
LT Vol	5	11	22	32
Through Vol	210	26	22	388
RT Vol	19	10	23	30
Lane Flow Rate	239	48	68	459
Geometry Grp	1	1	1	1
Degree of Util (X)	0.311	0.074	0.104	0.575
Departure Headway (Hd)	4.69	5.542	5.479	4.51
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	762	640	649	799
Service Time	2.743	3.627	3.56	2.554
HCM Lane V/C Ratio	0.314	0.075	0.105	0.574
HCM Control Delay	9.9	9.1	9.2	13.5
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	1.3	0.2	0.3	3.7

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	56	582	0	816	321	0
Future Vol, veh/h	56	582	0	816	321	0
Conflicting Peds, #/hr	2	2	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	50	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	1	1	1	1	2	2
Mvmt Flow	57	594	0	833	328	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1163	-	-	0	-	0
Stage 1	328	-	-	-	-	-
Stage 2	835	-	-	-	-	-
Critical Hdwy	6.41	-	-	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	-	-	-	-	-
Pot Cap-1 Maneuver	216	0	0	-	-	0
Stage 1	732	0	0	-	-	0
Stage 2	428	0	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	216	-	-	-	-	-
Mov Cap-2 Maneuver	216	-	-	-	-	-
Stage 1	732	-	-	-	-	-
Stage 2	428	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.6	0	0
HCM LOS	D		

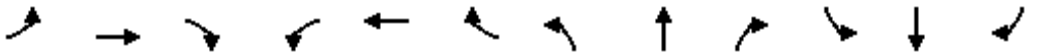
Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	216	-	-
HCM Lane V/C Ratio	-	0.265	-	-
HCM Control Delay (s)	-	27.6	0	-
HCM Lane LOS	-	D	A	-
HCM 95th %tile Q(veh)	-	1	-	-



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1010	103	190	773	79	127
Future Volume (vph)	1010	103	190	773	79	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0	5.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	1840		1770	1863	1675	
Flt Permitted	1.00		0.07	1.00	0.98	
Satd. Flow (perm)	1840		134	1863	1675	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1063	108	200	814	83	134
RTOR Reduction (vph)	2	0	0	0	55	0
Lane Group Flow (vph)	1169	0	200	814	162	0
Turn Type	NA		pm+pt	NA	Perm	
Protected Phases	4		3	8		
Permitted Phases			8		2	
Actuated Green, G (s)	50.5		66.7	66.7	13.4	
Effective Green, g (s)	50.5		66.7	66.7	13.4	
Actuated g/C Ratio	0.56		0.74	0.74	0.15	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	3.0		3.0	3.0	2.5	
Lane Grp Cap (vph)	1031		302	1379	249	
v/s Ratio Prot	c0.64		0.08	c0.44		
v/s Ratio Perm			0.41		c0.10	
v/c Ratio	1.13		0.66	0.59	0.65	
Uniform Delay, d1	19.8		25.3	5.4	36.1	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	72.4		5.4	0.7	5.1	
Delay (s)	92.2		30.6	6.1	41.2	
Level of Service	F		C	A	D	
Approach Delay (s)	92.2			10.9	41.2	
Approach LOS	F			B	D	

Intersection Summary			
HCM 2000 Control Delay	53.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	94.6%	ICU Level of Service	F
Analysis Period (min)	15		

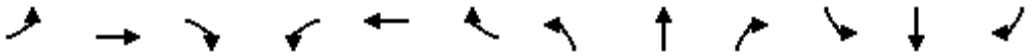
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	337	19	152	53	75	10	37	153	5	18	522	435
Future Volume (veh/h)	337	19	152	53	75	10	37	153	5	18	522	435
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	344	19	41	54	77	2	38	156	1	18	533	199
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	457	120	259	82	264	224	387	1504	671	627	1447	645
Arrive On Green	0.13	0.23	0.23	0.05	0.14	0.14	0.04	0.42	0.42	0.02	0.41	0.41
Sat Flow, veh/h	3456	527	1138	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	344	0	60	54	77	2	38	156	1	18	533	199
Grp Sat Flow(s),veh/h/ln	1728	0	1666	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.8	0.0	2.0	2.1	2.6	0.1	0.9	1.9	0.0	0.4	7.4	6.0
Cycle Q Clear(g_c), s	6.8	0.0	2.0	2.1	2.6	0.1	0.9	1.9	0.0	0.4	7.4	6.0
Prop In Lane	1.00		0.68	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	457	0	379	82	264	224	387	1504	671	627	1447	645
V/C Ratio(X)	0.75	0.00	0.16	0.66	0.29	0.01	0.10	0.10	0.00	0.03	0.37	0.31
Avail Cap(c_a), veh/h	1219	0	1175	628	1320	1118	949	1504	671	1344	1504	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	0.0	21.9	33.2	27.3	26.2	11.6	12.3	11.8	11.7	14.7	14.2
Incr Delay (d2), s/veh	0.9	0.0	0.2	3.3	0.6	0.0	0.0	0.1	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.8	1.0	1.2	0.0	0.3	0.7	0.0	0.1	2.7	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.6	0.0	22.1	36.5	27.9	26.2	11.6	12.5	11.8	11.7	14.7	14.3
LnGrp LOS	C	A	C	D	C	C	B	B	B	B	B	B
Approach Vol, veh/h		404			133			195			750	
Approach Delay, s/veh		29.3			31.4			12.3			14.5	
Approach LOS		C			C			B			B	

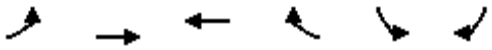
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	21.1	7.6	33.9	14.4	15.0	6.5	35.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	50.0	25.0	30.0	25.0	50.0	30.0	30.0
Max Q Clear Time (g_c+I1), s	4.1	4.0	2.9	9.4	8.8	4.6	2.4	3.9
Green Ext Time (p_c), s	0.1	0.3	0.0	2.6	0.6	0.5	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	19.8
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	0	467	0	756	1	848	122	263	804	0
Future Volume (vph)	2	0	0	467	0	756	1	848	122	263	804	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0		5.0	6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00		0.88	1.00	0.95		0.97	0.95	
Frt		1.00		1.00		0.85	1.00	0.98		1.00	1.00	
Flt Protected		0.95		0.95		1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1805		1752		2760	1736	3406		3155	3252	
Flt Permitted		0.95		0.95		1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1805		1752		2760	1736	3406		3155	3252	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	2	0	0	477	0	771	1	865	124	268	820	0
RTOR Reduction (vph)	0	0	0	0	0	363	0	7	0	0	0	0
Lane Group Flow (vph)	0	2	0	477	0	408	1	982	0	268	820	0
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	4%	4%	4%	11%	11%	11%
Turn Type	Split	NA		Prot		pt+ov	Prot	NA		Prot	NA	
Protected Phases	3	3		4		4 1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		8.8		35.5		56.6	5.1	43.8		16.1	54.8	
Effective Green, g (s)		8.8		35.5		56.6	5.1	43.8		16.1	54.8	
Actuated g/C Ratio		0.07		0.28		0.44	0.04	0.34		0.13	0.43	
Clearance Time (s)		6.0		5.0			6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0		2.0			2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		124		488		1228	69	1172		399	1401	
v/s Ratio Prot		c0.00		c0.27		0.15	0.00	c0.29		c0.08	0.25	
v/s Ratio Perm												
v/c Ratio		0.02		0.98		0.33	0.01	0.84		0.67	0.59	
Uniform Delay, d1		55.2		45.5		23.0	58.6	38.4		53.0	27.6	
Progression Factor		1.00		1.00		1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1		34.4		0.1	0.0	5.2		3.5	0.4	
Delay (s)		55.2		79.9		23.1	58.7	43.6		56.5	28.0	
Level of Service		E		E		C	E	D		E	C	
Approach Delay (s)		55.2			44.8			43.6			35.0	
Approach LOS		E			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	127.2	Sum of lost time (s)	23.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	141	253	754	173	289	476
Future Volume (vph)	141	253	754	173	289	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1597	3195	3374		3433	1583
Flt Permitted	0.17	1.00	1.00		0.95	1.00
Satd. Flow (perm)	279	3195	3374		3433	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	150	269	802	184	307	506
RTOR Reduction (vph)	0	0	8	0	0	430
Lane Group Flow (vph)	150	269	978	0	307	76
Heavy Vehicles (%)	13%	13%	4%	4%	2%	2%
Turn Type	pm+pt	NA	NA		Prot	Prot
Protected Phases	7	4	8		6	6
Permitted Phases	4					
Actuated Green, G (s)	59.6	59.6	40.5		13.4	13.4
Effective Green, g (s)	59.6	59.6	40.5		13.4	13.4
Actuated g/C Ratio	0.67	0.67	0.46		0.15	0.15
Clearance Time (s)	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	396	2146	1540		518	239
v/s Ratio Prot	c0.06	0.08	c0.29		c0.09	0.05
v/s Ratio Perm	0.19					
v/c Ratio	0.38	0.13	0.63		0.59	0.32
Uniform Delay, d1	8.4	5.2	18.4		35.1	33.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	0.0	0.6		1.2	0.3
Delay (s)	8.6	5.2	19.1		36.3	33.9
Level of Service	A	A	B		D	C
Approach Delay (s)		6.4	19.1		34.8	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	88.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

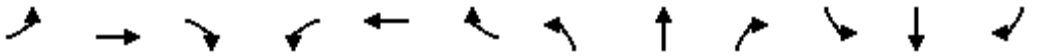
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	482	709	91	66	43
Future Vol, veh/h	34	482	709	91	66	43
Conflicting Peds, #/hr	7	0	0	7	0	6
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	160	-	-	-	200	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	0	0
Mvmt Flow	35	492	723	93	67	44

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	823	0	-	0	1093	421
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	316	-
Critical Hdwy	4.14	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.22	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	803	-	-	-	212	587
Stage 1	-	-	-	-	419	-
Stage 2	-	-	-	-	718	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	798	-	-	-	200	580
Mov Cap-2 Maneuver	-	-	-	-	313	-
Stage 1	-	-	-	-	398	-
Stage 2	-	-	-	-	713	-

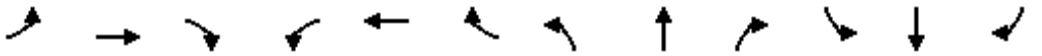
Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	798	-	-	-	313	580
HCM Lane V/C Ratio	0.043	-	-	-	0.215	0.076
HCM Control Delay (s)	9.7	-	-	-	19.6	11.7
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	650	20	410	1040	240	0	70	390	760	310	780
Future Volume (vph)	160	650	20	410	1040	240	0	70	390	760	310	780
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00		0.95	1.00	0.97	1.00	0.88
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	3486		1752	3505	1568		3167	1417	3400	1845	2760
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	3486		1752	3505	1568		3167	1417	3400	1845	2760
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	168	684	21	432	1095	253	0	74	411	800	326	821
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	372	0	0	7
Lane Group Flow (vph)	168	703	0	432	1095	253	0	74	39	800	326	814
Confl. Peds. (#/hr)			3	3			2		4	4		2
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	14%	14%	14%	3%	3%	3%
Turn Type	Split	NA		Split	NA	Free		NA	Prot	Split	NA	custom
Protected Phases	2	2		3	3			1	1	4	4	1 2 4
Permitted Phases		2				Free						
Actuated Green, G (s)	33.8	33.8		49.0	49.0	147.8		14.0	14.0	35.0	35.0	90.8
Effective Green, g (s)	33.8	33.8		49.0	49.0	147.8		14.0	14.0	35.0	35.0	90.8
Actuated g/C Ratio	0.23	0.23		0.33	0.33	1.00		0.09	0.09	0.24	0.24	0.61
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	777	797		580	1162	1568		299	134	805	436	1695
v/s Ratio Prot	0.05	c0.20		0.25	c0.31			0.02	0.03	c0.24	0.18	c0.29
v/s Ratio Perm						0.16						
v/c Ratio	0.22	0.88		0.74	0.94	0.16		0.25	0.29	0.99	0.75	0.48
Uniform Delay, d1	46.3	55.1		43.9	48.0	0.0		62.0	62.3	56.3	52.3	15.6
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	11.3		5.2	14.6	0.2		0.4	1.2	30.0	6.9	0.2
Delay (s)	46.4	66.4		49.0	62.7	0.2		62.5	63.5	86.3	59.2	15.8
Level of Service	D	E		D	E	A		E	E	F	E	B
Approach Delay (s)		62.5			50.5			63.3			52.0	
Approach LOS		E			D			E			D	

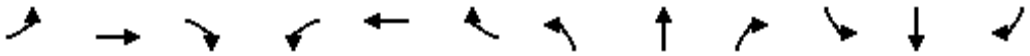
Intersection Summary			
HCM 2000 Control Delay	54.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	147.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	540	700	690	240	200	40	140	880	300	90	900	500
Future Volume (vph)	540	700	690	240	200	40	140	880	300	90	900	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.88	1.00	0.95		1.00	0.95		1.00	0.91	0.88
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	2746	1752	3407		1770	3389		1770	5085	2707
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	2746	1752	3407		1770	3389		1770	5085	2707
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	568	737	726	253	211	42	147	926	316	95	947	526
RTOR Reduction (vph)	0	0	489	0	11	0	0	22	0	0	0	397
Lane Group Flow (vph)	568	737	237	253	242	0	147	1220	0	95	947	129
Confl. Peds. (#/hr)	2		2	2		2	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	3	7		8	4		2	6		5	1	
Permitted Phases			7									1
Actuated Green, G (s)	49.0	34.1	34.1	26.0	11.1		31.0	56.6		9.1	34.7	34.7
Effective Green, g (s)	49.0	34.1	34.1	26.0	11.1		31.0	56.6		9.1	34.7	34.7
Actuated g/C Ratio	0.35	0.24	0.24	0.18	0.08		0.22	0.40		0.06	0.24	0.24
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	611	851	660	321	266		386	1352		113	1244	662
v/s Ratio Prot	c0.32	0.21		c0.14	0.07		0.08	c0.36		0.05	c0.19	
v/s Ratio Perm			0.09									0.05
v/c Ratio	0.93	0.87	0.36	0.79	0.91		0.38	0.90		0.84	0.76	0.19
Uniform Delay, d1	44.7	51.7	44.8	55.3	64.9		47.2	40.0		65.6	49.7	42.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	20.6	9.2	0.3	12.1	32.0		0.6	8.6		40.1	2.8	0.1
Delay (s)	65.3	60.9	45.1	67.3	96.9		47.8	48.6		105.7	52.5	42.6
Level of Service	E	E	D	E	F		D	D		F	D	D
Approach Delay (s)		56.5			82.1			48.5			52.4	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	55.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	141.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	10	50	110	10	10	30	870	70	30	1890	20
Future Volume (veh/h)	10	10	50	110	10	10	30	870	70	30	1890	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1870	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	11	11	17	116	11	2	32	916	48	32	1989	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	2	2	2	3	3	3	2	2	2
Cap, veh/h	264	86	133	252	204	37	56	2284	1016	57	2333	25
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.03	0.65	0.65	0.03	0.65	0.65
Sat Flow, veh/h	1370	649	1003	1374	1538	280	1767	3526	1569	1781	3602	38
Grp Volume(v), veh/h	11	0	28	116	0	13	32	916	48	32	979	1031
Grp Sat Flow(s),veh/h/ln	1370	0	1652	1374	0	1818	1767	1763	1569	1781	1777	1863
Q Serve(g_s), s	0.6	0.0	1.2	6.5	0.0	0.5	1.4	9.9	0.9	1.4	34.6	34.9
Cycle Q Clear(g_c), s	1.1	0.0	1.2	7.7	0.0	0.5	1.4	9.9	0.9	1.4	34.6	34.9
Prop In Lane	1.00		0.61	1.00		0.15	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	264	0	220	252	0	242	56	2284	1016	57	1151	1207
V/C Ratio(X)	0.04	0.00	0.13	0.46	0.00	0.05	0.57	0.40	0.05	0.56	0.85	0.85
Avail Cap(c_a), veh/h	510	0	517	499	0	568	111	3263	1452	134	1667	1748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.7	0.0	30.6	34.0	0.0	30.3	38.2	6.7	5.1	38.2	11.1	11.1
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.5	0.0	0.0	3.3	0.0	0.0	3.3	2.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.5	2.1	0.0	0.2	0.7	2.9	0.2	0.7	10.9	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	0.0	30.7	34.5	0.0	30.3	41.5	6.7	5.1	41.4	13.1	13.2
LnGrp LOS	C	A	C	C	A	C	D	A	A	D	B	B
Approach Vol, veh/h		39			129			996			2042	
Approach Delay, s/veh		30.7			34.0			7.8			13.6	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	56.8		15.6	7.5	56.8		15.6				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	6.0	74.0		25.0	5.0	75.0		25.0				
Max Q Clear Time (g_c+I1), s	3.4	11.9		3.2	3.4	36.9		9.7				
Green Ext Time (p_c), s	0.0	4.8		0.1	0.0	14.9		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		12.8	
HCM 6th LOS		B	

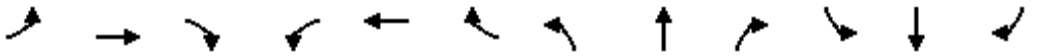
Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	100	70	320	640	60
Future Vol, veh/h	20	100	70	320	640	60
Conflicting Peds, #/hr	0	0	1	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	7	7	7	7	7	7
Mvmt Flow	21	105	74	337	674	63

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1192	707	738	0	-	0
Stage 1	707	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Critical Hdwy	6.47	6.27	4.17	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.363	2.263	-	-	-
Pot Cap-1 Maneuver	202	427	846	-	-	-
Stage 1	480	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	184	427	845	-	-	-
Mov Cap-2 Maneuver	184	-	-	-	-	-
Stage 1	437	-	-	-	-	-
Stage 2	608	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21	1.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	845	-	350	-	-
HCM Lane V/C Ratio	0.087	-	0.361	-	-
HCM Control Delay (s)	9.7	-	21	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1.6	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	350	110	30	0	0	0	40	520	80	760	860	640
Future Volume (veh/h)	350	110	30	0	0	0	40	520	80	760	860	640
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	242	292	6				42	547	0	800	905	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				2	2	2	2	2	2
Cap, veh/h	341	358	303				54	665		843	2239	
Arrive On Green	0.19	0.19	0.19				0.03	0.19	0.00	0.47	0.63	0.00
Sat Flow, veh/h	1781	1870	1585				1781	3647	0	1781	3554	1585
Grp Volume(v), veh/h	242	292	6				42	547	0	800	905	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585				1781	1777	0	1781	1777	1585
Q Serve(g_s), s	12.0	14.1	0.3				2.2	13.9	0.0	40.5	11.9	0.0
Cycle Q Clear(g_c), s	12.0	14.1	0.3				2.2	13.9	0.0	40.5	11.9	0.0
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	341	358	303				54	665		843	2239	
V/C Ratio(X)	0.71	0.82	0.02				0.78	0.82		0.95	0.40	
Avail Cap(c_a), veh/h	624	655	555				170	679		1040	2414	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.7	36.5	30.9				45.4	36.8	0.0	23.7	8.6	0.0
Incr Delay (d2), s/veh	2.7	4.6	0.0				21.5	7.9	0.0	15.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	6.9	0.0				1.3	6.5	0.0	19.1	4.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.4	41.1	31.0				66.9	44.7	0.0	39.0	8.8	0.0
LnGrp LOS	D	D	C				E	D		D	A	
Approach Vol, veh/h		540						589	A		1705	A
Approach Delay, s/veh		39.8						46.3			23.0	
Approach LOS		D						D			C	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	49.6	21.6		23.0	7.8	63.4
Change Period (Y+Rc), s	4.5	5.5		4.5	4.5	5.5
Max Green Setting (Gmax), s	55.5	16.5		33.5	9.5	62.5
Max Q Clear Time (g_c+I1), s	42.5	15.9		16.1	4.2	13.9
Green Ext Time (p_c), s	2.6	0.2		2.4	0.0	7.7

Intersection Summary			
HCM 6th Ctrl Delay			31.0
HCM 6th LOS			C

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	21

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	5	170	5	5	20	30	370	10	50	720	20
Future Vol, veh/h	60	5	170	5	5	20	30	370	10	50	720	20
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	225	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	6	6	6	0	0	0	9	9	9	7	7	7
Mvmt Flow	63	5	179	5	5	21	32	389	11	53	758	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1351	1343	773	1430	1348	399	781	0	0	402	0	0
Stage 1	877	877	-	461	461	-	-	-	-	-	-	-
Stage 2	474	466	-	969	887	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.1	6.5	6.2	4.19	-	-	4.17	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.5	4	3.3	2.281	-	-	2.263	-	-
Pot Cap-1 Maneuver	125	149	393	113	152	655	806	-	-	1130	-	-
Stage 1	338	361	-	584	569	-	-	-	-	-	-	-
Stage 2	564	556	-	307	365	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	110	136	392	56	138	653	804	-	-	1128	-	-
Mov Cap-2 Maneuver	110	136	-	56	138	-	-	-	-	-	-	-
Stage 1	324	343	-	559	545	-	-	-	-	-	-	-
Stage 2	518	533	-	156	347	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	124.6	27.4	0.7	0.5
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	804	-	-	231	192	1128	-	-
HCM Lane V/C Ratio	0.039	-	-	1.071	0.164	0.047	-	-
HCM Control Delay (s)	9.7	-	-	124.6	27.4	8.3	-	-
HCM Lane LOS	A	-	-	F	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	10.7	0.6	0.1	-	-



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	440	50	710	60	90	1350
Future Volume (veh/h)	440	50	710	60	90	1350
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	463	50	747	58	95	1421
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	523	56	1344	104	361	1887
Arrive On Green	0.33	0.33	0.40	0.40	0.06	0.53
Sat Flow, veh/h	1586	171	3435	259	1781	3647
Grp Volume(v), veh/h	514	0	397	408	95	1421
Grp Sat Flow(s),veh/h/ln	1760	0	1777	1824	1781	1777
Q Serve(g_s), s	19.8	0.0	12.3	12.4	2.1	22.4
Cycle Q Clear(g_c), s	19.8	0.0	12.3	12.4	2.1	22.4
Prop In Lane	0.90	0.10		0.14	1.00	
Lane Grp Cap(c), veh/h	580	0	715	733	361	1887
V/C Ratio(X)	0.89	0.00	0.56	0.56	0.26	0.75
Avail Cap(c_a), veh/h	1275	0	1411	1448	405	3367
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	0.0	16.5	16.5	11.6	13.2
Incr Delay (d2), s/veh	4.8	0.0	0.7	0.7	0.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	0.0	4.4	4.5	0.7	7.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.5	0.0	17.2	17.2	11.8	13.8
LnGrp LOS	C	A	B	B	B	B
Approach Vol, veh/h	514		805			1516
Approach Delay, s/veh	27.5		17.2			13.7
Approach LOS	C		B			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.2	33.9			43.1	28.7
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	6.0	57.0			68.0	52.0
Max Q Clear Time (g_c+I1), s	4.1	14.4			24.4	21.8
Green Ext Time (p_c), s	0.0	5.1			13.7	1.8

Intersection Summary		
HCM 6th Ctrl Delay		17.2
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Intersection Delay, s/veh	18.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	120	90	80	140	10	160	60	80	20	290	80
Future Vol, veh/h	30	120	90	80	140	10	160	60	80	20	290	80
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	0	0	0	2	2	2	1	1	1
Mvmt Flow	32	126	95	84	147	11	168	63	84	21	305	84
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	15.6	16	18	23.3
HCM LOS	C	C	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	53%	12%	35%	5%
Vol Thru, %	20%	50%	61%	74%
Vol Right, %	27%	38%	4%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	300	240	230	390
LT Vol	160	30	80	20
Through Vol	60	120	140	290
RT Vol	80	90	10	80
Lane Flow Rate	316	253	242	411
Geometry Grp	1	1	1	1
Degree of Util (X)	0.57	0.468	0.465	0.71
Departure Headway (Hd)	6.501	6.676	6.913	6.228
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	553	536	518	579
Service Time	4.587	4.768	5.007	4.306
HCM Lane V/C Ratio	0.571	0.472	0.467	0.71
HCM Control Delay	18	15.6	16	23.3
HCM Lane LOS	C	C	C	C
HCM 95th-tile Q	3.5	2.5	2.4	5.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	220	30	230	250	10	70	130	310	40	330	100
Future Volume (veh/h)	50	220	30	230	250	10	70	130	310	40	330	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1811	1811	1811	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	53	232	0	242	263	0	74	137	304	42	347	104
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	6	6	6	4	4	4	2	2	2
Cap, veh/h	529	555		255	278		124	558	471	295	418	125
Arrive On Green	0.29	0.29	0.00	0.30	0.30	0.00	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1795	1885	1598	848	921	1535	925	1841	1555	947	1381	414
Grp Volume(v), veh/h	53	232	0	505	0	0	74	137	304	42	0	451
Grp Sat Flow(s),veh/h/ln	1795	1885	1598	1769	0	1535	925	1841	1555	947	0	1794
Q Serve(g_s), s	2.5	11.8	0.0	33.2	0.0	0.0	8.2	6.7	20.1	4.2	0.0	27.8
Cycle Q Clear(g_c), s	2.5	11.8	0.0	33.2	0.0	0.0	36.0	6.7	20.1	10.8	0.0	27.8
Prop In Lane	1.00		1.00	0.48		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	529	555		533	0		124	558	471	295	0	544
V/C Ratio(X)	0.10	0.42		0.95	0.00		0.59	0.25	0.65	0.14	0.00	0.83
Avail Cap(c_a), veh/h	529	555		551	0		124	558	471	295	0	544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.5	33.7	0.0	40.6	0.0	0.0	55.9	31.2	35.9	35.2	0.0	38.5
Incr Delay (d2), s/veh	0.4	2.3	0.0	25.5	0.0	0.0	7.4	0.2	3.0	0.2	0.0	10.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.8	0.0	18.2	0.0	0.0	2.5	3.0	7.9	1.0	0.0	13.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	36.0	0.0	66.1	0.0	0.0	63.3	31.4	38.9	35.5	0.0	48.9
LnGrp LOS	C	D		E	A		E	C	D	D	A	D
Approach Vol, veh/h		285	A		505	A		515			493	
Approach Delay, s/veh		35.0			66.1			40.4			47.8	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	39.0	40.0	39.8	40.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	35.0	36.0	37.0	36.0
Max Q Clear Time (g_c+I1), s	13.8	29.8	35.2	38.0
Green Ext Time (p_c), s	1.5	1.6	0.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	48.8
HCM 6th LOS	D

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	38.5
Intersection LOS	E

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	480	20	80	370	160	140
Future Vol, veh/h	480	20	80	370	160	140
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	11	11	6	6	2	2
Mvmt Flow	505	21	84	389	168	147
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	57.4	29.7	20
HCM LOS	F	D	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	96%	53%
Vol Thru, %	18%	0%	47%
Vol Right, %	82%	4%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	450	500	300
LT Vol	0	480	160
Through Vol	80	0	140
RT Vol	370	20	0
Lane Flow Rate	474	526	316
Geometry Grp	1	1	1
Degree of Util (X)	0.804	0.97	0.605
Departure Headway (Hd)	6.113	6.633	6.9
Convergence, Y/N	Yes	Yes	Yes
Cap	592	547	521
Service Time	4.165	4.682	4.96
HCM Lane V/C Ratio	0.801	0.962	0.607
HCM Control Delay	29.7	57.4	20
HCM Lane LOS	D	F	C
HCM 95th-tile Q	7.9	13	4

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	190	10	10	170	10
Future Vol, veh/h	30	190	10	10	170	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	200	11	11	179	11
Number of Lanes	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.3	8	9.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	94%	0%	0%	50%
Vol Thru, %	0%	100%	0%	50%
Vol Right, %	6%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	30	190	20
LT Vol	170	0	0	10
Through Vol	0	30	0	10
RT Vol	10	0	190	0
Lane Flow Rate	189	32	200	21
Geometry Grp	2	7	7	5
Degree of Util (X)	0.245	0.044	0.24	0.028
Departure Headway (Hd)	4.649	5.023	4.32	4.852
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	775	715	834	739
Service Time	2.667	2.74	2.037	2.876
HCM Lane V/C Ratio	0.244	0.045	0.24	0.028
HCM Control Delay	9.2	8	8.4	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1	0.1	0.9	0.1

Intersection	
Int Delay, s/veh	60.2

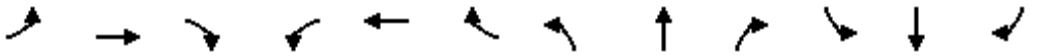
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	130	130	10	80	270	670	10	40	60	190	30	20
Future Vol, veh/h	130	130	10	80	270	670	10	40	60	190	30	20
Conflicting Peds, #/hr	0	0	2	2	0	0	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	None
Storage Length	90	-	-	75	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	4	4	4	4	4	4	10	10	10
Mvmt Flow	137	137	11	84	284	705	11	42	63	200	32	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	284	0	0	150	0	0	899	871	145	921	876	285
Stage 1	-	-	-	-	-	-	419	419	-	452	452	-
Stage 2	-	-	-	-	-	-	480	452	-	469	424	-
Critical Hdwy	4.13	-	-	4.14	-	-	7.14	6.54	6.24	7.2	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.54	-	6.2	5.6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.54	-	6.2	5.6	-
Follow-up Hdwy	2.227	-	-	2.236	-	-	3.536	4.036	3.336	3.59	4.09	3.39
Pot Cap-1 Maneuver	1273	-	-	1419	-	0	258	287	897	243	279	735
Stage 1	-	-	-	-	-	0	608	587	-	572	557	-
Stage 2	-	-	-	-	-	0	563	567	-	560	574	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1273	-	-	1416	-	-	197	241	895	~ 172	234	734
Mov Cap-2 Maneuver	-	-	-	-	-	-	197	241	-	~ 172	234	-
Stage 1	-	-	-	-	-	-	542	522	-	510	524	-
Stage 2	-	-	-	-	-	-	483	534	-	427	511	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.9	1.8	18.2	227.9
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1
Capacity (veh/h)	388	1273	-	-	1416	-	190
HCM Lane V/C Ratio	0.298	0.107	-	-	0.059	-	1.33
HCM Control Delay (s)	18.2	8.2	-	-	7.7	-	227.9
HCM Lane LOS	C	A	-	-	A	-	F
HCM 95th %tile Q(veh)	1.2	0.4	-	-	0.2	-	14.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	10	40	10	10	20	40	1130	20	20	1010	80
Future Volume (veh/h)	60	10	40	10	10	20	40	1130	20	20	1010	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.95	0.96		0.95	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1900	1900	1900	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	63	11	8	11	11	4	42	1189	20	21	1063	48
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	0	0	0	4	4	4	5	5	5
Cap, veh/h	348	49	260	196	164	44	64	1871	31	36	1789	788
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.04	0.53	0.53	0.02	0.52	0.52
Sat Flow, veh/h	1131	283	1499	457	946	255	1753	3519	59	1739	3469	1528
Grp Volume(v), veh/h	74	0	8	26	0	0	42	591	618	21	1063	48
Grp Sat Flow(s),veh/h/ln	1414	0	1499	1658	0	0	1753	1749	1829	1739	1735	1528
Q Serve(g_s), s	1.4	0.0	0.2	0.0	0.0	0.0	1.0	10.4	10.5	0.5	9.4	0.7
Cycle Q Clear(g_c), s	1.9	0.0	0.2	0.5	0.0	0.0	1.0	10.4	10.5	0.5	9.4	0.7
Prop In Lane	0.85		1.00	0.42		0.15	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	397	0	260	404	0	0	64	930	972	36	1789	788
V/C Ratio(X)	0.19	0.00	0.03	0.06	0.00	0.00	0.66	0.64	0.64	0.59	0.59	0.06
Avail Cap(c_a), veh/h	950	0	857	1033	0	0	441	3041	3181	279	5715	2517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	15.0	15.2	0.0	0.0	20.8	7.2	7.2	21.2	7.4	5.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	10.8	0.7	0.7	14.3	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.1	0.2	0.0	0.0	0.6	2.5	2.6	0.3	2.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.9	0.0	15.1	15.2	0.0	0.0	31.6	8.0	7.9	35.5	7.7	5.3
LnGrp LOS	B	A	B	B	A	A	C	A	A	D	A	A
Approach Vol, veh/h		82			26			1251			1132	
Approach Delay, s/veh		15.8			15.2			8.7			8.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.6	5.6	26.5		11.6	4.9	27.2				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		25.0	11.0	72.0		25.0	7.0	76.0				
Max Q Clear Time (g_c+I1), s		3.9	3.0	11.4		2.5	2.5	12.5				
Green Ext Time (p_c), s		0.4	0.0	10.2		0.1	0.0	10.8				

Intersection Summary												
HCM 6th Ctrl Delay			8.8									
HCM 6th LOS			A									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	220	130	120	340	60	150	590	80	70	990	90
Future Volume (veh/h)	120	220	130	120	340	60	150	590	80	70	990	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1885	1885	1885	1841	1841	1841	1870	1870	1870
Adj Flow Rate, veh/h	126	232	119	126	358	59	158	621	33	74	1042	28
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	1	1	1	4	4	4	2	2	2
Cap, veh/h	156	323	166	157	440	73	190	1330	581	96	1156	504
Arrive On Green	0.09	0.28	0.28	0.09	0.28	0.28	0.11	0.38	0.38	0.05	0.33	0.33
Sat Flow, veh/h	1781	1148	589	1795	1568	258	1753	3497	1529	1781	3554	1548
Grp Volume(v), veh/h	126	0	351	126	0	417	158	621	33	74	1042	28
Grp Sat Flow(s),veh/h/ln	1781	0	1737	1795	0	1827	1753	1749	1529	1781	1777	1548
Q Serve(g_s), s	7.0	0.0	18.4	7.0	0.0	21.5	8.9	13.5	1.4	4.1	28.3	1.3
Cycle Q Clear(g_c), s	7.0	0.0	18.4	7.0	0.0	21.5	8.9	13.5	1.4	4.1	28.3	1.3
Prop In Lane	1.00		0.34	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	156	0	489	157	0	513	190	1330	581	96	1156	504
V/C Ratio(X)	0.81	0.00	0.72	0.80	0.00	0.81	0.83	0.47	0.06	0.77	0.90	0.06
Avail Cap(c_a), veh/h	247	0	601	248	0	632	295	1383	605	194	1194	520
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.3	0.0	32.8	45.3	0.0	33.9	44.2	23.6	19.9	47.3	32.6	23.5
Incr Delay (d2), s/veh	10.0	0.0	3.2	9.7	0.0	6.6	11.0	0.4	0.1	12.5	9.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	8.0	3.5	0.0	10.4	4.4	5.4	0.5	2.1	13.1	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.3	0.0	35.9	55.0	0.0	40.5	55.2	24.0	19.9	59.7	42.2	23.5
LnGrp LOS	E	A	D	D	A	D	E	C	B	E	D	C
Approach Vol, veh/h		477			543			812			1144	
Approach Delay, s/veh		41.1			43.9			29.9			42.9	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	43.5	13.8	33.4	16.0	37.9	13.9	33.4
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	11.0	40.0	14.0	35.0	17.0	34.0	14.0	35.0
Max Q Clear Time (g_c+I1), s	10.1	15.5	9.0	20.4	10.9	30.3	9.0	23.5
Green Ext Time (p_c), s	0.0	6.0	0.1	1.9	0.2	2.6	0.1	2.1

Intersection Summary	
HCM 6th Ctrl Delay	39.2
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	280	60	70	390	80	60	140	80	110	310	40
Future Volume (veh/h)	50	280	60	70	390	80	60	140	80	110	310	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.86	0.96		0.86	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1870	1870	1870	1870	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	53	295	52	74	411	73	63	147	65	116	326	36
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	2	2	2	2	3	3	1	1	1
Cap, veh/h	114	487	80	123	491	83	197	438	175	219	572	59
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	134	1297	214	158	1307	221	273	935	374	319	1222	126
Grp Volume(v), veh/h	400	0	0	558	0	0	275	0	0	478	0	0
Grp Sat Flow(s),veh/h/ln	1644	0	0	1686	0	0	1582	0	0	1667	0	0
Q Serve(g_s), s	0.0	0.0	0.0	7.4	0.0	0.0	0.0	0.0	0.0	6.7	0.0	0.0
Cycle Q Clear(g_c), s	12.1	0.0	0.0	19.4	0.0	0.0	6.3	0.0	0.0	13.0	0.0	0.0
Prop In Lane	0.13		0.13	0.13		0.13	0.23		0.24	0.24		0.08
Lane Grp Cap(c), veh/h	681	0	0	697	0	0	810	0	0	850	0	0
V/C Ratio(X)	0.59	0.00	0.00	0.80	0.00	0.00	0.34	0.00	0.00	0.56	0.00	0.00
Avail Cap(c_a), veh/h	828	0	0	845	0	0	810	0	0	850	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.1	0.0	0.0	18.3	0.0	0.0	10.7	0.0	0.0	12.4	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	4.6	0.0	0.0	1.1	0.0	0.0	2.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	0.0	7.8	0.0	0.0	2.5	0.0	0.0	5.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.9	0.0	0.0	22.9	0.0	0.0	11.9	0.0	0.0	15.0	0.0	0.0
LnGrp LOS	B	A	A	C	A	A	B	A	A	B	A	A
Approach Vol, veh/h		400			558			275			478	
Approach Delay, s/veh		16.9			22.9			11.9			15.0	
Approach LOS		B			C			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	35.0	29.1	35.0	29.1
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	30.0	30.0	30.0	30.0
Max Q Clear Time (g_c+I1), s	8.3	14.1	15.0	21.4
Green Ext Time (p_c), s	1.8	2.5	3.0	2.6

Intersection Summary	
HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	59.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	130	300	550	60	160	180
Future Vol, veh/h	130	300	550	60	160	180
Conflicting Peds, #/hr	2	0	0	2	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	2	2
Mvmt Flow	137	316	579	63	168	189

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	644	0	-	0	1205	615
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	592	-
Critical Hdwy	4.1	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.2	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	951	-	-	-	203	491
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	553	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	949	-	-	-	~ 167	489
Mov Cap-2 Maneuver	-	-	-	-	~ 167	-
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	552	-

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	238.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	949	-	-	-	256
HCM Lane V/C Ratio	0.144	-	-	-	1.398
HCM Control Delay (s)	9.4	0	-	-	238.5
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.5	-	-	-	19.6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

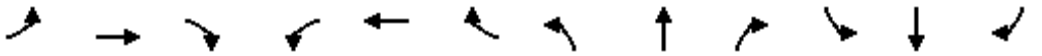
Intersection	
Int Delay, s/veh	15.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	150	360	30	300	310	10
Future Vol, veh/h	150	360	30	300	310	10
Conflicting Peds, #/hr	0	2	2	0	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	1	1	0	0	1	1
Mvmt Flow	158	379	32	316	326	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	539	0	732	352
Stage 1	-	-	-	-	350	-
Stage 2	-	-	-	-	382	-
Critical Hdwy	-	-	4.1	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	2.2	-	3.509	3.309
Pot Cap-1 Maneuver	-	-	1040	-	390	694
Stage 1	-	-	-	-	716	-
Stage 2	-	-	-	-	692	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1038	-	374	691
Mov Cap-2 Maneuver	-	-	-	-	374	-
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	665	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	56
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	379	-	-	1038	-
HCM Lane V/C Ratio	0.889	-	-	0.03	-
HCM Control Delay (s)	56	-	-	8.6	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	8.9	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	10	150	30	10	10	190	1110	50	10	1560	90
Future Volume (veh/h)	50	10	150	30	10	10	190	1110	50	10	1560	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1693	1693	1693	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	53	11	27	32	11	0	200	1168	52	11	1642	92
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	14	14	14	4	4	4	5	5	5
Cap, veh/h	193	28	123	127	30	0	242	2411	107	24	1946	108
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.00	0.14	0.71	0.71	0.01	0.58	0.58
Sat Flow, veh/h	1361	358	1598	555	391	0	1753	3410	152	1739	3341	186
Grp Volume(v), veh/h	64	0	27	43	0	0	200	599	621	11	848	886
Grp Sat Flow(s),veh/h/ln	1720	0	1598	946	0	0	1753	1749	1813	1739	1735	1792
Q Serve(g_s), s	0.0	0.0	1.2	1.5	0.0	0.0	8.2	11.3	11.3	0.5	29.6	30.3
Cycle Q Clear(g_c), s	2.5	0.0	1.2	4.0	0.0	0.0	8.2	11.3	11.3	0.5	29.6	30.3
Prop In Lane	0.83		1.00	0.74		0.00	1.00		0.08	1.00		0.10
Lane Grp Cap(c), veh/h	221	0	123	157	0	0	242	1236	1282	24	1010	1044
V/C Ratio(X)	0.29	0.00	0.22	0.27	0.00	0.00	0.83	0.48	0.48	0.46	0.84	0.85
Avail Cap(c_a), veh/h	667	0	604	556	0	0	473	1236	1282	469	1217	1258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	0.0	32.1	33.6	0.0	0.0	31.1	4.8	4.8	36.3	12.6	12.8
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.3	0.0	0.0	2.7	0.2	0.2	5.1	4.3	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.5	0.8	0.0	0.0	3.5	2.8	2.9	0.2	10.3	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.0	0.0	32.4	33.9	0.0	0.0	33.8	5.1	5.0	41.4	16.9	17.3
LnGrp LOS	C	A	C	C	A	A	C	A	A	D	B	B
Approach Vol, veh/h		91			43			1420			1745	
Approach Delay, s/veh		32.8			33.9			9.1			17.3	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	57.4		10.7	15.2	48.2		10.7				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	20.0	52.0		28.0	20.0	52.0		28.0				
Max Q Clear Time (g_c+I1), s	2.5	13.3		4.5	10.2	32.3		6.0				
Green Ext Time (p_c), s	0.0	8.0		0.2	0.2	10.9		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		14.4	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	320	260	360	290	340	300	540	170	200	1180	110
Future Volume (veh/h)	240	320	260	360	290	340	300	540	170	200	1180	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1856	1856	1856
Adj Flow Rate, veh/h	253	337	179	379	305	349	316	568	-23	211	1242	77
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	3	3	3
Cap, veh/h	321	388	317	455	438	379	342	1355	604	244	1153	491
Arrive On Green	0.09	0.21	0.21	0.13	0.25	0.25	0.19	0.38	0.00	0.14	0.33	0.33
Sat Flow, veh/h	3456	1870	1528	3456	1777	1537	1781	3554	1585	1767	3526	1500
Grp Volume(v), veh/h	253	337	179	379	305	349	316	568	-23	211	1242	77
Grp Sat Flow(s),veh/h/ln	1728	1870	1528	1728	1777	1537	1781	1777	1585	1767	1763	1500
Q Serve(g_s), s	8.1	19.7	11.9	12.1	17.7	25.1	19.7	13.3	0.0	13.2	37.0	4.1
Cycle Q Clear(g_c), s	8.1	19.7	11.9	12.1	17.7	25.1	19.7	13.3	0.0	13.2	37.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	321	388	317	455	438	379	342	1355	604	244	1153	491
V/C Ratio(X)	0.79	0.87	0.56	0.83	0.70	0.92	0.92	0.42	-0.04	0.87	1.08	0.16
Avail Cap(c_a), veh/h	489	397	324	642	456	394	346	1355	604	406	1153	491
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.2	43.3	40.2	47.9	38.8	41.6	44.9	25.8	0.0	47.7	38.1	27.0
Incr Delay (d2), s/veh	4.8	17.8	2.2	6.5	4.4	26.4	29.4	0.2	0.0	10.1	49.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	10.9	4.6	5.6	8.1	12.1	11.2	5.4	0.0	6.3	23.1	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.0	61.1	42.4	54.4	43.2	67.9	74.3	26.0	0.0	57.8	87.9	27.1
LnGrp LOS	E	E	D	D	D	E	E	C	A	E	F	C
Approach Vol, veh/h		769			1033			861			1530	
Approach Delay, s/veh		54.8			55.7			44.4			80.7	
Approach LOS		D			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.6	47.1	18.9	27.5	25.7	41.0	14.5	31.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	26.0	33.0	21.0	24.0	22.0	37.0	16.0	29.0
Max Q Clear Time (g_c+I1), s	15.2	15.3	14.1	21.7	21.7	39.0	10.1	27.1
Green Ext Time (p_c), s	0.4	3.2	0.8	0.6	0.0	0.0	0.4	0.8

Intersection Summary	
HCM 6th Ctrl Delay	62.3
HCM 6th LOS	E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	620	80	350	590	230	50	190	130	170	230	110
Future Volume (veh/h)	60	620	80	350	590	230	50	190	130	170	230	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1870	1870	1870	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	63	653	81	368	621	233	53	200	115	179	242	104
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	2	2	2	1	1	1	1	1	1
Cap, veh/h	166	620	77	357	665	249	68	213	123	165	305	131
Arrive On Green	0.04	0.38	0.38	0.17	0.51	0.51	0.04	0.19	0.19	0.09	0.25	0.25
Sat Flow, veh/h	1767	1618	201	1781	1295	486	1795	1112	640	1795	1243	534
Grp Volume(v), veh/h	63	0	734	368	0	854	53	0	315	179	0	346
Grp Sat Flow(s),veh/h/ln	1767	0	1818	1781	0	1781	1795	0	1752	1795	0	1777
Q Serve(g_s), s	2.6	0.0	46.0	20.0	0.0	53.8	3.5	0.0	21.3	11.0	0.0	21.9
Cycle Q Clear(g_c), s	2.6	0.0	46.0	20.0	0.0	53.8	3.5	0.0	21.3	11.0	0.0	21.9
Prop In Lane	1.00		0.11	1.00		0.27	1.00		0.37	1.00		0.30
Lane Grp Cap(c), veh/h	166	0	697	357	0	914	68	0	336	165	0	436
V/C Ratio(X)	0.38	0.00	1.05	1.03	0.00	0.93	0.78	0.00	0.94	1.09	0.00	0.79
Avail Cap(c_a), veh/h	175	0	697	357	0	914	75	0	336	165	0	436
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.7	0.0	37.0	39.6	0.0	27.3	57.2	0.0	47.8	54.5	0.0	42.4
Incr Delay (d2), s/veh	0.5	0.0	48.9	55.9	0.0	16.2	32.0	0.0	33.4	95.5	0.0	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	29.2	11.5	0.0	25.6	2.2	0.0	12.3	9.3	0.0	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.2	0.0	85.9	95.5	0.0	43.5	89.2	0.0	81.2	150.0	0.0	52.2
LnGrp LOS	C	A	F	F	A	D	F	A	F	F	A	D
Approach Vol, veh/h		797			1222			368			525	
Approach Delay, s/veh		81.4			59.1			82.3			85.5	
Approach LOS		F			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	28.0	25.0	51.0	9.6	34.4	9.4	66.6
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	11.0	23.0	20.0	46.0	5.0	29.0	5.0	61.0
Max Q Clear Time (g_c+I1), s	13.0	23.3	22.0	48.0	5.5	23.9	4.6	55.8
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.9	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	72.9
HCM 6th LOS	E

Intersection	
Int Delay, s/veh	53

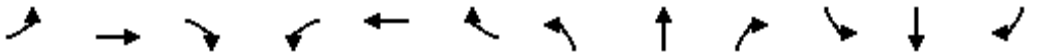
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1730	0	0	950	0	200	0	210	0	0	0
Future Vol, veh/h	0	1730	0	0	950	0	200	0	210	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	1	1	1	0	0	0
Mvmt Flow	0	1821	0	0	1000	0	211	0	221	0	0	0

Major/Minor	Major1		Major2			Minor1			
Conflicting Flow All	-	0	-	-	-	0	2821	-	-
Stage 1	-	-	-	-	-	-	1821	-	-
Stage 2	-	-	-	-	-	-	1000	-	-
Critical Hdwy	-	-	-	-	-	-	6.615	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	5.815	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.415	-	-
Follow-up Hdwy	-	-	-	-	-	-	3.5095	-	-
Pot Cap-1 Maneuver	0	-	0	0	-	-	~ 17	0	0
Stage 1	0	-	0	0	-	-	~ 116	0	0
Stage 2	0	-	0	0	-	-	357	0	0
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	-	-	-	-	-	-	~ 17	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 86	0	-
Stage 1	-	-	-	-	-	-	~ 116	0	-
Stage 2	-	-	-	-	-	-	357	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	$ 762.9
HCM LOS			F

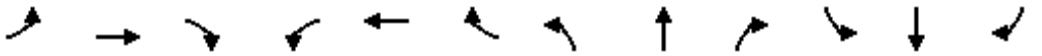
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT	WBR
Capacity (veh/h)	86	-	-	-	-
HCM Lane V/C Ratio	2.448	-	-	-	-
HCM Control Delay (s)	$ 762.9	0	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	19.6	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1085	110	840	1210	10	330	0	550	5	10	10
Future Volume (vph)	10	1085	110	840	1210	10	330	0	550	5	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7		5.0	5.7			5.0	5.0		5.0	
Lane Util. Factor	1.00	0.95		0.97	1.00			1.00	0.88		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.95		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1736	3419		3433	1859			1770	2659		1779	
Flt Permitted	0.11	1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (perm)	201	3419		3433	1859			1770	2659		1779	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	1142	116	884	1274	11	347	0	579	5	11	11
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	481	0	11	0
Lane Group Flow (vph)	11	1250	0	884	1285	0	0	347	98	0	16	0
Confl. Peds. (#/hr)	15		1	1		15			9	9		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases		4		3			2	2		1	1	
Permitted Phases	4				8			2	2		1	
Actuated Green, G (s)	36.3	36.3		23.0	64.3			17.0	17.0		3.0	
Effective Green, g (s)	36.3	36.3		23.0	64.3			17.0	17.0		3.0	
Actuated g/C Ratio	0.36	0.36		0.23	0.64			0.17	0.17		0.03	
Clearance Time (s)	5.7	5.7		5.0	5.7			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	2.0			2.0	2.0		2.0	
Lane Grp Cap (vph)	72	1241		789	1195			300	452		53	
v/s Ratio Prot		0.37		0.26				c0.20			c0.01	
v/s Ratio Perm	0.05				c0.69				0.04			
v/c Ratio	0.15	1.01		1.12	1.08			1.16	0.22		0.31	
Uniform Delay, d1	21.5	31.9		38.5	17.9			41.5	35.8		47.5	
Progression Factor	1.00	1.00		0.74	0.91			1.00	1.00		1.00	
Incremental Delay, d2	1.0	27.4		56.0	35.6			101.3	0.1		1.2	
Delay (s)	22.5	59.2		84.4	51.8			142.8	35.9		48.7	
Level of Service	C	E		F	D			F	D		D	
Approach Delay (s)		58.9			65.1			75.9			48.7	
Approach LOS		E			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	65.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	107.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	110	800	260	100	80	900	1050	170	90	930	70
Future Volume (veh/h)	80	110	800	260	100	80	900	1050	170	90	930	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1900	1900	1900	1856	1856	1856	1841	1841	1841
Adj Flow Rate, veh/h	84	116	818	274	105	61	947	1105	168	95	979	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	0	0	0	3	3	3	4	4	4
Cap, veh/h	131	180	735	232	143	83	1027	1545	234	118	1001	419
Arrive On Green	0.17	0.17	0.17	0.13	0.13	0.13	0.30	0.50	0.50	0.07	0.27	0.27
Sat Flow, veh/h	757	1046	1555	1810	1119	650	3428	3065	465	1753	3681	1541
Grp Volume(v), veh/h	200	0	818	274	0	166	947	634	639	95	979	21
Grp Sat Flow(s),veh/h/ln	1803	0	1555	1810	0	1768	1714	1763	1767	1753	1841	1541
Q Serve(g_s), s	12.9	0.0	21.6	16.0	0.0	11.3	33.4	34.8	35.1	6.7	33.0	1.3
Cycle Q Clear(g_c), s	12.9	0.0	21.6	16.0	0.0	11.3	33.4	34.8	35.1	6.7	33.0	1.3
Prop In Lane	0.42		1.00	1.00		0.37	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	311	0	735	232	0	226	1027	888	891	118	1001	419
V/C Ratio(X)	0.64	0.00	1.11	1.18	0.00	0.73	0.92	0.71	0.72	0.80	0.98	0.05
Avail Cap(c_a), veh/h	311	0	735	232	0	226	1124	888	891	182	1001	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.1	0.0	33.0	54.5	0.0	52.4	42.4	24.0	24.1	57.5	45.1	33.6
Incr Delay (d2), s/veh	9.8	0.0	68.5	117.5	0.0	11.6	1.4	0.3	0.3	13.5	23.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	35.2	14.8	0.0	5.7	14.1	14.0	14.2	3.4	18.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	0.0	101.5	172.0	0.0	64.1	43.7	24.3	24.3	71.0	68.2	33.6
LnGrp LOS	E	A	F	F	A	E	D	C	C	E	E	C
Approach Vol, veh/h		1018			440			2220			1095	
Approach Delay, s/veh		92.9			131.3			32.6			67.8	
Approach LOS		F			F			C			E	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.6	41.4	38.0		20.0	12.4	67.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		18.0	41.0	34.0		16.0	13.0	62.0				
Max Q Clear Time (g_c+I1), s		23.6	35.4	35.0		18.0	8.7	37.1				
Green Ext Time (p_c), s		0.0	2.0	0.0		0.0	0.1	9.7				

Intersection Summary												
HCM 6th Ctrl Delay			62.6									
HCM 6th LOS			E									

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Intersection Delay, s/veh	21.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	40	20	40	50	30	10	260	30	60	410	80
Future Vol, veh/h	60	40	20	40	50	30	10	260	30	60	410	80
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	5	5	5	1	1	1	3	3	3
Mvmt Flow	63	42	21	42	53	32	11	274	32	63	432	84
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.7	11.6	13.9	29.7
HCM LOS	B	B	B	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	50%	33%	11%
Vol Thru, %	87%	33%	42%	75%
Vol Right, %	10%	17%	25%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	300	120	120	550
LT Vol	10	60	40	60
Through Vol	260	40	50	410
RT Vol	30	20	30	80
Lane Flow Rate	316	126	126	579
Geometry Grp	1	1	1	1
Degree of Util (X)	0.488	0.231	0.23	0.84
Departure Headway (Hd)	5.568	6.59	6.543	5.222
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	644	541	544	689
Service Time	3.641	4.687	4.639	3.282
HCM Lane V/C Ratio	0.491	0.233	0.232	0.84
HCM Control Delay	13.9	11.7	11.6	29.7
HCM Lane LOS	B	B	B	D
HCM 95th-tile Q	2.7	0.9	0.9	9.3

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↰	↱
Traffic Vol, veh/h	460	0	0	920	80	900
Future Vol, veh/h	460	0	0	920	80	900
Conflicting Peds, #/hr	0	2	2	0	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	-	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	484	0	0	968	84	947

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	1454	-
Stage 1	-	-	-	-	484	-
Stage 2	-	-	-	-	970	-
Critical Hdwy	-	-	-	-	6.41	-
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	-	-	-	-	3.509	-
Pot Cap-1 Maneuver	-	0	0	-	144	0
Stage 1	-	0	0	-	622	0
Stage 2	-	0	0	-	369	0
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	144	-
Mov Cap-2 Maneuver	-	-	-	-	144	-
Stage 1	-	-	-	-	622	-
Stage 2	-	-	-	-	368	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	60.3
HCM LOS			F

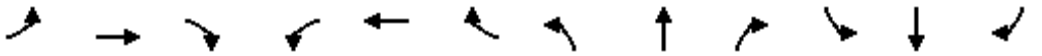
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	144	-	-	-
HCM Lane V/C Ratio	0.585	-	-	-
HCM Control Delay (s)	60.3	0	-	-
HCM Lane LOS	F	A	-	-
HCM 95th %tile Q(veh)	3	-	-	-



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1220	140	210	830	90	140
Future Volume (vph)	1220	140	210	830	90	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0	5.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	1837		1770	1863	1677	
Flt Permitted	1.00		0.04	1.00	0.98	
Satd. Flow (perm)	1837		83	1863	1677	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1284	147	221	874	95	147
RTOR Reduction (vph)	3	0	0	0	44	0
Lane Group Flow (vph)	1428	0	221	874	198	0
Turn Type	NA		pm+pt	NA	Perm	
Protected Phases	4		3	8		
Permitted Phases			8		2	
Actuated Green, G (s)	85.0		101.0	101.0	14.0	
Effective Green, g (s)	85.0		101.0	101.0	14.0	
Actuated g/C Ratio	0.68		0.81	0.81	0.11	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	3.0		3.0	3.0	2.5	
Lane Grp Cap (vph)	1249		215	1505	187	
v/s Ratio Prot	c0.78		c0.09	0.47		
v/s Ratio Perm			0.74		c0.12	
v/c Ratio	1.14		1.03	0.58	1.06	
Uniform Delay, d1	20.0		48.3	4.3	55.5	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	74.4		68.8	0.6	81.6	
Delay (s)	94.4		117.1	4.9	137.1	
Level of Service	F		F	A	F	
Approach Delay (s)	94.4			27.6	137.1	
Approach LOS	F			C	F	

Intersection Summary			
HCM 2000 Control Delay	71.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	110.4%	ICU Level of Service	H
Analysis Period (min)	15		

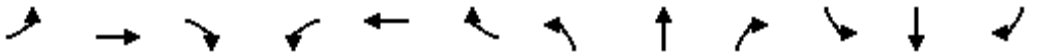
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	470	30	310	70	140	20	180	460	10	20	740	780
Future Volume (veh/h)	470	30	310	70	140	20	180	460	10	20	740	780
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	495	32	161	74	147	3	189	484	-1	21	779	499
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	601	66	334	96	236	200	327	1506	672	436	1272	567
Arrive On Green	0.17	0.25	0.25	0.05	0.13	0.13	0.09	0.42	0.00	0.02	0.36	0.36
Sat Flow, veh/h	3456	270	1357	1781	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	495	0	193	74	147	3	189	484	-1	21	779	499
Grp Sat Flow(s),veh/h/ln	1728	0	1626	1781	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	10.9	0.0	8.0	3.2	5.9	0.1	5.0	7.2	0.0	0.6	14.3	23.4
Cycle Q Clear(g_c), s	10.9	0.0	8.0	3.2	5.9	0.1	5.0	7.2	0.0	0.6	14.3	23.4
Prop In Lane	1.00		0.83	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	601	0	400	96	236	200	327	1506	672	436	1272	567
V/C Ratio(X)	0.82	0.00	0.48	0.77	0.62	0.01	0.58	0.32	0.00	0.05	0.61	0.88
Avail Cap(c_a), veh/h	1091	0	1027	562	1181	1001	775	1506	672	1070	1481	660
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	0.0	25.5	37.0	32.8	30.3	15.3	15.2	0.0	15.4	20.9	23.8
Incr Delay (d2), s/veh	1.1	0.0	0.9	4.8	2.7	0.0	0.6	0.6	0.0	0.0	0.3	10.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	3.1	1.5	2.8	0.0	1.8	2.8	0.0	0.2	5.5	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	0.0	26.4	41.8	35.5	30.3	15.9	15.8	0.0	15.4	21.2	34.5
LnGrp LOS	C	A	C	D	D	C	B	B	A	B	C	C
Approach Vol, veh/h		688			224			672			1299	
Approach Delay, s/veh		30.9			37.5			15.8			26.2	
Approach LOS		C			D			B			C	

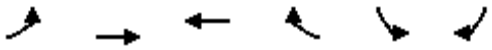
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	24.5	12.1	33.3	18.8	15.0	6.8	38.6
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	25.0	50.0	27.0	33.0	25.0	50.0	30.0	30.0
Max Q Clear Time (g_c+I1), s	5.2	10.0	7.0	25.4	12.9	7.9	2.6	9.2
Green Ext Time (p_c), s	0.1	1.3	0.2	3.0	0.8	0.9	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	25.8
HCM 6th LOS	C



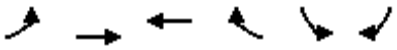
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	0	940	0	1120	10	910	410	430	820	0
Future Volume (vph)	10	0	0	940	0	1120	10	910	410	430	820	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		5.0		5.0	6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		0.97		0.88	1.00	0.95		0.97	0.95	
Frt		1.00		1.00		0.85	1.00	0.95		1.00	1.00	
Flt Protected		0.95		0.95		1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1805		3400		2760	1736	3309		3155	3252	
Flt Permitted		0.95		0.95		1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1805		3400		2760	1736	3309		3155	3252	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	0	0	989	0	1179	11	958	432	453	863	0
RTOR Reduction (vph)	0	0	0	0	0	339	0	32	0	0	0	0
Lane Group Flow (vph)	0	11	0	989	0	840	11	1358	0	453	863	0
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	4%	4%	4%	11%	11%	11%
Turn Type	Split	NA		Prot		pt+ov	Prot	NA		Prot	NA	
Protected Phases	3	3		4		4 1	5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		5.6		38.3		62.5	5.0	45.4		19.2	59.6	
Effective Green, g (s)		5.6		38.3		62.5	5.0	45.4		19.2	59.6	
Actuated g/C Ratio		0.04		0.29		0.48	0.04	0.35		0.15	0.45	
Clearance Time (s)		6.0		5.0			6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0		2.0			2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		76		990		1311	66	1142		460	1473	
v/s Ratio Prot		c0.01		c0.29		0.30	0.01	c0.41		c0.14	0.27	
v/s Ratio Perm												
v/c Ratio		0.14		1.00		0.64	0.17	1.19		0.98	0.59	
Uniform Delay, d1		60.6		46.6		26.0	61.2	43.0		56.0	26.8	
Progression Factor		1.00		1.00		1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9		28.1		0.8	0.4	94.0		37.6	0.4	
Delay (s)		61.5		74.7		26.8	61.7	137.1		93.6	27.1	
Level of Service		E		E		C	E	F		F	C	
Approach Delay (s)		61.5			48.7			136.5			50.0	
Approach LOS		E			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	74.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	131.5	Sum of lost time (s)	23.0
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	370	480	1310	510	490	760
Future Volume (vph)	370	480	1310	510	490	760
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1597	3195	3471	1553	3433	1583
Flt Permitted	0.05	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	91	3195	3471	1553	3433	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	389	505	1379	537	516	800
RTOR Reduction (vph)	0	0	0	55	0	354
Lane Group Flow (vph)	389	505	1379	482	516	446
Heavy Vehicles (%)	13%	13%	4%	4%	2%	2%
Turn Type	pm+pt	NA	NA	Perm	Prot	Prot
Protected Phases	7	4	8		6	6
Permitted Phases	4			8		
Actuated Green, G (s)	105.3	105.3	69.2	69.2	41.1	41.1
Effective Green, g (s)	105.3	105.3	69.2	69.2	41.1	41.1
Actuated g/C Ratio	0.65	0.65	0.42	0.42	0.25	0.25
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	345	2061	1471	658	864	398
v/s Ratio Prot	c0.21	0.16	0.40		0.15	c0.28
v/s Ratio Perm	c0.51			0.31		
v/c Ratio	1.13	0.25	0.94	0.73	0.60	1.12
Uniform Delay, d1	56.6	12.2	44.9	39.3	53.8	61.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	87.6	0.0	11.4	3.6	0.7	82.2
Delay (s)	144.2	12.2	56.3	42.9	54.5	143.2
Level of Service	F	B	E	D	D	F
Approach Delay (s)		69.7	52.6		108.4	
Approach LOS		E	D		F	

Intersection Summary			
HCM 2000 Control Delay	74.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	163.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	1125	1390	160	80	50
Future Volume (veh/h)	80	1125	1390	160	80	50
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	1184	1463	165	84	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	299	3107	1155	130	105	94
Arrive On Green	0.14	0.87	0.70	0.70	0.06	0.06
Sat Flow, veh/h	1781	3647	1651	186	1781	1585
Grp Volume(v), veh/h	84	1184	0	1628	84	6
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1837	1781	1585
Q Serve(g_s), s	2.1	9.4	0.0	105.0	7.0	0.5
Cycle Q Clear(g_c), s	2.1	9.4	0.0	105.0	7.0	0.5
Prop In Lane	1.00			0.10	1.00	1.00
Lane Grp Cap(c), veh/h	299	3107	0	1286	105	94
V/C Ratio(X)	0.28	0.38	0.00	1.27	0.80	0.06
Avail Cap(c_a), veh/h	299	3107	0	1286	297	264
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.09	1.00	1.00
Uniform Delay (d), s/veh	55.7	1.8	0.0	22.5	69.7	66.7
Incr Delay (d2), s/veh	0.2	0.4	0.0	120.4	5.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.0	0.0	83.2	3.4	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.8	2.1	0.0	142.9	74.8	66.8
LnGrp LOS	E	A	A	F	E	E
Approach Vol, veh/h		1268	1628		90	
Approach Delay, s/veh		5.7	142.9		74.3	
Approach LOS		A	F		E	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	136.1	13.9	26.1	110.0
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	115.0	25.0	5.0	105.0
Max Q Clear Time (g_c+I1), s	11.4	9.0	4.1	107.0
Green Ext Time (p_c), s	12.0	0.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	82.5
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Appendix D: Existing Transit Service in Tukwila

MEMORANDUM

To: Emily Alice Allhart, Fehr & Peers
Tino Jonga, Fehr & Peers

From: Peter Soderberg, Nelson\Nygaard
Lela Cooper, Nelson\Nygaard

Date: July 30, 2024

Subject: Tukwila Transit Element Strategies Memorandum

BACKGROUND

This memorandum provides an overview of Tukwila's existing transit network, opportunities and challenges, and specific recommendations and strategies the City of Tukwila can use to further improve the transit network and foster a more accessible transportation system. By focusing on the transit services currently providing service to and from Tukwila, and how these services are utilized, recommendations are discussed based on expected growth scenarios and community goals, as well as recommendations related to programmatic needs, and large capital investment priorities for advocacy efforts.

Existing Conditions and System Overview

King County Metro (Metro) offers five traditional fixed-route services, two RapidRide routes, one Demand Area Response (DART) route, and Metro Flex on-demand service within the City of Tukwila. Sound Transit provides light rail service on the 1 Line to Tukwila International Boulevard Station and Sounder commuter rail service to Tukwila Station.

The highest ridership activity occurs at two locations that are served by multiple lines and modes:

- **Tukwila International Boulevard Station**, served by local bus, RapidRide, and the 1 Line. Average daily boardings in October 2021 for Link light rail were 1,960 and bus boardings were 5,337 for a total of 7,338 at the station.
- **Andover Park West/Southcenter Mall**, served by local bus and RapidRide F Line. Passengers can connect to the Tukwila Sounder station to the east using the RapidRide F Line. Average daily boardings in this location during October 2021 were 3,325.

Figure D1. Tukwila Existing Transit Service

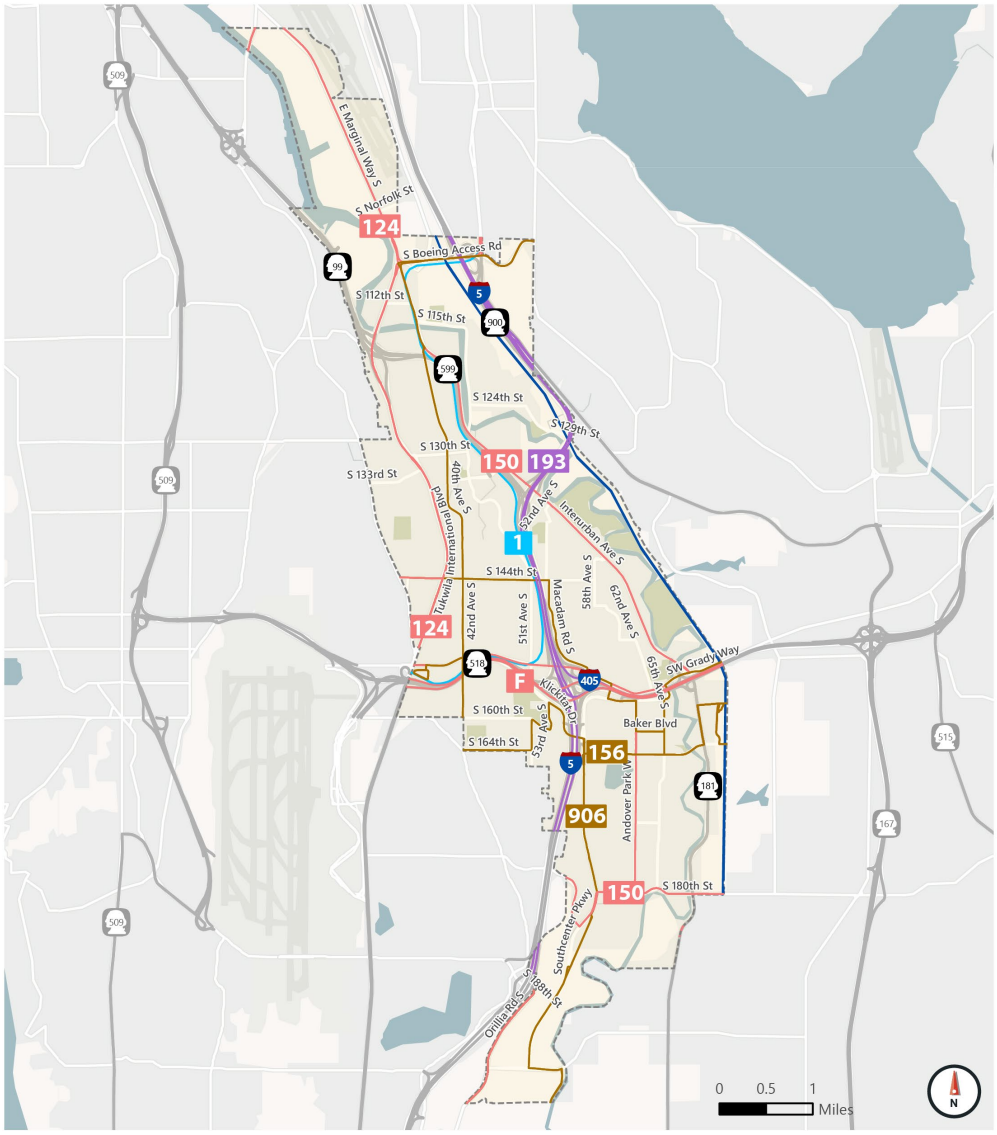


Figure 8

Future Transit Options

During peak travel times on weekdays, there are four services that provide 15-minute or better frequency:

- Metro Route 150
- Metro RapidRide A Line
- Metro RapidRide F Line
- Sound Transit 1 Line

Local Route Frequency

During peak travel times on weekdays, Routes 124, 128, and 156 provide service at 30-minute frequencies or better. These routes serve local stops in Tukwila in addition to serving surrounding communities and Downtown Seattle.

- Metro Route 124
- Metro Route 128
- Metro Route 156

On-Demand Services

Two different on-demand services are available within the City of Tukwila to transport riders directly to some destinations within the City or to transit stops with more service and higher frequencies.

Dial-A-Ride Transit (DART) is a service operated by King County Metro that operates within communities that have a need for more flexible service due to lower population density, greater distances, and fewer available fixed route options. DART Route 906 serves Tukwila every hour or better and can deviate from its route by request to allow for residents to make connections to other transit options or their home.

Metro Flex is an on-demand service that is also available within a defined boundary of Tukwila. Metro Flex allows anyone within the defined service area to hail a ride using a mobile app or phone call for transportation to a transit stop with frequent service. In Tukwila, Metro Flex can be used within the defined area to provide transportation to Tukwila International Boulevard Station and the Tukwila Community Center.

OPPORTUNITIES AND CHALLENGES

Community and Stakeholder Priorities

Based on the existing transit network serving the City of Tukwila, there are opportunities to improve transit reliability and viability in coordination with identified community priorities. Through surveying and outreach efforts conducted in Spring 2024, community members had the opportunity to provide feedback on their goals for the City of Tukwila's transit system, including:

- **Access to new destinations -** Community members highlighted a desire for the transit system to expand service to new destinations more effectively within the City. In particular, the Tukwila Library (located on Tukwila International Boulevard and S 144th St), as well as the Tukwila Community Center and surrounding Allentown neighborhood.
- **Safety –** Residents emphasized a goal for improved safety conditions for riders. This included improved bus stop lighting conditions, and further on-board security measures, and safety measures at bus stops and Sounder/Link Light Rail stations, especially during times with lower ridership.
- **Improved Amenities –** Community members underscored the need for improved amenities at bus stops and rail stations, with particular emphasis on bus stop amenities. Increased availability of benches at stops and stations, as well as improved access to bus shelters were identified as community amenity priorities.

  In addition to stop amenities improvements, improved parking access and availability at stations and park-and-rides were also identified as an opportunity to ensure that transit users can find adequate parking availability at facilities on high commute days.

Community members also indicated several service priorities to improve the existing transit network.

- **Improved Frequency –** Community members highlighted the desire for improved frequencies allowing for more consistent use of transit. During peak travel times on weekdays, there are currently four services that provide 15-minute or better frequency, and three routes providing 30-minute or better frequency.
- **Southcenter Circulator Service –** Residents emphasized a desire to implement a potential circulator service connecting Southcenter with other areas in the city.
- **Improved Regional Bus Service –** Riders indicated a desire for improved regional bus connectivity to supplement existing transit service. This includes frustration that other regional express bus lines pass by Tukwila without making a stop for riders and presents an opportunity for increased connectivity. Residents indicated a desire for improved Eastside connectivity with the only existing connection existing via the F RapidRide Line.
- **First- Last-Mile Connectivity –** Community and stakeholder engagement also emphasized the importance of first- last-mile connections in ensuring a reliable and effective transit network in Tukwila. This includes connecting existing sidewalk and bicycle network gaps and ensuring higher rider familiarity with Metro Flex on-demand service from King County Metro.

Challenges and Considerations

In addition to the opportunities and identified community priorities, there are also several challenges and considerations for transit service and accessibility in Tukwila. These challenges include:

- **Land Use, Density, and Barriers –** In Tukwila the highest density areas and employment centers are generally served by the existing transit network, but areas outside these major destinations face gaps in service that limit connectivity for many residents. Additionally, the City has physical challenges that create barriers to access, with freeways, rail lines, and the Green/Duwamish River impeding some options for fixed-route service. While a challenge, this also lends to the potential for more flexible transit service to be implemented in key areas of the City.
- **Infrastructure Availability** – In order to support transit, some infrastructural investments are needed. Particularly, in North Tukwila, there are limited transit facilities and several gaps in the sidewalk network compared to the Tukwila core area.
- **42nd Ave S Bridge Replacement** – The 42nd Ave S Bridge is an important arterial and nearing its lifespan. The City is currently evaluating plans for the bridge, with construction expected to begin after 2026.
- **Boeing Access Road Station Project** – Another consideration for transit investment in Tukwila is the building of a proposed Sound Transit infill station at Boeing Access Road (BAR) in Tukwila. This project would add a new station to the existing 1 Line network and was approved in the ST3 system plan. The location of the station has yet to be finalized, but is open at this time (2024) for public opinion based on two options: adjacent to the Sounder tracks on Boeing Access Road, or further south along E Marginal Way S near S 112th Street.
- **Pedestrian Access to Transit** – Within Tukwila, sidewalk network gaps were identified throughout the area, including key connection points for the existing transit network. These gaps in pedestrian infrastructure make transit usage and connectivity more difficult and less safe for riders. Northwest Tukwila has the greatest need for improved sidewalk conditions.

RECOMMENDATIONS AND STRATEGIES

Based on the existing transit network, community priorities, and identified challenges and opportunities, recommendations and strategies to improve transit service and access to transit were determined in coordination with stakeholders. Recommendations for Tukwila can be broken down into the following main categories:

- Transit Service Improvements
- Transit Amenities and Facilities
- Access to Transit

Transit Service Improvements

Service Enhancements and Expansion Opportunities

The Metro Connects Long Range Plan identifies prioritized service improvements through the year 2050 based on projected growth patterns and demand for service. Within this plan, Route 150 (frequent service between Kent and Downtown Seattle), was identified as a potential future RapidRide corridor. The City of Tukwila should continue to work with Metro to develop this service and continue to incentivize and encourage growth and new development around planned high-capacity transit improvements.

The finalization of Sound Transit's Boeing Access Road infill Line 1 station is of importance for the City of Tukwila and Metro to consider in planning future service and connectivity, when coordinating local service. The City of Tukwila should continue working with Sound Transit and other regional partners to advocate for the development of this station as well as supporting bus-rail transfer infrastructure to ensure seamless connectivity between transit modes in the northern area of the City.

Community members also expressed interest in improved transit service in the Southcenter area, which could be addressed through a potential Southcenter circulator service or on-demand service, similar to Metro Flex. Such a service would provide circulation service within the Southcenter neighborhood and provide connections to existing neighborhood amenities such as connecting transit, shopping, employment, and amenities. The City should explore opportunities internally and with other regional partners to identify potential service options to improve mobility within the Southcenter area, either through expanded services or new programmatic options.

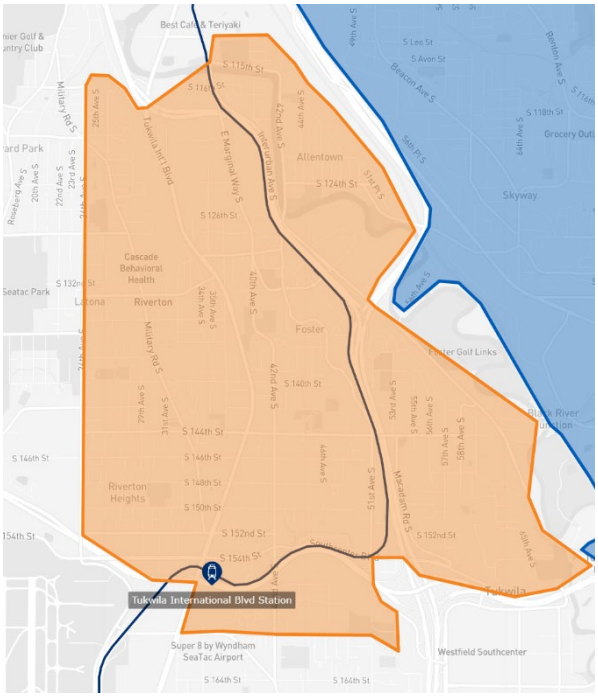
In addition to exploration of a circulator or on-demand circulator service at Southcenter, residents indicated a need for improved transit connections at Southcenter as a whole, including Eastside connections. The City of Tukwila should further work with Sound Transit to support Southcenter's growth as the regional center of Tukwila and ensure it has the needed transit network and last-mile connections.

Metro Flex Service

Community feedback and stakeholder engagement also identified enhanced first and last mile connections and improved ease of access for local trips from the City's transit network as an opportunity for improvement. King County Metro's on-demand transit service Metro Flex provides an opportunity to conveniently address these needs by providing service in areas with lower densities or barriers that inhibit fixed-route service.

To improve the Metro Flex service, Tukwila should consider advocating with King County Metro for an expanded Metro Flex zone, specifically to provide enhanced connections to the south to serve Southcenter, as well as further east to Tukwila Station (**Figure D2**). These recommendations for expanded service are based on both anticipated future growth, as well as rider needs and the opportunity to connect to Sounder and additional transit service.

Figure D2. Existing Tukwila Metro Flex Service Area



Paramount to the success of Metro Flex service and the suggested service enhancements is effective marketing and rider familiarity. Tukwila should prioritize working further with Metro to market the service throughout the City to enhance rider familiarity and usage. These efforts should be concentrated in areas with high need, such as low vehicle ownership or limited existing transit connections. Marketing efforts should also provide further clarity about the service and how it can be used to further reduce barriers to rider usage.

Rider Safety

To address rider safety and experience concerns, Tukwila can encourage improved on-board safety amenities by partnering with Metro and Sound Transit to ensure on-board safety measures in addition to stop amenities/safety improvements. In addition, efforts can be made to explore safety concerns at transit center and Link Light Rail stations, by coordinating with Metro and Sound Transit for improved platform and entrance conditions.

Transit Amenities and Facilities

Community feedback indicated that improved bus amenities were an identified priority, particularly, additional shelters at bus stops. While many stops in the City have shelters either provided by Metro or the City of Tukwila, there remain stops with high ridership activity without shelters, resulting in a less satisfying user experience. This section highlights the highest priority bus stops for investment in improved amenities based on average daily boardings.

Boeing Access Road Station

Members of the community commonly identified a lack of transit facilities in the northern portion of the City of Tukwila. The proposed Boeing Access Road Station would ameliorate this concern and create a key regional link for the City of Tukwila. The City should continue to work with Sound Transit to advance the

planning for this rail station and incentivize the necessary surrounding development activity to support station area activity and encourage seamless bus-rail transfer integrations in the immediate station area.

Transit Stop Amenities and Rider Experience

King County Metro classifies stops outside of the City of Seattle with 25 or more average boardings per day as eligible for bus shelters. RapidRide stops with less than 50 average riders are eligible for standard RapidRide stops, and those with over 50 riders are eligible for enhanced stop amenities which include larger shelters, real-time arrival information, and other amenities.

Tukwila currently has 16 bus stops with no bus shelters and more than 25 average boardings per day as shown in **Table D1**. Of these stops, 5 stops have over 50 boardings per day, shown in bold text. Prioritizing improved amenities at these stops will help to improve the rider experience and align with King County Metro's guidelines for stop amenities.

The highest priority stops are along Tukwila International Boulevard at 148th and 152nd Street. These stops have the highest ridership and no shelters available. Additional priority stops include Southcenter Boulevard & Park Place, Strander Boulevard & Andover Park E, and Andover Park W & S 180th Street. These stops represent an opportunity to pursue the addition of bus shelter amenities while meeting King County Metro's defined ridership guidelines and improve rider experience. These stops fall along some of the area's most utilized transit lines, including Routes 150, 128, and F Line shown in **Figure D3**.

Table D1. Tukwila bus stops with no bus shelters and more than 25 average daily boardings

Stop ID	Stop Location	Average Daily Boardings
40813	S 144th St & 42nd Ave S	37.3
41119	42nd Ave S & S 144th St	47
41128	S 144th St & Pacific Hwy S	39.2
54202	Southcenter Blvd & 52nd Ave S	37.5
54203	Southcenter Blvd & Park Place*	32.2
54204	Southcenter Blvd & Park Place*	52.3
54205	Southcenter Blvd & 53rd Ave S*	26.5
54206	Southcenter Blvd & 42nd Ave S*	47.4
58111	Strander Blvd & Andover Park E*	37
58113	Strander Blvd & W Valley Hwy	45.4
59833	Strander Blvd & Andover Park E*	59.3
60380	Andover Park W & S 180th St	54.2
60920	Tukwila Intl Blvd & S 152nd St	188.5
60930	Tukwila Intl Blvd & S 148th St	76.2
61000	Tukwila Intl Blvd & S 133rd St	26.4
61040	Tukwila Intl Blvd & S 148th St	41.9

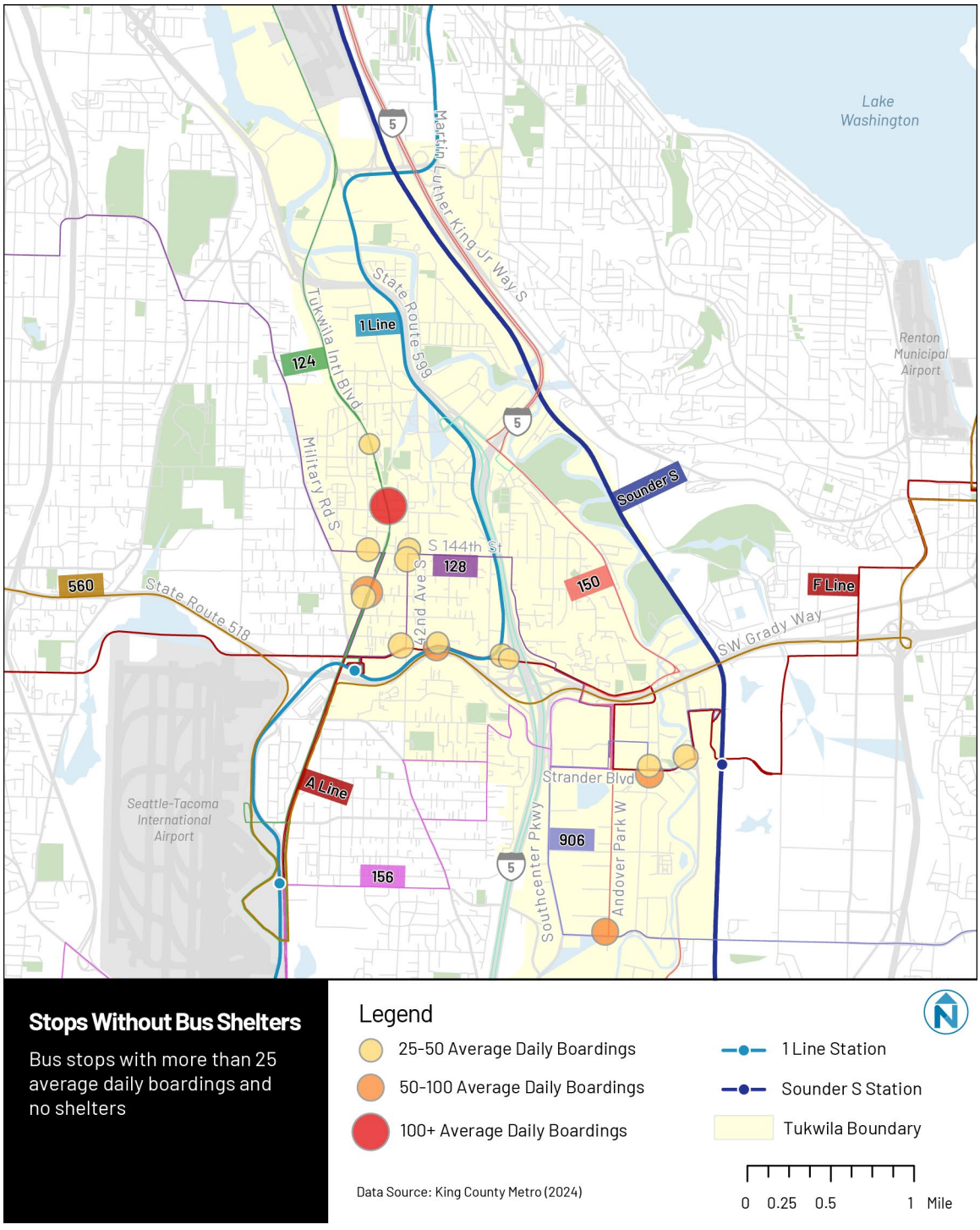
*RapidRide service stops with only bench amenities.

Data Source: King County Metro Boarding Data (2021), King County Metro Bus Shelter Data (2024).

Within the identified stops with over 25 average daily boardings and no bus shelters, five provide RapidRide service to the F Line, as shown asterisked in **Table D1**. While these stops had benches available, other amenities were limited and provide a potential exploration for improved amenities. Ridership at these stops should continue to be monitored as they may be eligible for increased amenities or enhanced stop features from Metro.

Additionally, while some bus stops did have shelters available, they lacked benches or seating for riders. Many of these stops were identified as City of Tukwila-managed bus shelter facilities along Tukwila International Boulevard. This represents another opportunity for the City to explore when evaluating additional amenity improvements such as bike racks, improved lighting, trash receptacles, and well-kept signage.

Figure D3. Tukwila Bus Stops without Shelters



Access to Transit

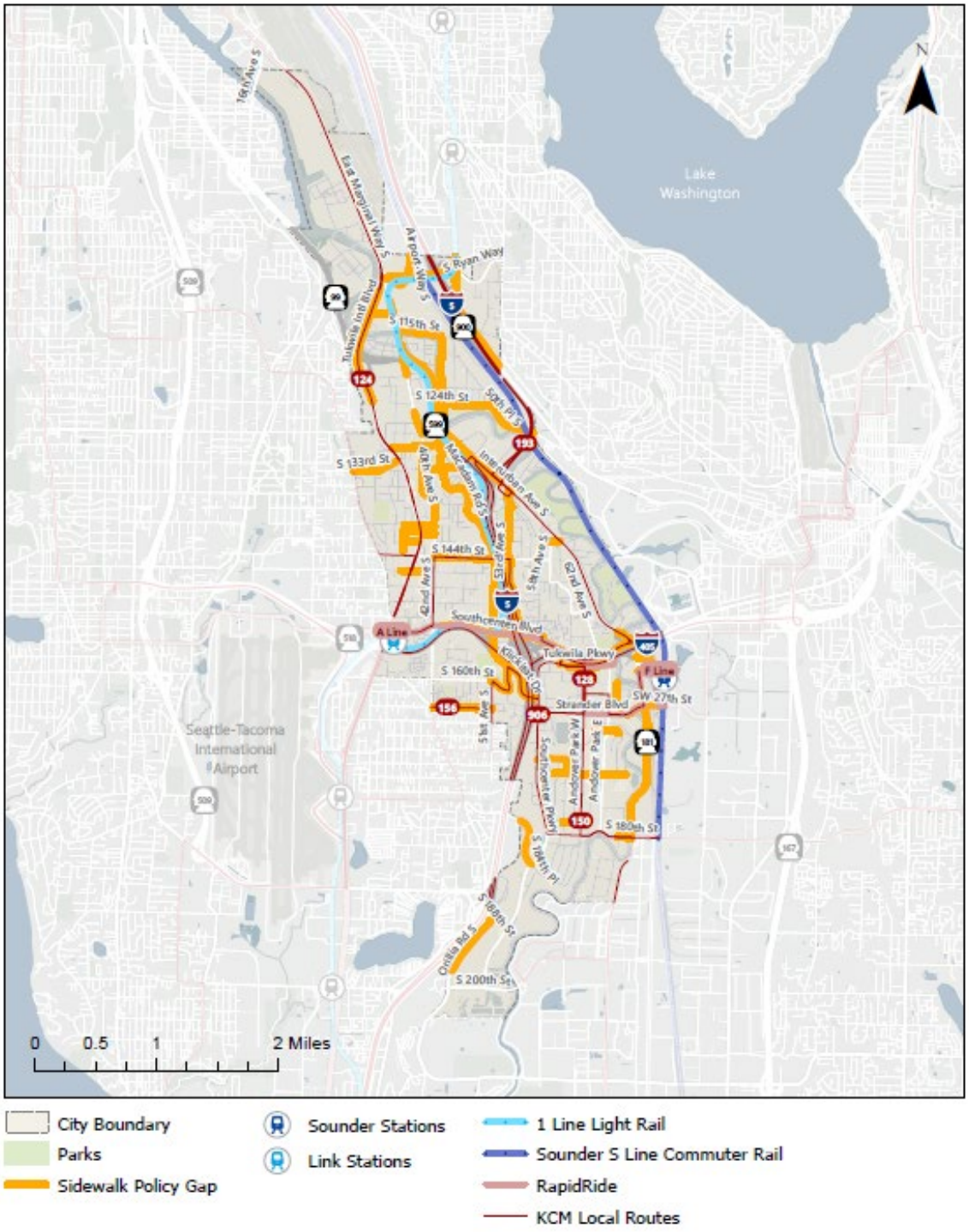
Tukwila also has opportunities to improve accessibility and ensure folks are able to physically access the existing and planned future transit network.

Pedestrian Accessibility to Transit

A key strategy to improve accessibility to transit is through addressing ease of access and safety of riders to physically reach transit service. Specifically, this includes addressing pedestrian conditions and safety, through systematic improvements to existing sidewalk network gaps. These efforts should be first prioritized based on improving pedestrian facilities nearest to frequent transit service, while considering broader pedestrian connectivity as shown in **Figure D4**. Sidewalk network gaps are most prevalent in Northwest Tukwila, including areas currently serving the transit network. Main areas of potential sidewalk network improvements valuable to pedestrian access to transit include:

- **Tukwila International Boulevard** - Tukwila International Boulevard has gaps in the sidewalk network particularly at the northern end of the boulevard before East Marginal Way, near SR 599. This area serves the local 124 Route.
- **40th Avenue, 42nd Avenue S, and Macadam Road** – Continuing east of Tukwila International Boulevard, 40th Avenue, 42nd Avenue S, and Macadam Road also have gaps in the sidewalk network. These streets serve and are near local route 128, as well as the Link Light Rail 1 Line which runs along Macadam Road S, as well as nearby I-5.
- **53rd Avenue SW** - 53rd Avenue SW is also an area needing improved sidewalk facilities, as the area helps to support both local Route 150 as well as Route 128.
- **Allentown** – Additional further improvements in the Allentown area of Tukwila would also help to support better pedestrian accessibility to transit. 50th Place S and S 124th Street are additional areas of priority for pedestrian infrastructure improvements.

Figure D4. Tukwila Sidewalk Network Gaps



Appendix E: Public Outreach (Overview, Fact Sheet, Flyer, Poster, Engagement Boards)

Outreach Overview

As a first step to get the word out, the project team posted and distributed handouts (fact sheets, flyers, and posters) throughout the City and contacted community partners. Fact sheets, flyers, and posters detailed insight into the TE Update and provided a link to a survey and webmap requesting community input. English versions of the fact sheet, flyer, and poster are available in the following section. The shared project material was available in Spanish, Vietnamese, Somali, and English. The locations where the project team shared fact sheets, flyers, and posters included: Tukwila Community Center, Healthpoint Tukwila, Riverton Church, Abu Bakr Islamic Center of Washington, Saint Thomas Parish, Global to Local/Spice Bridge, Tukwila Library, Tukwila Village (senior housing), Saar's Super Saver Foods, Vietnamese Martyrs Parish, Somali Health Organization and Starfire Complex.

In-person events

The in-person events hosted in April 2023 and May 2023 are listed below.

Tabling events:

- Tukwila Community Center
- Tukwila Library
- Tukwila Elementary School
- Saar's Super Saver Foods

Focus groups:

- Riverton Park United Methodist Church
- Foster High School

Figure 51. Focus Group at Riverton Park United Methodist Church



Source: Fehr & Peers. 2023

During the in-person events (tabling and focus groups), the project team captured a total of 128 public comments and ideas related to the City's transportation system. Nearly one-third of comments captured focused on transit. Of the transit comments, many related to safety concerns while using public transit. Of the comments that highlighted issues with driving, about 40 percent specified a concern regarding cost or access. Lastly, approximately 15 percent of

comments pointed out walking and biking needs. From the in-person outreach efforts, there was overall support for the draft goals with an emphasis on safety and active transportation.

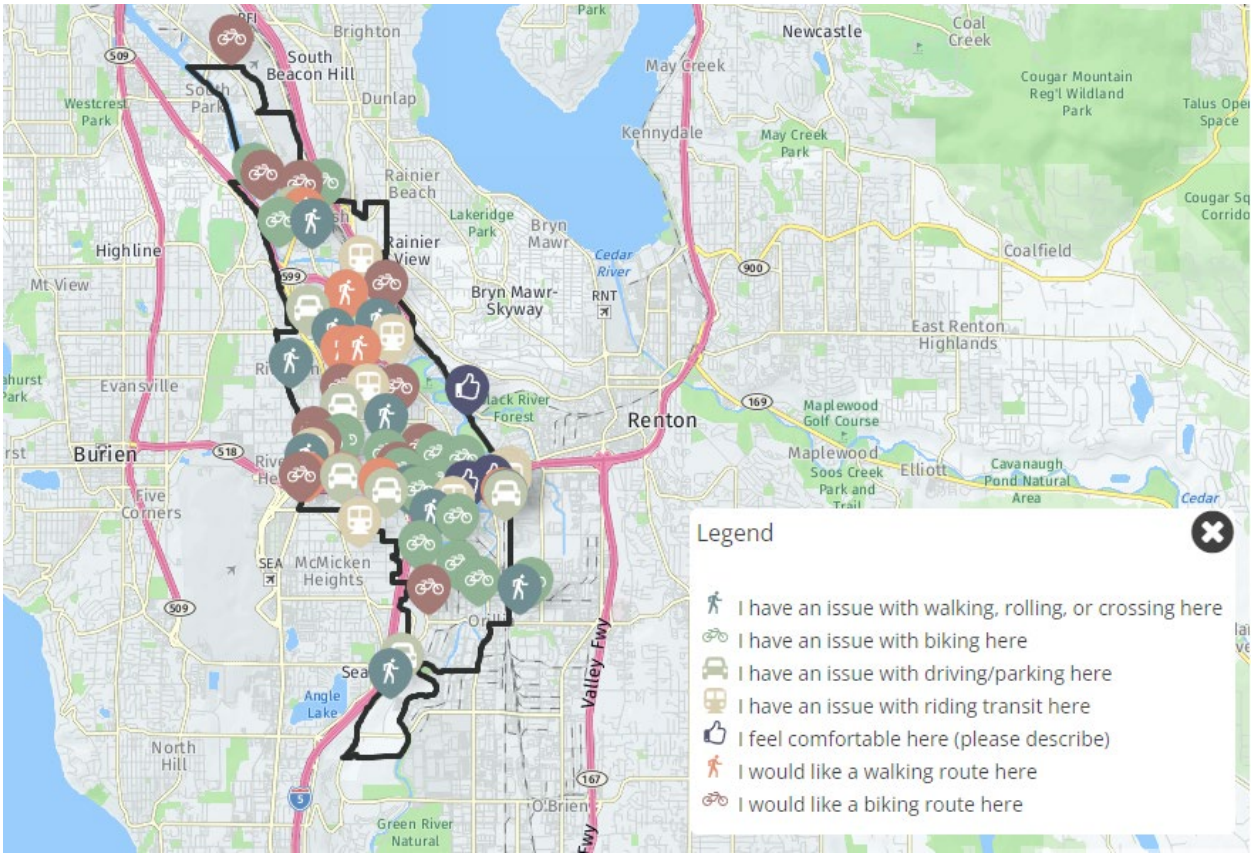
Online Input

The City of Tukwila website[18] hosted project information related to the TE, including an incentivized[19] online survey and an interactive webmap (**Figure 52**) to solicit feedback from the Tukwila residents and visitors. The online survey had questions about the draft goals and transportation experiences, while the webmap sought input on potential needs and improvements in specific locations, such as missing bicycle/pedestrian connections, high-stress crossings, challenging intersections, or near-miss locations. Based on the understanding that Tukwila is a diverse community, all project items were available in Spanish, Vietnamese, Somali, and English. In addition, the Google Translate option was available for all the other languages.

[18] City of Tukwila. Transportation Element Update. https://www.tukwilawa.gov/departments/public-works/transportation/transportation-element-update/

[19] Survey participation was incentivized with the chance to win a $150 Visa gift card.

Figure 52. Online Webmap



Source: Fehr & Peers. 2023

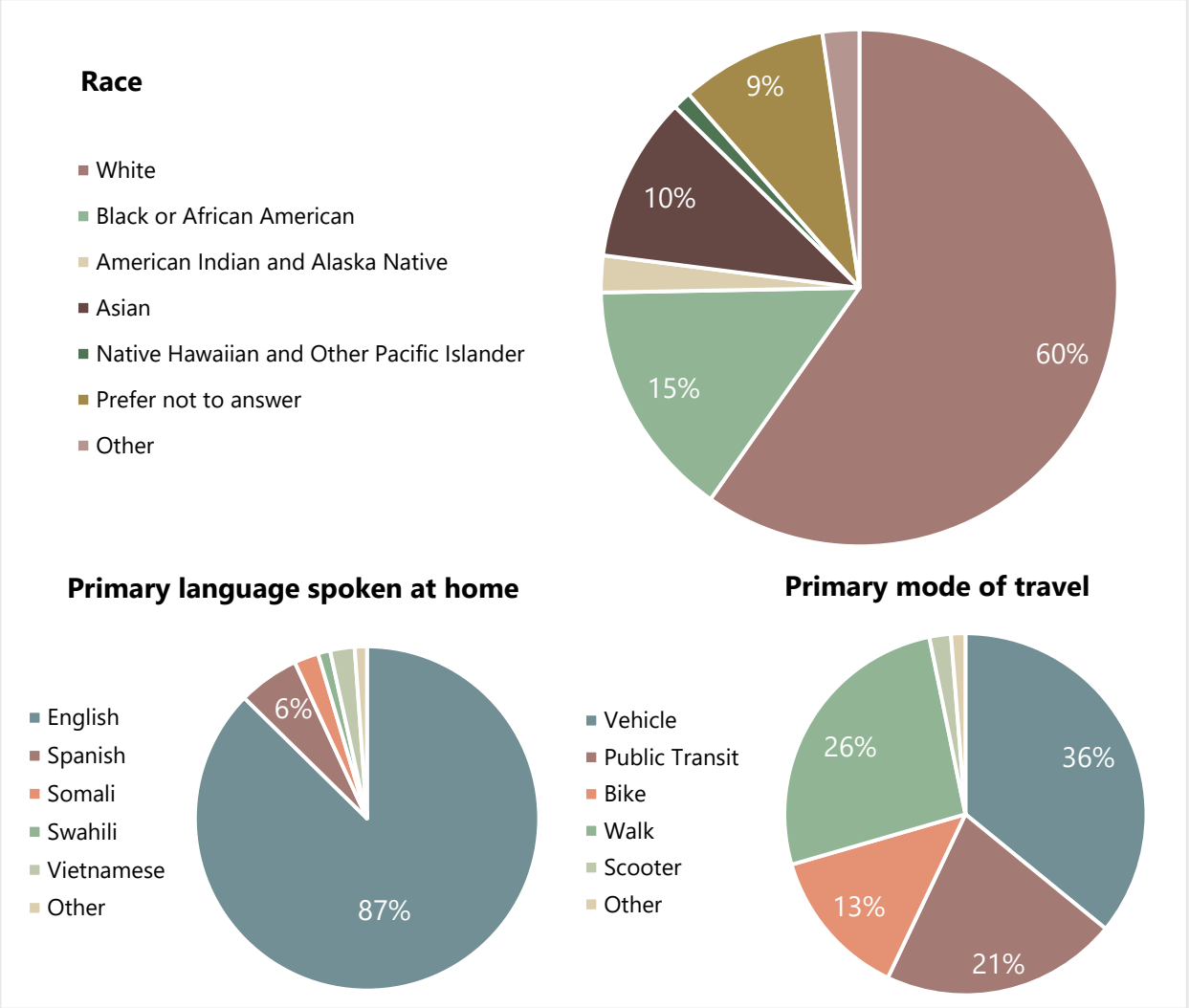
About 80 unique respondents completed the survey and provided feedback on the draft goals in addition to the 67 comments that were added to the interactive webmap. The location-based comments pointed out the lack of bicycle and sidewalk connectivity. Several comments identified abrupt ends of bike lanes on busy streets, including Southcenter Boulevard, and other streets in the vicinity of Southcenter Mall. Similarly, respondents also noted challenges in the Southcenter Mall area for pedestrian connections. Additionally, respondents identified the Tukwila Community Center as an area of interest for sidewalk connections and transit access.

Specifically for transit, several respondents revealed that the available transit routes do not reach all City neighborhoods, particularly the Metro Flex system. On the citywide scale, the community generally needs east-west connections via varying modes of transportation. Driving speed is also a citywide concern. A number of comments pointed out areas where traffic moves faster than the speed limit due to the underutilization of streets.

The project team documented a list of all proposed ideas from the community on improving transportation in Tukwila and these that have been used in developing project recommendations for the Transportation Element.

The respondents' information on demographics and primary mode of travel is provided in **Figure 53**. To draw in participation, the Tukwila communications team posted social media messages on the City's Facebook page. Furthermore, the project team hosted several in-person events described in the previous section to engage with the Tukwila community and direct them to the developed online tools.

Figure 53. Respondent Demographics

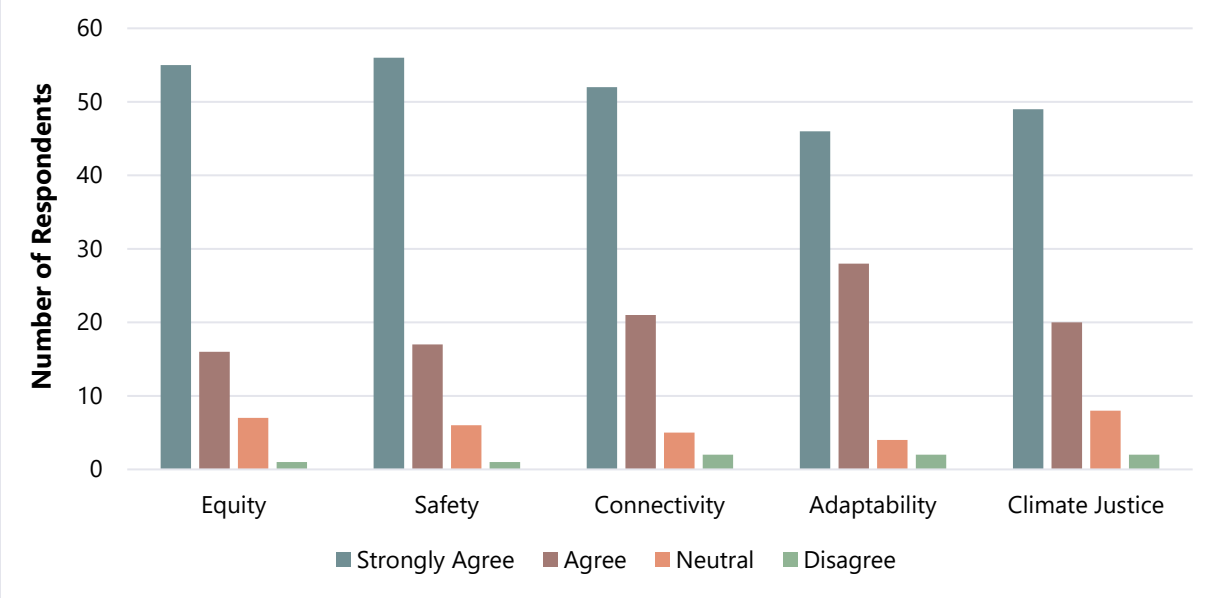


Source: Fehr & Peers. 2023

As shown in **Figure 54**, there was overall support for the draft goals with an emphasis on safety and equity. Anecdotal comments from respondents related to transit safety included:

"*The stigma surrounding public transit affects my personal experiences with transit. Often the stigma seems to be reinforced as truth when you use transit.*"

Figure 54. Online Input on Draft Transportation Goals

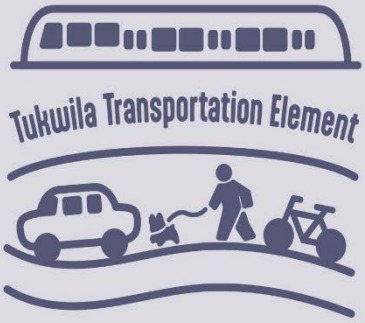


Source: Fehr & Peers. 2023

Multiple comments on transit east-west connectivity and access to the Tukwila Community Center and Allentown neighborhood in general were noted. The respondents highlighted the associated limitations for cyclists and transit riders. They pointed out the need for the City to focus investments on encouraging other travel options besides driving. One suggested protected bike infrastructure along Tukwila International Boulevard, Southcenter Boulevard, Andover, Interurban, and around the Community Center as a way to improve connectivity and address related safety concerns.

City of Tukwila

Comprehensive Plan Transportation Element



What is a TRANSPORTATION ELEMENT?

The Transportation Element of the Comprehensive Plan is a plan that will serve the community's current and future needs and establish Tukwila's transportation goals and policies for the next 20 years.



Specifically, the TRANSPORTATION ELEMENT will:

- Establish new goals and policies to guide City decision-making
- Improve safety, equity, accessibility, reliability, and connectivity for all road users and goods movement
- Develop a prioritized list of transportation projects and a Local Road Safety Plan
- Make recommendations on how to fund improvements.

You should PARTICIPATE BECAUSE:

- The City needs help making decisions related to transportation
- We need your input on current challenges and ideas about how to improve the transportation network

Project Timeline: This is YOUR Plan!

Spring 2023
Discuss goals
Share ideas & experiences

Help us identify challenges, provide input on needs, and refine draft goals and priorities

Take me to the survey!

Fall 2023
Review draft programs and project lists

Help us refine and prioritize policies, programs, and projects

Spring 2024
Present to Council

Present draft Transportation Element update for Council adoption

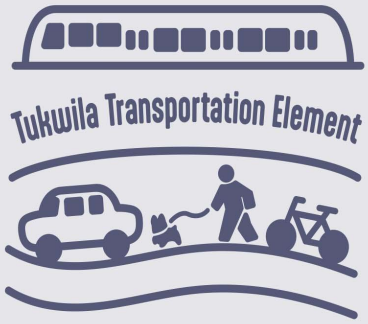
FOR MORE INFORMATION OR TO CONTACT US:

Visit TukwilaWA.gov/TukwilaTE

SEAL OF TUKWILA WASHINGTON 1908

FEHR & PEERS

We would like to HEAR FROM YOU!



YOUR IDEAS ARE IMPORTANT TO US

Share your thoughts on transportation in Tukwila in our online survey and interactive map.

TukwilaWA.gov/TukwilaTE

Take me to the survey!

City of Tukwila
Comprehensive Plan Transportation Element

Tukwila Transportation Element

How do you want to get around Tukwila? What's important to you?

Tell Us!



The City of Tukwila is launching a plan to improve transportation over the next 20 years.

We need your help to identify issues and opportunities to help people move around the city.

The Transportation Element of the Comprehensive Plan will serve the community's current and future needs and establish Tukwila's transportation goals and policies for the next 20 years.

What you think matters!

It's important to make your voice heard to help the City make transportation decisions.

Share your ideas in our survey and interactive map!

We want to hear from you!

Find us in person at one of our tabling events listed on our website, or use our online form to share your thoughts.

TukwilaWA.gov/TukwilaTE

City of Tukwila
Comprehensive Plan Transportation Element

PROJECT OVERVIEW

The Transportation Element of the Comprehensive Plan is a plan that will serve the community's current and future needs and establish Tukwila's transportation goals and policies for the next 20 years.

Specifically, the TRANSPORTATION ELEMENT will:

- Establish new goals and policies to guide City decision-making
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- Develop a prioritized list of transportation projects and a Local Road Safety Plan
- Make recommendations on how to fund improvements.

You should PARTICIPATE BECAUSE:

- The City needs help making decisions related to transportation
- We need your input on current challenges and ideas about how to improve the transportation network

Project Timeline: This is YOUR Plan!



Transportation Element Goals

In the first round of updates we heard that some of the words we used were hard to understand. Below are the updated goals that will shape the plan.

EQUITY — Ensure fair access to healthy, affordable, reliable transportation options, livable places, and jobs, particularly for historically marginalized and vulnerable populations.

SAFETY — Provide safe transportation infrastructure and improve personal comfort to to emphasize Tukwila as a welcoming place.

CONNECTIVITY — Maintain, expand and enhance Tukwila's multimodal network, particularly walk, bike, roll, and transit, to increase mobility options where needs are greatest.

ADAPTABILITY — Anticipate and plan for the community's evolving needs, new technologies, and opportunities for mobility.

ENVIRONMENT — Plan, design, and construct transportation projects that reduce greenhouse gas emissions, improve community health, and protect the natural environment.

City of Tukwila
Comprehensive Plan Transportation Element

PUBLIC ENGAGEMENT

"The stigma surrounding public transit affects my personal experiences with transit. Often the stigma seems to be reinforced as truth when you use transit."

"Please make it easier to walk around Tukwila by providing sidewalks and/or physical separation from vehicles. A walkable area is more universally accessible than requiring a vehicle. It also cuts down on pollution and has healthier outcomes for a community."

The City of Tukwila website hosted project information related to the Transportation Element, including an online survey and an interactive webmap to solicit feedback from Tukwila residents and visitors. The project team hosted several in-person events to engage with the Tukwila community and direct them to the developed online tools. The online survey asked about the draft goals and general transportation experiences, while the webmap asked for input on potential needs and improvements in specific locations.

How do people get around?



What do you think about these transportation ideas?

Here are the key themes we heard in the first round of public engagement.

During the in-person events (tabling and focus groups), the project team captured a total of **128 public comments and ideas** related to the City's transportation system.

Nearly one-third of comments captured focused on transit. Of the transit comments, many related to **safety concerns** while using public transit.

Approximately **15%** of comments pointed out **walking and biking needs.**

The key themes noted from community input included:

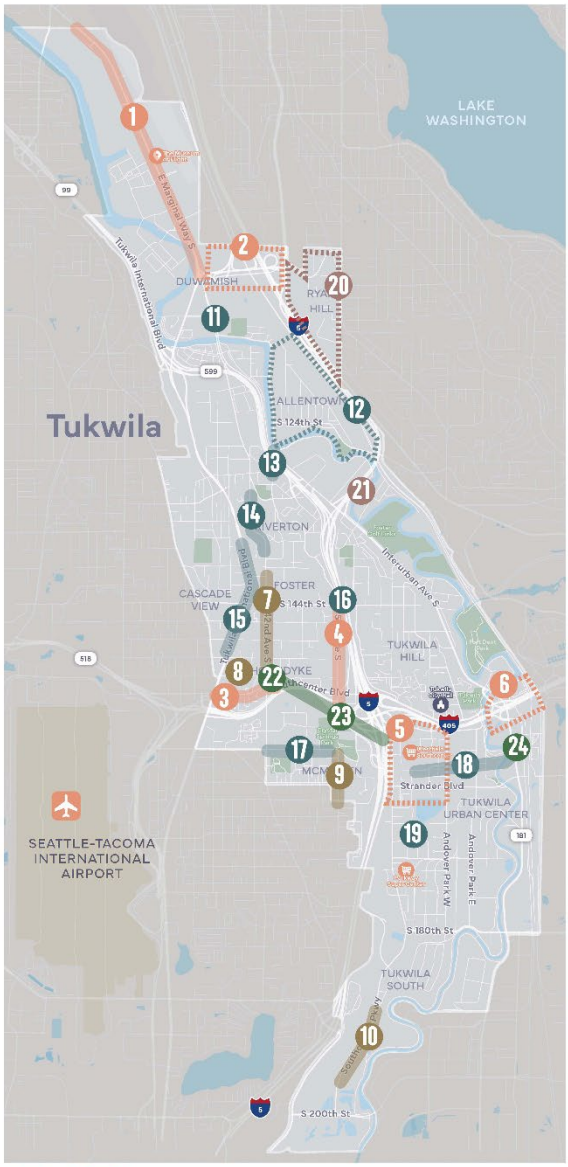
- Transit safety, reliability, and amenities
- Expanding the bicycle network
- Filling sidewalk gaps
- Costs associated with driving

Did we hear you correctly? What did we miss? Vote for your top 3 ideas.

- I like the idea of riding transit but I don't ride as much as I would like to because I'm concerned about my personal safety while riding or waiting for a bus or light rail.
- I really like the transportation connectivity in Tukwila and am happy with our current options.
- I would like to drive more but it's too expensive.
- It's hard to get places by bicycle because the bike facilities feel unconnected.
- There are gaps in the sidewalk network that prevent me from walking places.
- Bike facilities end abruptly, including Southcenter Boulevard and other streets in the vicinity of Southcenter Mall.
- It's challenging to walk around the Southcenter Mall area.
- I would like to be able to walk or ride transit better to the Tukwila Community Center.
- I would ride transit more if it reached more neighborhoods in Tukwila.
- It's hard to get from east to west via all modes of transportation.
- Drivers are speeding, and city roads should be designed to encourage driving slower.
- Driving should be a choice, not an assumption.
- I would like to purchase an electric vehicle, but installing a charger is cost-prohibitive.
- The roads are too bumpy and need to be fixed with new pavement.
- I have concerns about access to Allentown.
- Create more parking options by constructing parking garages and maintaining parking above other elements in the road (e.g., bike lanes).

City of Tukwila
Comprehensive Plan Transportation Element

WHAT DO YOU THINK ABOUT THESE TRANSPORTATION COMMENTS?



TRANSIT

22	Better security and enforcement at TIB Station.
23	Want better transit connections between light rail and Southcenter.
24	Want to get to more places from the Tukwila Sounder Station and have more frequent trips

Here are key themes we heard through public outreach. Did we hear you correctly?

Vote your top 5 ideas!

COMMENTS	VOTES

BIKING

1	Want to bike to Seattle via East Marginal Way S.
2	It's hard to bike to Boeing Field, Georgetown, and SODO.
3	It's uncomfortable to bike on Southcenter Boulevard.
4	Want better connections to bike to McMicken via 51st Ave S.
5	Southcenter Mall is difficult to access by bike.
6	Want to bike to Renton.

VEHICLE

7	Want slower cars on 42nd Ave S.
8	More parking near Tukwila International Boulevard Station.
9	Want slower cars on 51st Ave S.
10	Want slower cars on Southcenter Parkway.

WALK/ROLL

11	The intersection of E Marginal Way and S 112th St feels uncomfortable for pedestrians.
12	Want more sidewalks in Allentown.
13	Sidewalks missing along Macadam Rd S.
14	Sidewalks missing along 40th Ave S.
15	Hard to walk on Tukwila International Blvd with cars parked on sidewalks.
16	It's uncomfortable to walk or bike across I-5 on the S 144th St bridge.
17	Sidewalks missing on S 160th St.
18	It's hard to walk between Southcenter Mall, Tukwila Sounder Station, and the Interurban Trail.
19	It's hard to walk to and around Tukwila Pond Park.

OTHER

20	More lighting in Ryan Hill.
21	Clean up Green River Trail / Interurban Trail.

Appendix F: Bike Facility Types and Treatments

Table F1. Bike Facility Types

Facility Type	Description	Image
Off-Corridor Bike Network	Bike boulevards are low-volume and low-speed streets that prioritize bike travel. They incorporate signage, pavement markings, and traffic calming tools to improve the comfort and connectivity of the bike roadway network. Bike boulevards offer an alternative to bicycling on busy streets with high traffic volumes. Many bike boulevards couple speed management strategies with bike route signage to create safer streets.	
Striped Bike Lane	A conventional bike lane is a striped lane on a roadway that is designated for exclusive use by people riding bikes. Conventional bike lanes include pavement markings indicating one-way bike use. These facilities are established along roadways where there is current or anticipated bike demand and where it would be unsafe for bicyclists to ride in the travel lane.	
Buffered Bike Lane (Horizontal)	Buffered bike lanes are conventional bike lanes paired with a designated buffer space separating the bike lane from the adjacent motor vehicle travel lane and/or parking lane. These facilities are established along roadways with high travel speeds, volumes, and/or truck traffic.	

Facility Type	Description	Image
Separated Bike Lane (Vertical)	Separated bike lanes (vertical) are buffered bike lanes with vertical elements that provide further separation from motor vehicle traffic. Common vertical elements are vertical curbs, a painted buffer with planter boxes, parked cars, or a fixed barrier. These facilities keep motorists from crossing into the bike lane and minimize maintenance costs due to decreased motor vehicle wear. They may be especially appropriate for curvy streets, areas with high drop off/pick up activity, and higher speed streets with few driveways and cross streets.	 Source: NACTO, 2019. https://nacto.org/2019/11/15/bellevues-downtown-demonstration-bikeway/
Physically Separated Bikeway/ Shared Use Paths	Physically separated bikeways are paths distinct from the sidewalks. These include shared use paths, which are paved trails for the exclusive use of pedestrians, cyclists, skaters, and other active transportation users. They are wide enough for two-way travel. They are typically separated from motorized vehicular traffic by an open space, barrier, curb, or exist in an independent corridor. They can also be one-way bike facilities separate from – but adjacent to – the sidewalk.	
Note: All images are courtesy of Fehr & Peers unless otherwise noted.		

Table F2. Bike Intersection Improvement Treatments

Treatment Type	Description	Image
Bike Signal	Bike signals are dedicated signals, which can be detection or actuation systems, to separate bicyclists and motor vehicle movements at intersections. They give bicyclists priority. These facilities are utilized at high volume intersections with conflicts among motorists, bicyclists, and pedestrians.	
Green solid or skip-stripe	Skip-striping directs cyclists to the bike lane and increases the visibility of cyclists to motorists. These facilities are often used to visually alert users to upcoming bike lanes.	
Bike box	A bike box is dedicated space at the head of a signalized intersection for bicyclists to wait safely and visibly. Bicyclists have priority crossing major streets as they wait in front of vehicle traffic. These facilities are mostly adopted at signalized intersections with high volumes of bicyclists making left-turns and/or motorists making right-turns.	

Treatment Type	Description	Image
Protected or Dutch Intersection	A Protected or Dutch Intersection is an intersection that accommodates one-way cycle tracks. Modeled after Dutch intersection design, Dutch Intersections feature corner refuge islands that place stop bars for bicyclists ahead of vehicles, and set back bike crossing approximately one car length from the adjacent travel lane. This allows for two-stage left-turns and free right turns.	
Green Cycle Length	Green cycle length refers to a minimum green signal cycle that is long enough for bicyclists to clear the intersection. In locations where this is implemented, the green cycle length is longer than is typically offered to cars.	
Automatic Signal Actuation	Automatic Signal Actuation are signals which alert motorists of bike crossings and separate motorist and bicyclists traffic signaling. In the case of automatic signals, bike signals are initiated through inductive loop vehicle detection, which is calibrated to the size or metallic mass of a bike. Bicyclists are instructed to wait in detection areas through marked pavement and signage.	 Source: NACTO, 2019. https://nacto.org/publication/urban-bikeway-design-guide/bike-signals/signal-detection-and-actuation/

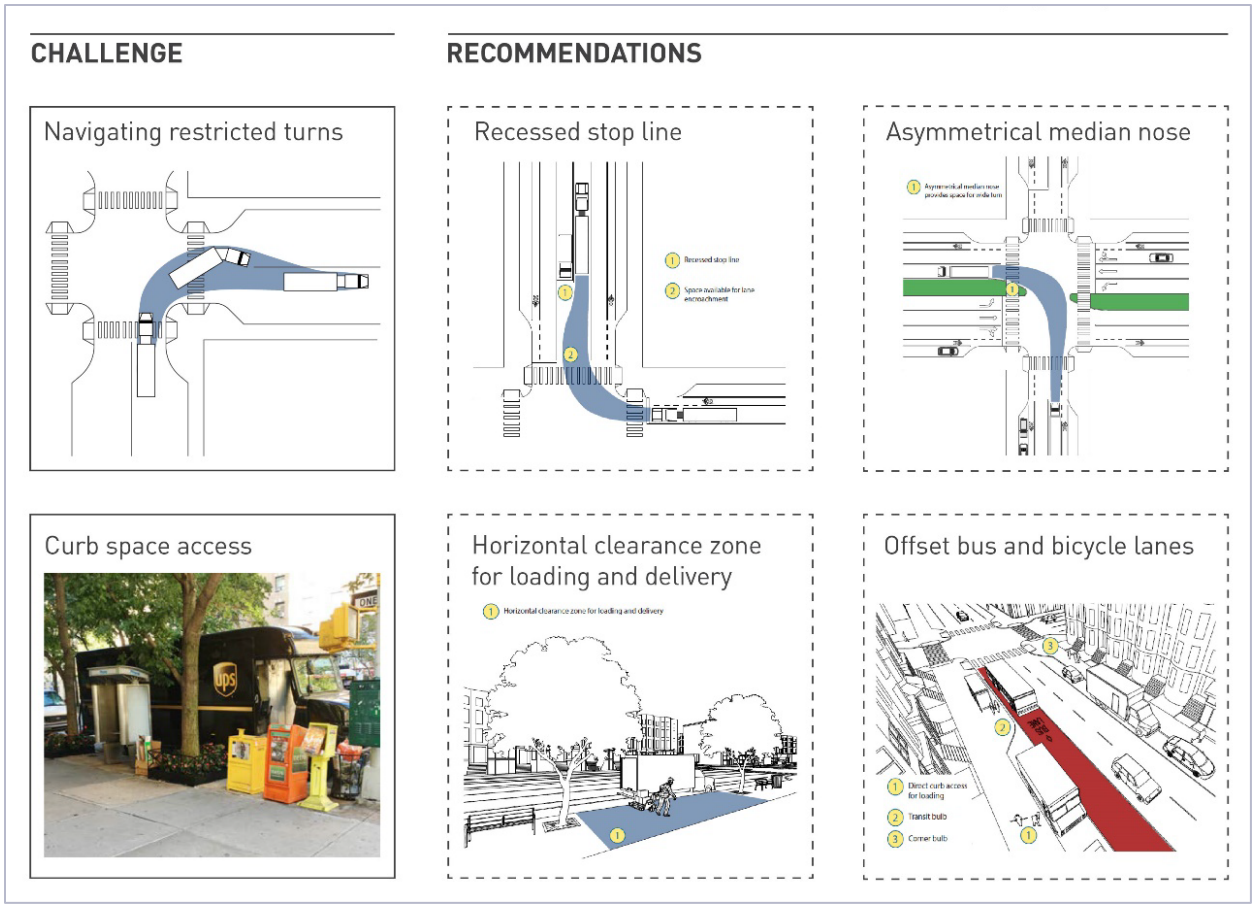
Treatment Type	Description	Image
Bike Lane to Left	Left-side bike lanes are conventional bike lanes placed on the left side of one-way or two-way median divided streets. They improve visibility as motorists have bike lanes on the driver's side and potentially avoid right-side bike lane conflicts. They also reduce bus and truck conflicts as most bus stops, loading zones, and rush hour parking restrictions are usually on the right side of the street. Consequently, these facilities are often utilized on streets with frequent bus stops or truck loading zones on the right side, high numbers of left-turning bicyclists, high volumes of right turning motor vehicles, and high parking turnover accompanied by rush hour parking restrictions.	 Source: NACTO, 2019. https://nacto.org/publication/urban-bikeway-design-guide/bike-lanes/left-side-bike-lanes/
HAWK Signal	Also known as a hybrid beacon, High-intensity Activated Crosswalks are signal-heads with two red over yellow lenses indicating pedestrian and cyclist crossing to motorists. These facilities are mostly installed at unsignalized intersections or mid-block crossing locations. They can be useful along bike boulevards, where intersections are more likely to be unsignalized due to low vehicular traffic volumes, and/or where bike trails intersect streets.	

Treatment Type	Description	Image
Rectangular Rapid Flashing Beacon	Rectangular Rapid Flashing Beacons (RRFB) allow pedestrians to actuate a flashing warning light to indicate pedestrian crossing. When combined with other pedestrian treatments, such as median refuge islands or advance yield marking, they have an even stronger impact on pedestrian and bicyclist visibility.	

Note: All images are courtesy of Fehr & Peers unless otherwise noted.

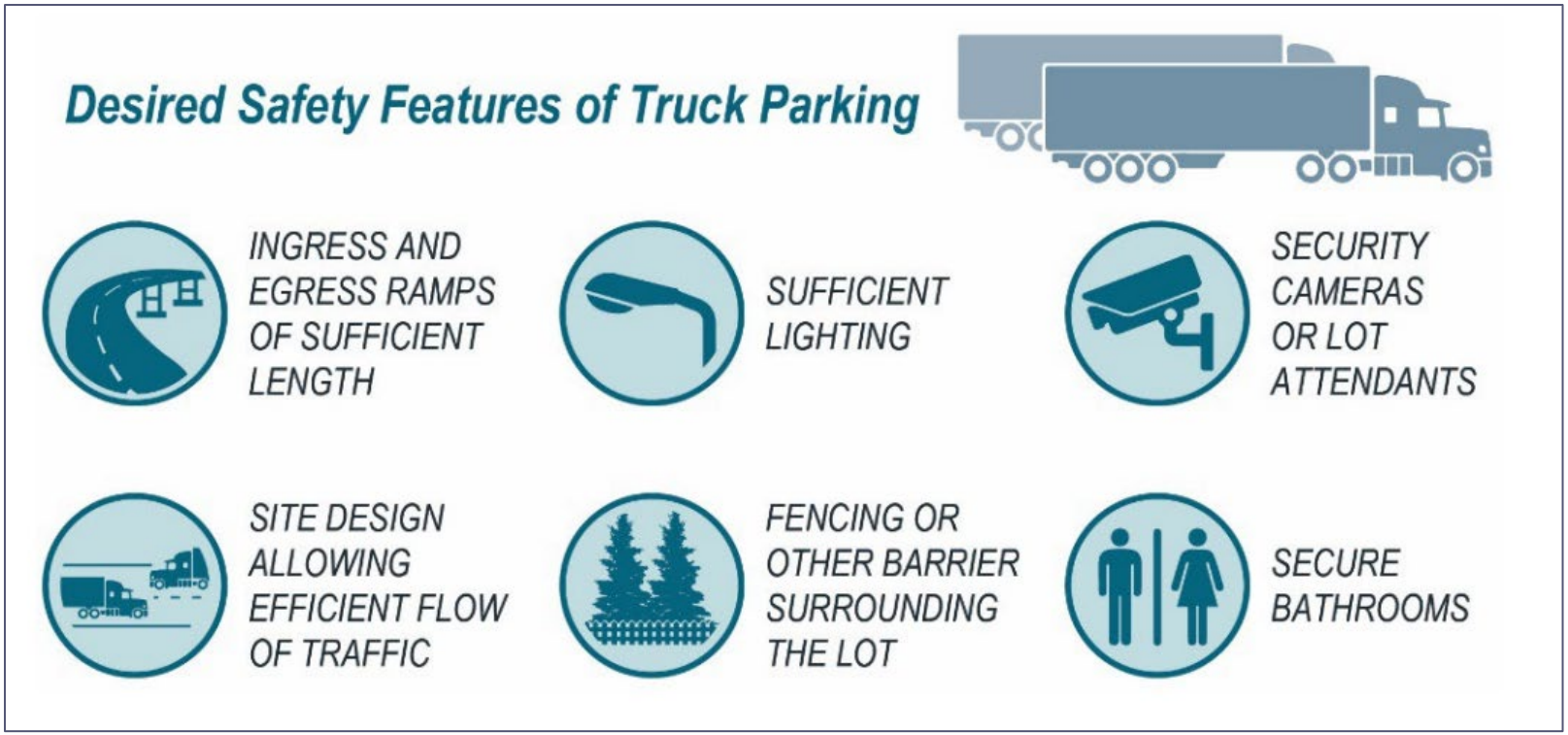
Appendix G: Freight Considerations

Figure G1. Examples of Freight Considerations along Corridors



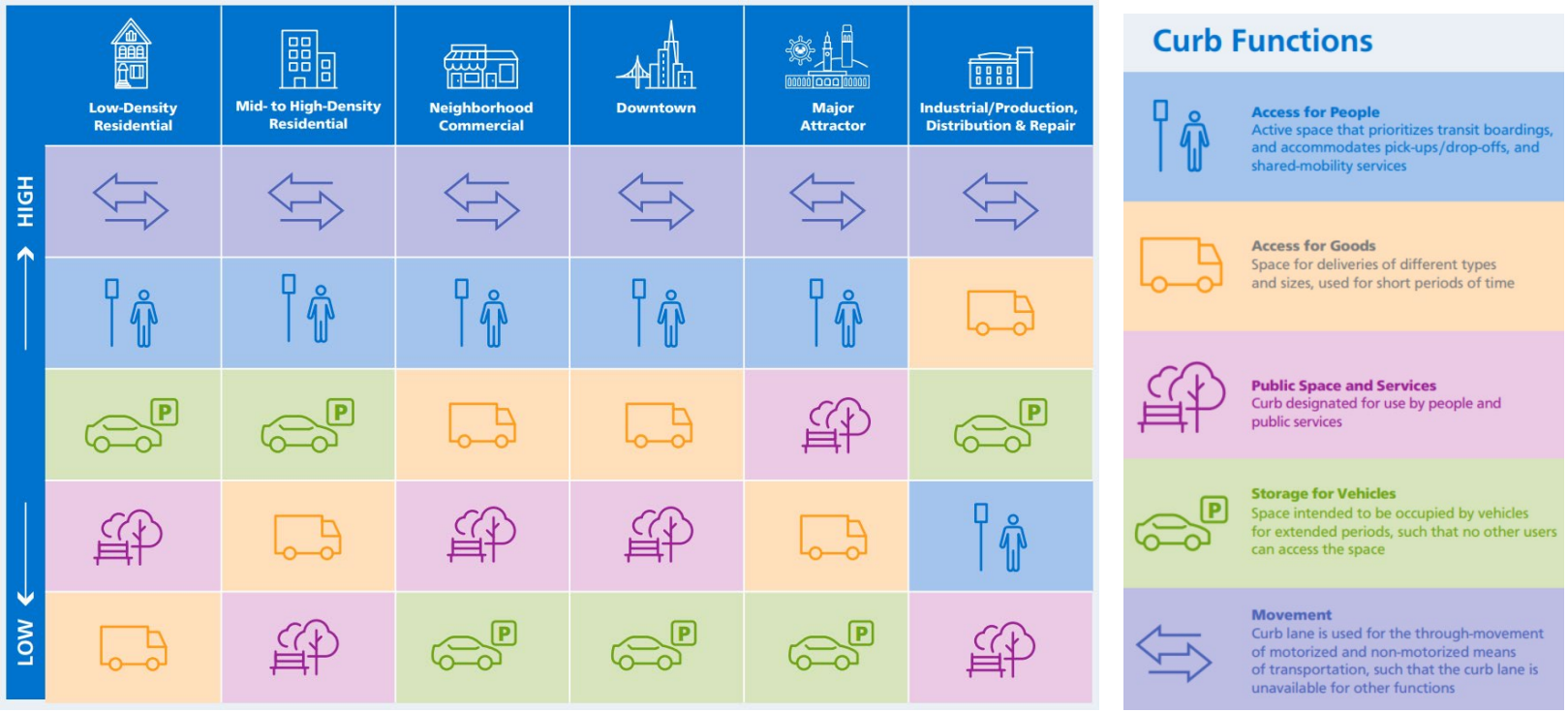
Source: Accommodating Freight in Complete Streets. 2019

Figure G2. Common Features for Safe Truck Parking



Source: FHWA, Truck Parking Development Handbook, 2022

Figure G3. Curb Functions Prioritized by Land Use



Source: San Francisco Municipal Transportation Agency (SFMTA) Curb Management Strategy, 2020

Appendix H: Extended Project List

Table H1. Extended Project List

#	Project Name	Description	Street Name	Start	End	Priority Level
T-37	Striped Bike Lane on Macadam Road	Add buffered bike lanes on both sides of the segment. 2-5ft bike lanes 2-3ft bike buffer 2-12ft lanes.	Macadam Rd S	S 149th Lane	S 144th Street	Low
T-38	Southcenter Blvd Bike Parkway Section 3	Develop shared use path on north side. May need to acquire ROW from 6550 at the intersection or restripe to reduce lanes from path to continue north of 66th and down the hill to tie into the Green River Trail and the proposed Tukwila Pkwy improvements.	Southcenter Blvd	65th Ave S	66th Ave S	High
T-39	Southcenter Blvd Bike Parkway Section 2	Continue shared use path on north side.	Southcenter Blvd	61st Ave S	65th Ave S	High
T-40	Southcenter Blvd Bike Parkway Section 1	Widen sidewalk on north side for shared use path.	Southcenter Blvd	405 Exit Ramp	61st Ave S	High
T-41	S Boeing Access Road	Recent improvements created a 10-12ft buffered path next to the bridge over the tracks. Propose doing similar on other bridges.	S Boeing Access Rd	E Marginal Way S	Airport Way S	Low
T-42	S Boeing Access Road	Recent improvements created a 10-12ft buffered path next to the bridge over the tracks. Propose doing similar on other bridges.	S Boeing Access Rd	Airport Way S	MLK	Low
T-43	S 144th Street Bike Lane Extension Section 3	Remove parking on east side. Widen sidewalk on west side to create a raised bike lane and parking with bulb outs. On east side, remove and relocate sidewalk to ROW line and create buffered bike lane at street level.	58th Ave S	S 144th Street	Interurban Ave S	Low

T-44	S 144th Street Bike Lane Extension Section 2	Restripe and remove parking on one side to accommodate 2-10ft lanes 1-8ft parking area 1-2ft buffer and 1-10ft two way cycle track.	S 144th St	56th Ave S	58th Ave S	Low
T-45	S 144th Street Bike Lane Extension Section 1	Restripe and remove parking on one side to accommodate 2-10ft lanes 1-8ft parking area 1-2ft buffer and 1-10ft two way cycle track.	S 144th St	Macadam Rd S	56th Ave S	Low
T-46	Striped Bike Lane on Macadam Road Extension	Replace existing bike lane on west side with separated shared use path. Restripe roadway to provide a bike lane on the east side of the street.	Macadam Rd S	Southcenter Blvd	S 149th Lane	Low
T-47	S 144th Street Bike Lane Extension Section 0	Restripe to accommodate 2-10ft lanes 1-8ft parking area 1-2ft buffer and 1-10ft two-way cycle track.	S 144th St	51st Ave S	Macadam Road S	Low
T-48	Minkler Boulevard Bike Project Section 2	Build a separate shared use path in the ROW south of Minkler in conjunction with a stream mediation or culvert replacement project. Work with City and County owned land to connect the path to the green river trail through the wetalndto the east.	Minkler Blvd	Andover Parkway W	Green River Trail	Low
T-49	Minkler Boulevard Bike Project Section 1	Remove railroad track and construct a shared use path that connects with Minkler Blvd Bike Project Section 2.	Minkler Blvd	243 Minkler Blvd	Andover Park W	Low
T-50	Minkler Boulevard Bike Project Section 0	Widen the sidewalk on the south side to accommodate a shared use path.	Minkler Blvd	Southcenter Pkwy	243 Minkler Blvd	Low
T-51	E Marginal Way Bike Lane Section 2	Add striped bike lanes on both sides of the street.	E Marginal Way S	Interurban Ave S	S 126th Street	Low
T-52	E Marginal Way Bike Lane Section 1	Road width sufficient to incorporate bike lane. Parking is restricted to one side. Lanes to be narrowed to 10'. ADT is low and is not a cause for concern.	E Marginal Way S	S 126th Street	S 128th Street	Medium
T-53	E Marginal Way Bike Lane Section 0	Update cross section to include 2-8ft sidewalks 1-5ft bike lane with a 2ft buffer 2-11ft lanes and 1-5ft parking protected bike lane with 8ft parking and 2ft buffer.	E Marginal Way S	S 128th Street	40th Ave S	Low

T-54	Buffered Lane on 42nd Ave S Section 2	From S 144th to S 142nd, update cross section to include 2-8ft sidewalks 1-5ft bike lane with a 2ft buffer 2-11ft lanes and 1-5ft parking protected bike lane with 8ft parking and 2ft buffer. North to S139 the ROW widens and there is room to adjust cross section to have 2 parking protected bike lanes.	42nd Ave S	S 144 St.	S 139th St	High
T-55	Buffered Lane on 42nd Ave S Section 1	Update cross section to include 2-8ft sidewalks 1-5ft bike lane with a 2ft buffer 2-11ft lanes and 1-5ft parking protected bike lane with 8ft parking and 2ft buffer. North of 137th, remove parking and widen buffers on undeveloped curved section.	42nd Ave S	S 139th St	E Marginal Way	Low
T-56	SouthCenter Parkway Section 3	Reduce lane width by restriping. 3-11ft lanes 2-10ft lanes a 12ft shared use path and 3 feet for utilities all on the west side.	Southcenter Pkwy	Minkler Boulevard	S 180th Street	Low
T-57	51st Ave S Project	Update cross section to include new sidewalk and buffered bike lanes. The ROW between S 151st and where S 147th would be is reduced to 40ft. May need ROW acquisition while it is under development or have any potential developer donate the land.	51st Ave S	S 144th St	Southcenter Blvd	Low
T-58	Andover Park E Section 1	Bike facilities likely here, along with road diet on APE, possible ROW dedication from development	Andover Park E	Tukwila Pkwy	Industry Dr	High
T-59	Andover Park W	Bike facilities could go along one (or both) n/s corridor, need further analysis when appropriate time is presented/decision point is reached	Andover Park W	Treck Dr	S 180th St	High
T-60	Andover Park E Section 2	Bike facilities could go along one (or both) n/s corridor, need further analysis when appropriate time is presented/decision point is reached	Andover Park E	Industry Dr	S 180th St	Low

T-61	S 168th Street/Macy's Parking Lot Connector Road	Bike facility likely here with connector road, if completed	Macy's parking lot and CuliNEX parking lot	Southcenter Pkwy	Andover Park W	Medium
T-62	E Marginal Way S Section 1	Bike facilities may be desired here, pending BAR Infill station and area redevelopment, could connect to bike facilities on Airport Way if Seattle/Tukwila install, connecting via Norfolk to EMWS	E Marginal Way S	S Boeing Access Rd	Interurban Ave S	Medium
T-63	Tukwila International Blvd	Bike facilities may be desired here, pending BAR Infill station and area redevelopment, could connect to bike facilities on Airport Way if Seattle/Tukwila install, connecting via Norfolk to EMWS	Tukwila International Blvd	E Marginal Way S	WA-599	High
T-64	Treck Dr Connection	Bike facilities could go along one (or both) n/s corridor, need further analysis when appropriate time is presented/decision point is reached	Treck Dr	Andover Park W	Andover Park E	Medium
T-65	Southcenter Boulevard Bike Lanes Section 4	Reduce lane with and median buffer to create a shared use path on the south side.	Southcenter Blvd	I - 5 Exit Ramp	I - 405 Exit Ramp	High
T-66	Southcenter Boulevard/SW Grady Way Bike Facilities	Add striped bike lanes east of I-405 Off ramps. If this project moves forward, need to update bike network.	Southcenter Blvd/SW Grady Way	I-405 interchange	Eastern City Limits	High
T-67	S 144th Street / 53rd Avenue S and S 144th Street / Macadam Road S Intersection Improvements	Design and construct a new traffic signal that serves both S 144th Street / 53rd Avenue S and S 144th Street / Macadam Road S. Evaluate eastbound left demand to determine if a turn pocket is required. As part of the intersection improvements include additional pedestrian facilities such as pedestrian push buttons.	S 144th Street	Macadam Road S	53rd Avenue S	Low
T-68	Southcenter Boulevard / I-405 SB Off-ramp	Design and construct intersection improvements, which could include a new half/full traffic signal or a roundabout coupled with geometric realignment, lighting, pedestrian facilities, and drainage.	Southcenter Boulevard	I-405 SB Off-ramp		Low

T-69	Southcenter Blvd/65th Avenue S Signal	Signalize the intersection.	Southcenter Boulevard	65th Avenue S		High
T-70	Ryan Hill Lighting Improvements	Add lighting to S Ryan Way	S Ryan Way	S Boeing Access Rd	51st Ave S	Medium
T-71	Intersection Improvements: E Marginal Way and S 112th St	Add crosswalks and RRFB to the intersection of E Marginal Way and S 112th St	0	E Marginal Way	S 112th St	High
T-72	S 133 St/SR599 Intersection	Design and construct intersection improvements, which could include a new traffic signal or a roundabout, lighting, pedestrian facilities, and drainage.	S 133rd St	SR-599		Low
T-73	Minkler Blvd (APW - S/C Pkwy)	Widen Minkler Blvd from Andover Park West to Southcenter Parkway. Add third lane and curb, gutter, and sidewalk on the south side.	Minkler Blvd	Andover Park W	Southcenter Pkwy	Low
T-74	S 129th St	Construct sidewalk on both sides of road segment	50th Pl S and S 129th St	S 124th St	East boundary of Tukwila city limits	Medium
T-75	Wig Blvd	Construct sidewalk on north side of Wig Blvd from Southcenter Pkwy to Bauch Dr. Construct sidewalk on east side of Bauch Dr from Wig Blvd to Andover Park W	Wig Blvd and Bauch Dr	Southcenter Pkwy	Minkler Blvd	Low
T-76	S Boeing Access Rd	Construct sidewalk on both sides of road segment	S Boeing Access Rd	E Marginal Way S	Martin Luther King Jr Way S	Low
T-77	Minkler Blvd Section 1	Construct sidewalk on south side of Minkler Blvd from end of existing sidewalk to Andover Park W	Minkler Blvd	243 Minkler Blvd	Andover Park W	Low
T-78	W Valley Hwy Section 1	Construct sidewalk on west side of W Valley Hwy	W Valley Hwy	17450 W Valley Hwy	S 180th St	Low
T-79	W Valley Hwy Section 2	Construct sidewalk on both sides of road segment	W Valley Hwy	17000 W Valley Hwy	17450 W Valley Hwy	Medium
T-80	W Valley Hwy Section 3	Construct sidewalk on west side of road from SW 27th St to simpleFLOORS Seattle parking lot entrance. Construct sidewalk on both sides	W Valley Hwy	Strander Boulevard	17000 W Valley Hwy	Medium

		of road from simpleFLOORS Seattle parking lot entrance to Auto Trim Design parking lot entrance				
T-81	Industry Dr Section 2	Construct sidewalk on both sides of Treck Dr. Construct sidewalk on north side of Industry Dr up to railroad crossing	Treck Dr and Industry Dr	West end of Treck Dr	Railroad crossing on Industry Drive	Medium
T-82	Christensen Rd Section 2	Construct sidewalk on west side of Christensen Rd from Baker Blvd to the southern-most Riverview Plaza parking lot entrance. Construct sidewalk on both sides of Christensen Rd from the parking lot entrance to Strander Blvd	Christensen Rd	Baker Blvd	Strander Blvd	High
T-83	Christensen Rd Section 1	Construct sidewalk on west side of 68th Ave S	Christensen Rd	16000 Christensen Rd	Baker Blvd	Medium
T-84	Longacres Way	Construct sidewalk on north side of Longacres Way. This would improve pedestrian connectivity to Tukwila Sounder Station.	Longacres Way	W Valley Hwy	Tukwila Station AcRd	Medium
T-85	Nelson Pl S Section 2	Construct sidewalk on south side of S 156th St segment. Construct sidewalk on both sides of Nelson Pl S segment. This would improve pedestrian connectivity to Tukwila Sounder Station.	S 156th St	W Valley Hwy	Interurban Trail	Medium
T-86	Interurban Ave S Section 3	Construct sidewalk on west side of road segment	Interurban Ave S	Southcenter Blvd	Fort Dent Way	Medium
T-87	S 164th St	Construct sidewalk on both sides of road segment	S 164th St	42nd Ave S	51st Ave S	High
T-88	S 160th St	Construct sidewalk on the north and west side of the segment from 51st Ave S to S 159th St. Construct sidewalk on the east side of the segment from S 159th St to Klickitat Dr	S 160th St and 53rd Ave S	51st Ave S	Klickitat Dr	Low
T-89	Martin Luther King Jr Way S Section 2	Construct sidewalk on both sides of road segment	Martin Luther King Jr Way S	S Boeing Access Rd	HW 5 entrance ramp	Medium
T-90	51st Ave S	Construct sidewalk on both sides of road segment	51st Ave S	S 144th St	51st Ave S Bridge	Medium

T-91	S 144th St Section 1	Construct sidewalk on south side of S 144th St	S 144th St	44th Ave S	51st Ave S	Medium
T-92	S 144th St Section 2	Construct sidewalk on south side of S 144th St	S 144th St	Tukwila International Blvd	44th Ave S	Medium
T-93	Macadam Rd S Section 3	Construct sidewalk on west side of road segment	Macadam Rd S	S 144th St	14449 Macadam Rd S	Low
T-94	S 140th St Section 1	Construct sidewalk on both sides of road segment	S 140th St	37th Ave S	Tukwila International Blvd	High
T-95	S 140th St Section 2	Construct sidewalk on both sides of road segment	S 140th St	Tukwila International Blvd	42nd Ave S	High
T-96	S 141st St Section 2	Construct sidewalk on both sides of road segment	S 141st St	Tukwila International Blvd	42nd Ave S	High
T-97	S 137th St and 53rd Ave S	Construct sidewalks on north side of S 137th St from 53rd Ave S (west) to 53rd Ave S (east) and on west side of 53rd Ave S from S 137th St to 52nd Ave S.	S 137th St, 53rd Ave S	Tukwila Park and Ride (52nd Ave S Entrance)	5204 S 137th St	Medium
T-98	Macadam Rd S Section 4	Construct sidewalk on both sides of road segment	Macadam Rd S	S 137th St	S 144th St	Medium
T-99	E Marginal Way S Section 1	Construct sidewalk on east side of E Marginal Way S	E Marginal Way S	10838 E Marginal Wy S	S 112th St	Medium
T-100	Macadam Rd S Section 5	Construct sidewalk on both sides of Macadam Rd S from S 133rd St to 43rd Ave S, construct sidewalk on east side of Macadam Rd S from 43rd Ave S to end of existing sidewalk on west side, and construct sidewalk on both sides of Macadam Rd S from existing sidewalk to S 137th St	Macadam Rd S	S 133rd St	S 137th St	High
T-101	S 133rd St/S 132nd St	Construct sidewalk on both sides of road segment	S 133rd St and S 132nd St	Military Rd S	Tukwila International Blvd	High

T-102	S 130th St	Construct sidewalk on both sides of road segment	S 130th St	Tukwila International Blvd	Macadam Rd S	High
T-103	E Marginal Way S/S 133rd St	Fill sidewalk gaps along the segment.	East Marginal Way S and S 133rd St	40th Ave S	Interurban Ave S	High
T-104	Macadam Rd S Section 6	Construct sidewalk on west side of Macadam Rd S from S 130th St to S 131st St. Construct sidewalk on both sides of Macadam Rd S from S 131st St to S 133rd St.	Macadam Rd S	S 130th St	S 133rd St	High
T-105	E Marginal Way S Section 3	Construct sidewalk on east side of East Marginal Way S	East Marginal Way S	S 124th St	S 128th St	Medium
T-106	Tukwila International Blvd Section 1	Construct sidewalk on both sides of road segment	Tukwila International Blvd	10825 E Marginal Wy S	S 112th St	Medium
T-107	S 112th St	Construct sidewalk on both sides of road segment	S 112th St	Tukwila International Blvd	E Marginal Way S	Medium
T-108	Tukwila Pond Pedestrian Access Improvements	Improve pedestrian access to Tukwila Pond Park				Medium
T-109	Tukwila International Boulevard Sidewalk Improvement	Add landscape buffers along sidewalks to prevent cars parking in pedestrian space.	Tukwila International Blvd	S 152nd St	S 139th St	High
T-110	S 124th St Sidewalk (West Segment)	Fill sidewalk gaps along the segment.	S 124th St	42nd Ave S	49th Ave S	Medium
T-111	42nd Ave S Traffic Calming Study	Review traffic calming tools that may reduce traffic speeds on 42nd Ave S	42nd Ave S	Southcenter Blvd	S 140th St	Medium
T-112	51st Ave S Traffic Calming Study	Review traffic calming tools that may reduce traffic speeds on 51st Ave S	51st Ave S	S 160th St	Southern City Limits	Low
T-113	Southcenter Parkway Speed Study	Review tools that may reduce traffic speeds on Southcenter Parkway	Southcenter Pkwy	57th Ave S	S 200th St	Low
T-114	Macadam Rd South Complete Street	Construction of a complete street design for Macadam Rd South between South 144th St	Macadam Rd S	S 144th St	S 150th St	Medium

		and S 150th St. The project will require roadway widening and re-channelization to add 5-foot bike lanes and 5-foot sidewalks on both sides of the roadway, and includes illumination, curb, and storm drainage.				
T-115	S 124th Street / 42nd Avenue S Intersection Improvements	Continue to evaluate intersection delays and consider intersection control changes through signalization or a roundabout.	S 124th Street	42nd Avenue S		High
T-116	West Valley Highway Corridor Monitoring	Collaborate with WSDOT to continue to monitor corridor delays and further study	West Valley Highway	Southcenter Blvd	Strander Blvd	Low

CITY OF TUKWILA

COMPREHENSIVE LAND USE

PLAN

UTILITIES ELEMENT BACKGROUND REPORT

2024 GROWTH MANAGEMENT ACT

UPDATE to the COMPREHENSIVE

PLAN

Planning Commission

Draft Utilities 2024

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I INTRODUCTION AND SUMMARY

The State Growth Management Act (GMA) requires the City to include a Utilities Element within its Comprehensive Plan consisting of the general location, proposed location, and capacity of all existing and proposed utilities, including, but not limited to, electrical lines, telecommunication lines, and natural gas lines (RCW 36.70A.070). The Utilities Element is a framework to provide utility service and facilities that are efficient and predictable.

Guidelines for preparing the Utilities Element have been codified in the procedural criteria for preparing and adopting Comprehensive Plans and development regulations under the Growth Management Act. The Utilities element establishes a basis for decision-making that is consistent with Washington's Growth Management Act, the Puget Sound Regional Council's Vision 2050 and King County's Countywide Planning Policies, including targets for housing units and employment. These specific requirements are fulfilled by the Utilities Background Report, Comprehensive Sanitary Sewer Plan, Comprehensive Water Plan, and Comprehensive Surface Water Management Plan. These documents, along with the six-year Capital Improvement Program and the City of Tukwila budget, are adopted by reference in the Tukwila Comprehensive Plan. Individual districts and other utilities providers prepare and adopt their own planning documents.

The 2024 Utilities Element Background Report Supplement summarizes and updates conditions for City and non-City owned utilities. It includes a basic description of service providers and indicates the most important service and situation changes since the 2015 Growth Management Act Comprehensive Plan update. Service provider maps and maps that show the general location of facilities are shown in the Appendix.

The Utilities Background Report reviews the present supply of utility services and infrastructure. It summarizes existing facilities, services and capacity and describes the ability of the respective utility systems to meet the future levels and location of demand that result from Tukwila's forecast growth in employment and households.

The utility services that are considered include: sewer and water services, surface water management, solid waste, electricity, natural gas and telecommunications. The City of Tukwila and adjacent municipalities and special districts provide sewer and water services. Surface water management is provided exclusively by the City of Tukwila. The remaining utilities such as solid waste, electric power, natural gas and telecommunications are provided to residents and businesses through franchise agreements or via contract with the City.

Quantifying realistic future demand is necessary for planning infrastructure projects and providing different types of utility services to meet future needs with adequate supply and capacity. Estimates of future need are based on two basic factors: (1) the amount of employment and housing growth; and (2) the location of employment and housing growth. The forecast growth is determined by forecasts from the Washington Office of Financial Management, and growth targets allocated by King County's Countywide Planning Policies. The location of growth capacity is defined by the adopted land use map contained in Tukwila's Comprehensive Plan.

The City of Tukwila must prepare plans to accommodate its targets for 5,045 new housing units (to reach the 2044 target of 14,369 total housing units[1]) and 17,867 new jobs (to reach the 2044 target of 60,856 total jobs). The City received designation as both a regional growth center and a manufacturing/industrial center in 1995. It is anticipated that most of that household growth will occur in higher density housing within a developing Southcenter neighborhood. Additional housing growth will occur along Tukwila International Boulevard in or near the Tukwila Village redevelopment project, in the vicinity of the light rail

[1] This 2023 total accounts for growth in the total number of housing units that happened between 2019 and 2022.

station at S. 154th Street, and in the Tukwila South area, annexed to Tukwila in 2010. New employment will primarily be dispersed among the Tukwila Urban Center, Manufacturing/Industrial Center, and Tukwila South sub-areas.

II DESCRIPTION OF KEY ISSUES

Several key issues are considered in planning for utility needs.

- **Service Extensions.** Planned extensions of utility services are based on existing need or to accommodate planned growth or growth targets.

- **Coordination of Service Providers**. In addition to its own water, sanitary sewer and surface water utilities, Tukwila is served by three non-City sewer and five non-City water districts, which can complicate interjurisdictional coordination. The City-managed utilities must be coordinated with adjacent purveyors that provide utility services to portions of the City to correct deficiencies, solve utility problems and accommodate growth.

- **Concurrency and Implications for Growth.** Concurrency requires that utility projects, along with other capital facilities, be developed so that improvements are in place at the time they are needed to meet growth and to accommodate growth targets.

- **Environmental Sustainability**. Environmental protection and restoration efforts are required in utility planning, construction and operations to ensure that the quality of the natural environment and its contributions to human health and vitality are sustained, and the effects of climate change limited.

  Environmental sustainability is a key priority for the region as expressed in King County's Countywide Planning Policies. This priority shall be implemented through utility planning and operations in Tukwila through a range of activities from conservation practices to low impact development methods.

- **Residential Neighborhood and Sub-Area Vitality**. Utility investments affect neighborhood quality of life, and the ability to realize established visions for specific sub-areas.

  Significant progress has been made in upgrading utilities in the residential neighborhoods since the Comprehensive Plan was adopted in 1995. Ensuring high quality utility service in neighborhoods remains a priority. Tukwila's Strategic Plan (updated in 2018) further emphasizes the importance of capital investment, including utilities, as a means to ensure that sub-areas reach their potential and can accommodate growth targets. These areas include Tukwila International Boulevard, the Southcenter/Tukwila Urban Center area, and the Manufacturing/Industrial Center area along East Marginal Way. The high costs of undergrounding utilities must be addressed, as well as limiting the impacts of utilities on adjacent areas.

- **System Rehabilitation, Replacement and Retrofit**. Much of the City's utility infrastructure has reached or is near its life expectancy. Rehabilitation or replacement of these systems will be needed to ensure their continued reliability. Federal, state and, local requirements continue to change and require utility system improvements to comply with these requirements.

  Much of Tukwila's infrastructure is 50+ years old and requires planned and systematic replacement and/or upgrades to ensure reliability. Planned upgrades are addressed in Tukwila's water, sewer and surface water system plans. Projects are scheduled and paid for through Tukwila's six-year Capital Improvement Program. Additional non-city utilities will be upgraded to address technological innovations, capacity constraints, and changed regulations.

III EXISTING CONDITIONS AND FUTURE NEEDS

City of Tukwila Water System

The City of Tukwila operates and maintains a water distribution system with approximately 40 miles of water mains. It supplies over 1.5 million gallons/day to the residential and commercial customers of Tukwila. Cascade Water Alliance provides the water that the City of Tukwila sells to customers with a contract that runs through 2064.

The water utility supplies both potable (drinking) water and water to fire hydrants. Although interconnected systems, these different services have different requirements.

Since the last Comprehensive Plan update in 2015, portions of the Allentown, Duwamish, Foster Point and Ryan Hill neighborhoods have received upgraded or new water systems. The City of Tukwila is using low-interest, long-term loans from the Public Works Trust Fund to finance the upgrade of water systems within the City. The City continues its efforts to improve the cross-connection program by requiring businesses to install a reduced-pressure backflow device to protect the water supply system when changing their plumbing systems.

Since 2015, the City of Tukwila Water Utility has completed the following significant projects to ensure that there is adequate capacity to meet growth targets:

- In 2021, the City installed a new 12" water line along Macadam Road from 144th St to Southcenter Blvd to provide capacity fire flow for current and future targeted growth.

- In 2022, the City upgraded an old pipe in a major intersection to minimize future emergency work. The repair was at the intersection of Tukwila Parkway and Andover Park East.

Future projects

During the planning period, the City of Tukwila Water Utility will upsize its existing 6" water line to a 12" line along 152nd Street in North Hill. It will construct a 2.5-million-gallon reservoir to address potable water reserves per Washington Department of Health requirements, as well as fire pressure needs to provide capacity to serve growth targets, primarily for the Southcenter/Tukwila Urban Center area.

In addition, the Water Utility will meet the continued need for systematic maintenance and replacement as water mains reach the end of their useful lifetime. (Figure 1—Water System)

City of Tukwila Sanitary Sewer System

The City of Tukwila operates and maintains a sanitary sewer collection system with approximately 33 miles of gravity and force sewer mains, and nine lift stations. The lift stations pump approximately 60% of all sewage in the City (approximately 460 million gallons).

Since 2015, various sewer spot repairs and upgrades were performed throughout the CBD and City. Three lining projects spanning thousands of feet of sewer mains were completed, drastically increasing the useful life of the existing sewer mains with minimal inconvenience to the public. Capacity upgrades to Lift Stations 2 and 4 were also performed to better prepare for future growth.

Future projects

In order to meet the needs for growth, as well as maintenance during the planning period, the City of Tukwila is proposing a new lift station near 65th Avenue South and Southcenter Boulevard to replace an existing sewer line that runs under I-405. Capacity upgrades at Lift Stations 3 and 5 will also be studied to accommodate future growth. In addition, portions of the sewers in the Tukwila Urban Center/Southcenter area will be relined since they are reaching the end of their design life. (Figure 2— Sanitary Sewer System)

City of Tukwila Surface Water Program

The City owns, operates and maintains approximately the following surface water features:

1) Ditches –99,193 lineal feet
2) Pipes – about 426,000 lineal feet
3) CB/Manholes – 4,345
4) Outfalls – 43
5) Detention/Water Quality – 13
6) Pump Stations – 4

NPDES

Since the 2004 update, significant regulatory changes have affected surface water management. This is primarily due to requirements of the National Pollutant Discharge Elimination System (NPDES) Phase II permit. The NPDES Phase II permit is issued every five years by the Washington State Department of Ecology to comply with Federal Clean Water Act requirements. The NPDES Phase II permit restricts storm water and wastewater discharges to waters of the State. The permit requires that all affected municipalities create and implement a specific Stormwater Management Program (SWMP) annually to protect water quality by reducing the amount of runoff pollutants.

The Surface Water Comprehensive Plan, is updated approximately every 10-years based on existing field conditions, applicable regulations, and anticipated revisions to those regulations, in order to identify program improvements that should be implemented. The Surface Water Comprehensive Plan includes nine basin boundary delineations and characterizations, an inventory of fish barriers, known issues, capital improvement projects, a regulatory compliance evaluation, low-impact development guidance, and policy recommendations. The plan emphasizes a greater importance on providing water quality, habitat restoration and fish passage improvements. (Figure 3 — Surface Water System)

Clean Water Act

The Clean Water Act regulates discharges of pollutants into the waters of the United States and regulates water quality standards for surface water. Major water bodies are classified by use according to State water quality standards. Each use has specific water quality criteria. The Green/Duwamish is the only surface water within the City's jurisdiction that has updated surface water quality standards. Tukwila must comply with The Phase II West National Pollutant Discharge Elimination System (NPDES) permit. This requires cooperation from all divisions of the city according to City of Tukwila Administrative Manual policy number 900-08. The Washington State Department of Ecology 303(d) listings for impaired water bodies does not list any current Total Maximum Daily Loading (TMDL) for the Green/Duwamish, but may elect to at any time. Tukwila will be required at that time to conduct Adaptive Management specified in the TMDL.

Endangered Species Act (ESA) and Salmon Recovery Act

In 1999, Puget Sound Chinook salmon and the coastal Puget Sound bull trout were listed as “threatened” species under the ESA, and in 2007, Puget Sound Steelhead were added to the list. Critical habitat for all of these species includes the Green/Duwamish River. In 2005, Southern Resident Killer Whales were

listed as “endangered” under the ESA, Green/Duwamish River Chinook salmon are among their most important food stocks[2]. The City implemented an ESA Screening checklist as part of the SEPA process to assess potential impacts to endangered species. In addition, the City is a member jurisdiction within Water Resource Inventory Area (WRIA) 9, which issues the watershed wide habitat plan. The plan includes watershed wide habitat projects, including those within the city of Tukwila, aimed at restoring salmon habitat and recovering the wild Chinook population. The City has several capital improvement projects that are linked to the WRIA 9 salmon recovery efforts.

NON-TUKWILA WATER AND SEWER

Several adjacent, publicly-owned water and sewer utilities operate within Tukwila.

Water District #125

Water District #125 serves a total of approximately 2,164 accounts in Tukwila. This includes approximately 1,795 residential water accounts, 1,795 commercial accounts and 146 nonresidential (i.e., irrigation/sprinkler and government/education) accounts. Per its 2016 Comprehensive Plan, Water District #125 foresees no problem in serving expected growth within its Tukwila service area. Staff indicate that some specific projects may require local infrastructure improvements, but basic facilities are in place.

The water system along Tukwila International Boulevard is fairly strong and is projected to accommodate most anticipated development during the planning period. Undersized water mains throughout the WD 125 service area are systematically being addressed by capital improvements as funds are available. A recent intertie project has provided increased backup for fire pressure in this area. This upgrade will facilitate anticipated redevelopment and growth. Should a specific development require higher fire flows than are available at the time, it would be the responsibility of the developer to make the necessary improvements to achieve the required flows.

A copy of Water District #125’s most recent Comprehensive Plan (2016) provides a full evaluation of its existing system and its ability to meet the anticipated requirements for water source, quality, transmission, storage and distribution for the planning period. The Plan also includes a complete list of future water system projects and how they will be financed. The Plan is available at the Water District #125 office located at 3460 S. 148th St., Tukwila, WA 98188.

Highline Water District

The Highline Water District serves approximately 610 accounts in Tukwila, including 120 non-residential (commercial, government, nonprofit), and 490 residential. The Highline Water district provides the majority of water service in the Tukwila South area.

Two recent projects were constructed specifically to meet anticipated growth in the Tukwila South area during the planning period. They include:

- **Project 16-2** – Pump Station No. 8 The District identified the need for a second regional pump station providing source water from Seattle Public Utilities to the Crestview reservoir and 560 Pressure Zone. The new 5,000-gpm pump station improves redundancy and resiliency in the District’s largest pressure zone serving District customers within the City of Tukwila and throughout the region Construction was complete in 2021.

[2] NOAA Fisheries West Coast Region and Washington Department of Fish and Wildlife, “Southern Resident Killer Whale Priority Chinook Stocks Report” June 22, 2018

- **Project 16-6** – Pump Station No. 9 In its effort to improve resiliency in the water system, the District constructed a second pump station at the Mansion Hill Reservoir site. The new station provides backup source water from the 490 Pressure Zone into the 560 Pressure Zone. The 3,000-gpm pump station increases redundancy in the District's overall water system and allows for future growth in the City of Tukwila and beyond. Construction was complete in 2021.

In general, the District's infrastructure is able to meet the water demands within its boundaries in the City of Tukwila. According to Highline's Comprehensive Plan, current requirements and future development needs can be adequately met through systematic capital projects. Highline Water District will continue its robust district-wide approach to replacing aging water mains, including some in Tukwila. A copy of the current Comprehensive Plan with specific projects is available from the Highline Water District office at 23828 30th Avenue South, Kent, WA 98032. The District will begin its effort updating its Comprehensive Plan for the next planning period in late 2024 with anticipated completion in 2026.

City of Seattle

Seattle Public Utilities (Water) provide service to the northern portion of the City including industrial connections along East Marginal Way South in Tukwila's Manufacturing/Industrial Center. The area is built out, and except for projects outside of Tukwila that are focused on improving the reliability and flexibility of the entire SPU water supply system, no major projects are planned.

City of Renton Water Utility

The Renton Water Utility services a small eastern portion of Tukwila in the southeast portion area on the eastern edge of the Tukwila Urban Center.

Water District #20

Water District #20 serves several properties on the western boundary of the city, between Military Road and Tukwila International Boulevard.

Valley View Sewer District

The Valley View Sewer District is located generally south of Seattle, with a service area that includes part of Seattle, as well as portions of the cities of Burien, SeaTac, Tukwila, and unincorporated King County. It provides sanitary sewer service to the central and western portions of Tukwila. Presently, Valley View has agreements with the City which allow it to operate and maintain sewer facilities within Tukwila. The District neither owns nor maintains wastewater treatment facilities; its flows are treated through contracted relationships with the King County Wastewater Treatment Division, Southwest Suburban Sewer District and Midway Sewer District.

Valley View serves approximately 8,600 connections and a population of 44,684 in total. It has 170 commercial accounts and 1,909 residential accounts, for a total of 2,079 connections in Tukwila.

Growth

In 2013, the Valley View Sewer District exchanged a portion of its territory with the City of Tukwila sewer utility immediately west of I-5 in the vicinity of S. 144th and S. 151st Streets in order to better to serve the area based on its sloping topography.

Valley View's Comprehensive Plan indicates that projected development within the service area is limited to that associated with infill development over the short term, and redevelopment over the longer term. An increase in multi-family and commercial uses is anticipated.

During the planning period, several construction projects are scheduled to extend sewer service to currently unsewered areas in Tukwila. The current Capital Improvement Program includes new sewer

construction in the following areas during the planning period: 1) Riverton Crest (project N-3) at Military Road and S. 140th Street, planned for 2017, and 2) the Tukwila Loop Sewer Main (project N-13) located near 158th Street, east of 42nd Avenue South, planned for 2022. Additional projects will be carried out in coming years and include continued sewer rehabilitation and replacement. Revenue sources for financing capital expenses include rates, utility local improvement districts, bonds, grants and loans.

City of Seattle

Seattle Public Utilities (Sewer) provide service to the very northwest tip of the City of Tukwila in the vicinity of 16th Avenue South, in the Manufacturing/Industrial Center.

City of Renton

The City of Renton serves a small eastern portion of the Tukwila Urban Center with sewer service. This area is generally located between West Valley Highway and the Renton border from approximately S. 160th and S. 180th Street.

Additional Utilities Not Owned by the City of Tukwila

Solid Waste and Recycling

Collection, transport, and disposal of solid waste in Tukwila is guided by the King County Comprehensive Solid Waste Management Plan, the Seattle-King County Hazardous Waste Management Plan, and the Washington State Solid Waste Management Plan. Through a competitive process, the City awarded a ten-year contract in September 2022 to Recology to provide solid waste, recycling, and organics collection for residential, multifamily, and commercial customers. The contract begins on November 1, 2023, and provides for a comprehensive solid waste and recycling program and competitive rates for the City. The cost of recycling service for Tukwila residents and businesses is embedded in the respective garbage rates. Residential garbage collection is voluntary.

Tukwila has adopted the King County Comprehensive Solid Waste Management Plan and the Solid Waste Interlocal Agreement (ILA). These guiding documents form the basis for the City's solid waste, recycling, and waste reduction programs.

Through the ILA provisions, garbage collected in the City of Tukwila goes primarily to the Bow Lake Transfer Station, located at South 188th Street and Orillia Road. The Bow Lake Transfer Station handles more than a third of the County's solid waste and accepts garbage, recyclables, and organics. Garbage is ultimately trucked and disposed of in King County's Cedar Hills Regional Landfill. Bow Lake is well equipped to accommodate future growth in the region and facilitate disposal options when Cedar Hills Landfill reaches full capacity in 2038.

Allied Waste/Republic will continue providing solid waste, recycling, and organics collection through their Washington Utilities and Transportation Commission certificates for recently-annexed areas in the City including the Tukwila South area.

In March 2022, Washington State enacted the Organics Management Law to reduce organic waste disposal 75% by 2030, to increase the volume of edible food recovery 20% by 2025, and to widely expand collection. By 2024, businesses with at least eight cubic yards of weekly organics waste are required to have on-site management or collection services in place. This threshold drops each year to cover generators of smaller volumes in 2025 and 2026. Organics waste includes manure, yard debris, food waste, food processing waste, wood waste, and garden waste.

Telecommunications

Telecommunications services include both switched and dedicated voice, data, video, and other communication services delivered over the telephone and cable network on various mediums, including, but not limited to, wire, fiber optic, or radio wave. Either regulated or non-regulated companies may provide these services. Cable service includes communication, information and entertainment services delivered over the cable system whether those services are provided in video, voice or data form. Telecommunication services follow growth and have capacity to match whatever growth occurs in Tukwila. With new technologies, telecommunications utilities project virtually limitless capacity within the planning horizon.

Through partnerships with franchised telecommunications companies, and completion of capital projects, the City has a robust conduit infrastructure that would enable and facilitate future fiber optic connectivity projects benefitting the City, its residents and business, and project partners.

The City participates in a connectivity consortium consisting of cities, and other public partners that would construct and maintain a regional fiber-optic telecommunications system. This fiber-optic system would provide system redundancies, and enhance communications networks, and emergency operations. At some point during the planning period, the telecommunications network will be updated to fiber optic, but the exact schedule and locations are not available.

Cable and Satellite Television

The City of Tukwila has a non-exclusive franchise agreement with Comcast Corporation to construct, operate, and maintain a cable system in compliance with the Federal Communications Commission (FCC) regulations. Comcast's network provides high-definition television and high-speed internet access through cable modems and includes coaxial and fiber optic cabling systems deployed underground and overhead using utility poles leased from power and telephone companies. Future growth is most likely occur relative to data/internet service, as more content becomes accessible online. These broadband services can be provided over fiber optic networks, cable networks or DSL telephone networks.

Satellite television competes directly with cable television by delivering hundreds of channels directly to mini-dishes installed in homes and businesses throughout Tukwila.

Wireline and Wireless Communications

Multiple companies offer telecommunications services in Tukwila including integrated voice and data, and voice over internet protocol (VoiP) technology. Century Link, the Incumbent Local Exchange Carrier (ILEC) is now joined by several Competitive Local Exchange Carriers (CLECs) in providing more communications service options to Tukwila residents and businesses.

Since Washington Utilities Trade Commission (WUTC) regulations require CenturyLink to provide adequate PTSN telecommunications service on demand, there are no limits to future capacity, although demand for land lines is declining. Additionally, VoIP telephone service should only be restricted by bandwidth constraints on fiber optic networks that provide this digital service.

The significant growth in wireless phone and data usage over the past few years is anticipated to continue, placing additional demand on existing cellular networks. The capacity of a cellular transmission cell is limited by the number of radio frequencies available for use; the carrier’s FCC license defines what frequency spectrum is allowed. To increase system capacity, carriers often install additional transmitters, thereby creating multiple smaller cells that cover less area than the original larger cell and serve fewer customers each, increasing overall system capacity.

Cellular phone and data service providers are licensed by the Federal Communication Commission (FCC) for a particular band of radio frequencies. Cellular service providers provide access to voice and data

services via their wireless frequencies. Major cellular service providers operating in Tukwila include AT&T, Verizon Wireless, and T-Mobile.

Electric Utilities

Tukwila's electricity is provided by Puget Power and Seattle City Light. Electric utilities in Tukwila share what is described as an "integrated regional electric system." Regardless of ownership, the elements of the system are designed and operated to work in a complementary manner. The elements include transmission lines, substations and generation facilities. Seattle City Light and Puget Power continually consider means to expand supply and upgrade equipment since the law requires them to serve all customers requesting service. Current capital facilities plans and six-year finance plans which include complete project information are available from Seattle City Light and Puget Sound Energy. **(Figure 4 – Electricity Providers)**

Puget Sound Energy [3]

Puget Sound Energy (PSE) is an investor-owned, private utility that is regulated by the Washington Utilities and Transportation Commission (WUTC). It provides electric service to over 900,000 metered customers within the company's 4,500 square mile service territory. This territory encompasses nine counties in western and central Washington. PSE provides electrical service to approximately 3,800 customers in Tukwila who are located generally south of South 160th Street, including the Urban Center.

Puget Sound Energy builds, operates and maintains an extensive electric system consisting of generating plants, transmission lines, distribution systems and substations. It is a hydroelectric-based company purchasing about 40 percent of its power from utilities that own five large hydro facilities on the Columbia River. Six Puget Sound Energy-owned hydroelectric plants, located on the Nooksack, Baker, Snoqualmie, White and Puyallup Rivers, add to the hydro base on the west side of the Cascades. Other Puget Sound Energy owned, or partly owned, sources include four coal-fired plants (in Centralia, Washington, and Colstrip, Montana), and six gas- and oil-fired plants.

Within Tukwila, Puget Sound Energy owns and maintains transmission lines which bring generating facilities to principal substations. The Talbot-O'Brien transmission lines serves Tukwila and the surrounding area with 230 kilovolt (kV) high-voltage transmission lines that run north-south within the Interurban Corridor, moving bulk power from transmission stations in Renton and Kent. Both of those stations generally supply electrical energy to the southern half of King County, an area much larger than the City of Tukwila. Several 115 kV transmission lines and a number of neighborhood distribution substations are located within the city and deliver electrical energy to other neighborhood substations in communities adjacent to Tukwila.

PSE's Integrated Resource Plan (IRP) details how the utility will serve future needs during the planning period. The current plan details the energy resources needed to reliably meet customers' wintertime, peak-hour electric demand over the next 20 years. The plan, which will be updated in spring 2013, forecasted that PSE would have to acquire approximately 4,200 megawatts of new power-supply capacity by 2031. This resource need is driven mainly by expiring purchased-power contracts and expected population and economic growth in the Puget Sound Region. The IRP suggests that roughly half of the utility's long-term electric resource need can be met by energy efficiency and additional wind-power supply. The rest of PSE's gap in long-term power resources is likely to be met most economically with added natural gas-fired resources.

Future Projects

- Specific construction that is anticipated for Tukwila includes the following:

[3]Staff made several attempts to contact PSE, however, they did not provide the requested updated information. This deficiency will be updated in the next few years with an update to this element (2024).

- 2013--New 115 kV transmission line between the future Briscoe Park Substation and the existing Boeing Aerospace Substation.

- 2014--Replacement of the existing 115 kV underground cable between the Nelsen and Tukwila Cable Stations. The existing cable was installed in 1974, and the new cable will increase reliability and capacity.

- Near term--Vegetation management within the 230 kV transmission line corridor, for NERC compliance.

- Future —

    - Improve Briscoe Park Substation, located in the center of the Tukwila South development, providing increased capacity and reliability in the area.
    - Enlarge the existing Renton Junction Substation, providing increased capacity and reliability in the area.
    - Build a 115 kV underground cable connecting the existing Nelsen Cable Station and Renton Junction Substation, to facilitate expansion of Renton Junction Substation.
    - Build a 115 kV transmission line connecting the existing Southcenter Substation and the future Briscoe Park Substation. This future line would either be overhead or underground and would provide increased capacity and reliability.
    - Build a Substation near Southcenter Boulevard and South 180th Street to provide increased capacity and reliability in the area.
    - Rebuild the existing 115 kV transmission line that runs east from the existing Nelsen Cable Station with a larger conductor.

Seattle City Light

Seattle City Light (SCL) is the City of Seattle-owned electrical utility. Its total service area covers approximately 131 square miles, including all of Seattle and some portions of incorporated and unincorporated King County to the north and south of Seattle. Seattle City Light serves the northern portion of Tukwila, including the Manufacturing/Industrial Center (MIC) via franchise agreements. According to 2024 data, SCL has approximately 6,100 residential and 800 commercial customers in Tukwila.

Both a retailer and wholesaler of electric power, nearly half of customers' electric needs are met from hydropower dams owned and operated by City Light; most of the remaining power needs are met by hydropower purchased from the Bonneville Power Administration and investments in renewable and conservation resources. The largest facilities are the hydro-generating plants of the Boundary Dam in Pend Oreille County and the Skagit Project on the Skagit River.

Seattle City Light owns and maintains approximately 649 miles of transmission lines which transmit power from the Skagit and Cedar Falls generating facilities to 14 principal substations. Power is distributed from these principal substations via high voltage feeder lines to distribution transformers throughout SCL's service territory.

Seattle City Light (SCL) is a municipally owned utility provides service to customers in the City of Seattle, portions of unincorporated King County, and via franchise agreements to several King County cities including the northern portion of Tukwila.

SCL's 2024 Integrated Resource Plan (IRP) Progress Report outlines how the utility will meet anticipated customer needs over the next 20 years. According to the IRP Progress Report, Seattle City Light is likely to meet the energy needs of Seattle and Tukwila through 2031 with ongoing conservation programs, seasonal market purchases, and additions of wind, solar, and batteries to City Light's portfolio.

Conservation programs will continue since they are lower cost, flexible, advantageous for economic development, and with minimal environmental impacts. After 2031 and through 2043, energy needs will be met by additional power from renewable resources listed above.

SCL owns and maintains transmission lines which bring power from the Skagit and Cedar Falls generating facilities to a number of principal substations. Other transmission lines also transmit power from station to station throughout SCL service territory. Power is distributed from these substations via high-voltage feeder lines to distribution transformers. These transformers reduce voltage to usable levels for customers.

Tukwila is served both from Seattle City Light's Duwamish Substation in Tukwila and from the Creston-Nelson Substation in Seattle. Distribution feeders from Duwamish and Creston-Nelson deliver energy to the area's customers.

Future Projects

As new loads emerge and remaining feeder capacity is utilized, SCL will need to construct new feeders from stations with available capacity to serve these loads. The timing of these new feeders is dependent on the demand schedules of the new loads as they are identified. When loads increase beyond existing station capacity, substation and transmission projects would be needed, and may include new transmission lines or possibly rebuilding existing lines.

Natural Gas

Puget Sound Energy, an investor-owned utility, builds, operates and maintains natural gas facilities serving Tukwila. Puget Sound Energy purchases gas from other regions and manages the distribution of natural gas to customers within its service area. This involves pressure regulation and the development and maintenance of distribution lines. PSE builds, operates and maintains natural gas facilities serving about serves over 750,000 gas customers in six counties, including approximately 3,400 customers in Tukwila.

Per its 20-year Integrated Resource Plan (IRP), no major gas main improvement projects are planned for Tukwila at this time. Puget Sound Energy covers virtually all of Tukwila with their main distribution lines. Overall, the utility foresees no difficulties in meeting future demand during the planning period. No major improvement projects are planned at this time. PSE was approved to combine its Integrated Resource Plan (IRP) with the Clean Energy Implementation Plan (CEIP) into a single Integrated System Plan (ISP) due in January 2027. **(Figure 5—Natural Gas Provider)**

IV APPENDIX

Figure 1

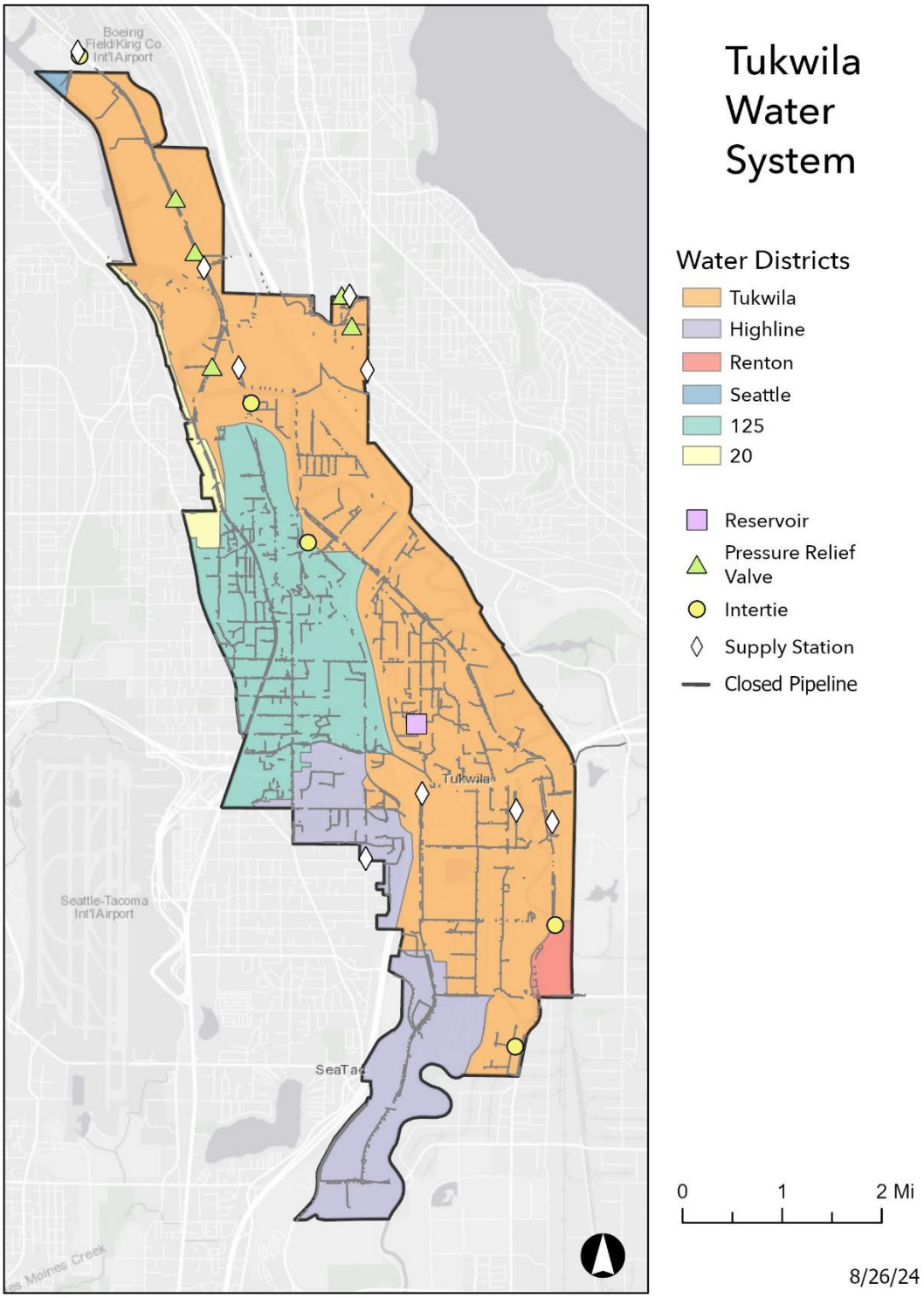


Figure 2

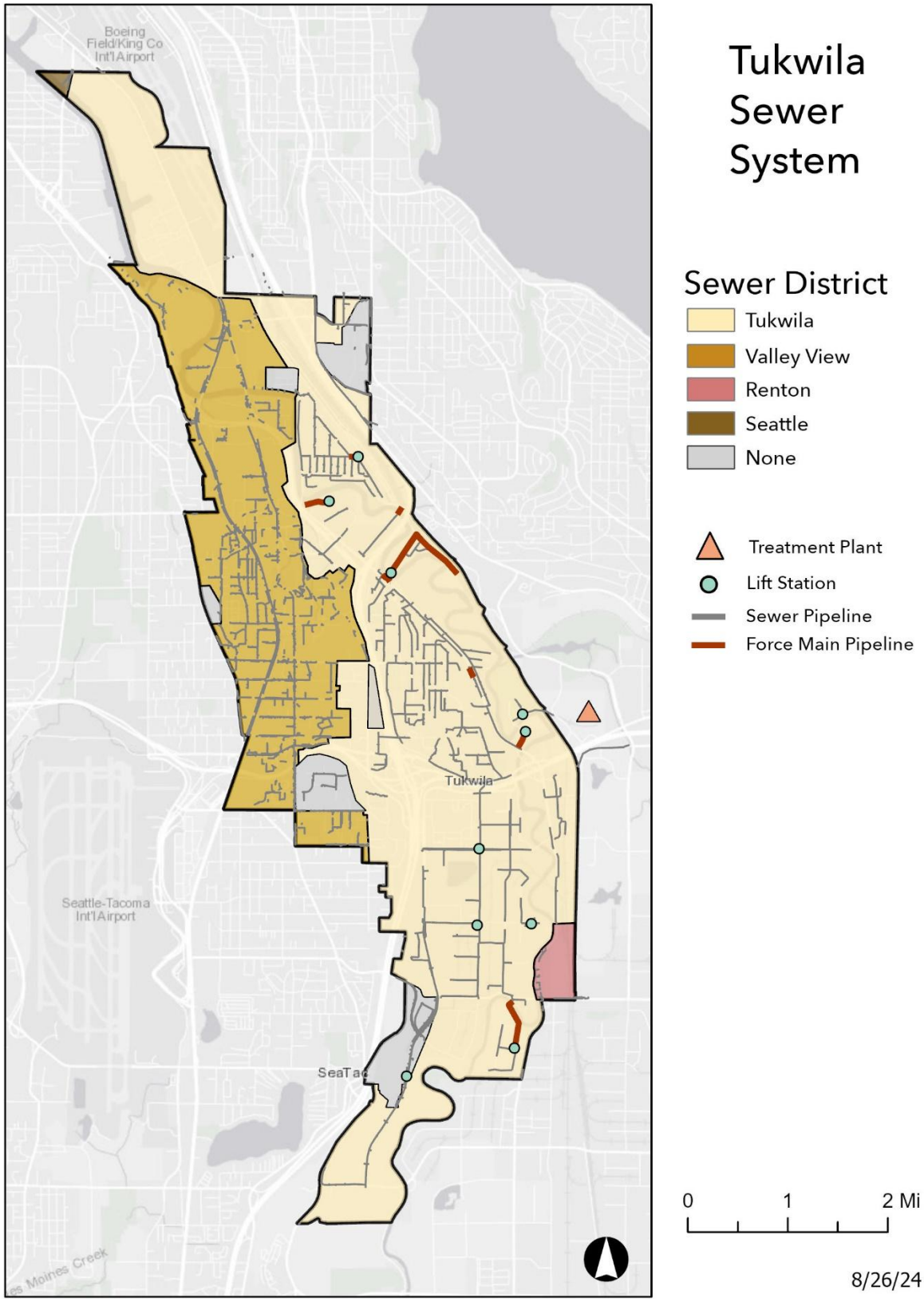

Boeing Field/King Co Int'l Airport
Tukwila
Seattle-Tacoma Int'l Airport
SeaTac
Des Moines Creek
Tukwila Sewer System
Sewer District
Tukwila
Valley View
Renton
Seattle
None
Treatment Plant
Lift Station
Sewer Pipeline
Force Main Pipeline
0
1
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Figure 3

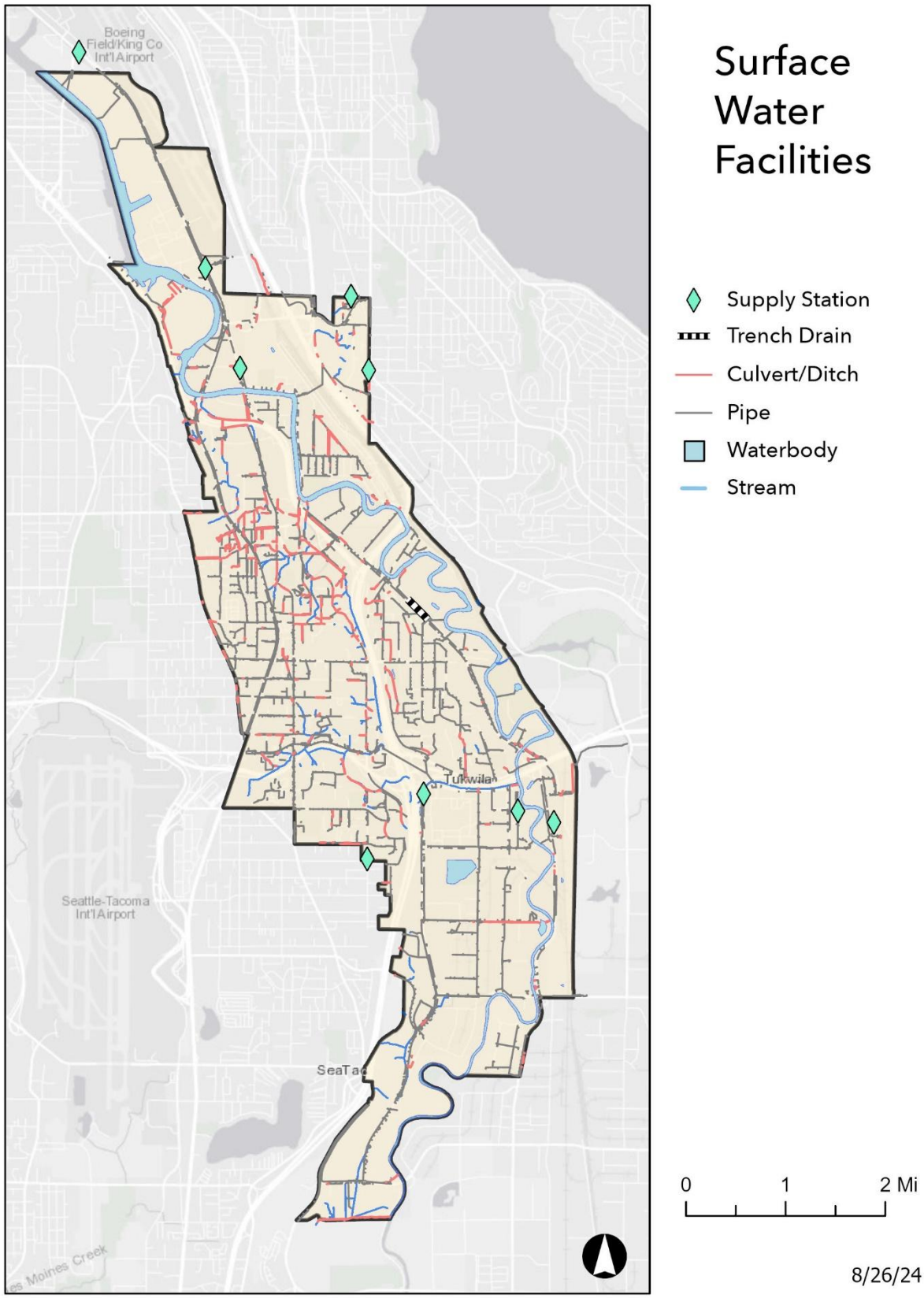

Boeing Field/King Co Int'l Airport
Seattle-Tacoma Int'l Airport
Tukwila
SeaTac
Des Moines Creek
Surface Water Facilities
Supply Station
Trench Drain
Culvert/Ditch
Pipe
Waterbody
Stream
0
1
2 Mi
8/26/24

Figure 4

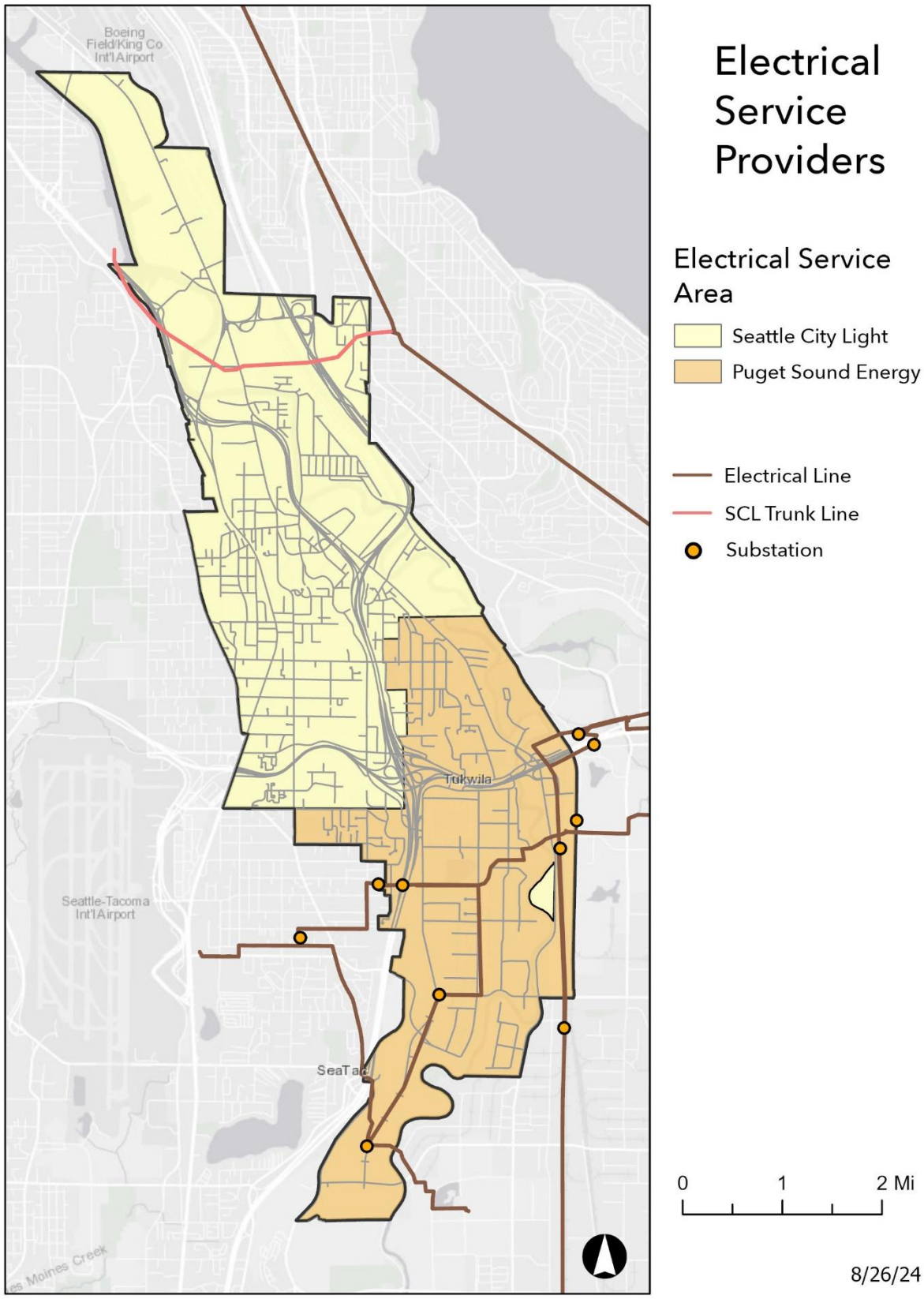
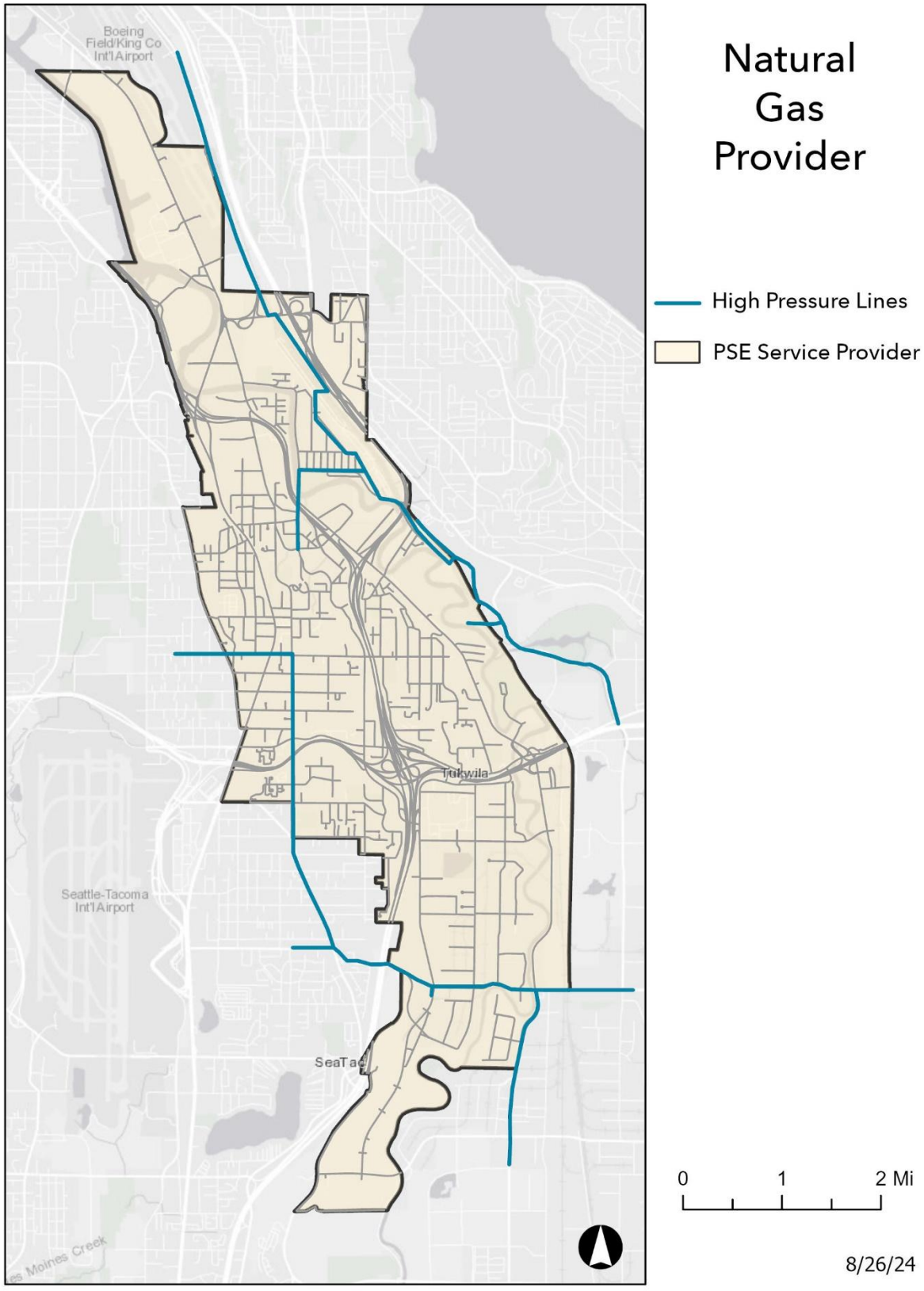

Boeing Field/King Co Int'l Airport
Tukwila
Seattle-Tacoma Int'l Airport
SeaTac
Des Moines Creek
Electrical Service Providers
Electrical Service Area
Seattle City Light
Puget Sound Energy
Electrical Line
SCL Trunk Line
Substation
0
1
2 Mi
8/26/24

Figure 5


Boeing Field/King Co Int'l Airport
Tukwila
Seattle-Tacoma Int'l Airport
SeaTac
Des Moines Creek
Natural Gas Provider
High Pressure Lines
PSE Service Provider
0
1
2 Mi
8/26/24

DRAFT

CITY OF TUKWILA
COMPREHENSIVE LAND USE PLAN
CAPITAL FACILITIES ELEMENT BACKGROUND REPORT

2024 GROWTH MANAGEMENT ACT
UPDATE to the COMPREHENSIVE PLAN

December 2024

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I INTRODUCTION

Under Washington State's Growth Management Act (GMA), King County and its cities must adopt comprehensive plans that accommodate 20 years of anticipated population and employment growth. Plans must provide for land uses, densities, and associated public facilities that are sufficient to meet the needs of this future growth. Within those state parameters, local governments have discretion as to how they will accommodate the growth within their borders and the levels of service in their public facilities that they will provide.

Within the comprehensive plans, facilities must be identified that will be built during the planning period to provide for growth, as well as a realistic financing plan that must be adjusted if funding is inadequate. A key concept is concurrency—adequate public facilities should be ready when the impacts of development occur. State law requires concurrency for transportation. Tukwila has chosen to implement concurrency on water delivery, sewer collection, and transportation, facilities[1].

In addition to what must be contained within a 20-year comprehensive plan, the State mandates how often that comprehensive plans must be updated at least every ten years. Tukwila's Plan was last update in 2015, and the next update is scheduled for no later than December 31, 2024.

The overall Tukwila **Capital Facilities Plan** (CFP) includes: 1) the goals and policies of the **Capital Facilities Element** of the Comprehensive Plan; 2) projects listed in the biennial **Capital Improvement Program and Financial Planning Model (CIP/FPM)**, which demonstrates the financial support for the capital program; 3) the **Capital Facilities Element Background Report**; and 4) the **system plans** for each of the public facilities.

The Tukwila Comprehensive Plan includes goals and policies for its capital facilities; identifying the public facilities and services provided to Tukwila by other public and private entities. The Capital Facilities Plan (CFP) is the six to 20-year plan for capital facilities that serve the land uses and neighborhoods described in this Plan. It guides the development of the City's six-year CIP/FPM, which contains specific projects and funding to implement the Comprehensive Plan. The CIP/FPM is updated in conjunction with the biennial budget.

The Tukwila Comprehensive Plan, including the Capital Facilities Element, is based upon regional growth assumptions and adopted targets for Tukwila's share of future household and employment growth. The Capital Facilities Element includes topics that are required by the GMA, and regional plans including the Puget Sound Regional Council's Vision 2050 (adopted 2020), and King County's Countywide Planning Policies (ratified 2023.)

This Background Report provides a review of State-mandated topics and regional plans and policies, along with data on Tukwila's most current household and employment targets. This new information will be used as the basis for capital facilities and land use planning in the Comprehensive Plan update. This Report also explains the complex relationship of the various system plans and facilities, which are created to ensure:

- adequate facilities and services for the 20-year future of the City,
- compliance with Federal and State mandates, and
- current best practice requirements and new standards for each line of service.

[1] TMC 14.36 and TMC 9.48, respectively.

II DEFINITION OF CAPITAL FACILITY

As it plans for capital improvements and public services, the City of Tukwila needs to clarify what should be considered in capital planning. Per the GMA — Planning By Selected Counties And Cities Chapter (RCW 36.70A.030(20)) "Public facilities" include streets, roads, highways, sidewalks, street and road lighting systems, traffic signals, domestic water systems, storm and sanitary sewer systems, parks and recreational facilities, and schools. The GMA uses the terms “Public Facilities” and “Capital Facilities” somewhat interchangeably.

The State has also defined “Public services" to include fire protection and suppression, law enforcement, public health, education, recreation, environmental protection, and other governmental services.

There is no specific rule as to what to include in capital facility planning. Items to consider include the purchase or construction, major repair, reconstruction or replacement of capital items such as: buildings, utility systems, streets, bridges, parks, and heavy equipment. These are all items that have a high cost and have a useful life of many years. Not all capital projects are included in a Capital Facilities Program. Temporary or emergency projects are typically excluded, even though they may cost millions of dollars, as are small projects, unless several can be bundled together to add up to a dollar threshold.

For the purpose of the Tukwila Capital Facilities Element and the CIP/FPM, the following definition is proposed:

A **capital facility** is a major improvement, maintenance, replacement, or acquisition that costs at least $100,000 (including the cost of new equipment necessary to make a project operational), and must meet the following criteria:

- Have a life expectancy of 20 years or more,
- Result in an addition to the City’s fixed assets, and/or
- Extend the life of an existing City-owned capital asset

Additional discussion of the capital facility definition is included in **Appendix A.**

III RELATIONSHIP OF THE CAPITAL FACILITIES PLAN TO OTHER TUKWILA PLANNING EFFORTS

Preparation of a "Capital Facilities Plan" (CFP) is required by the GMA. In Tukwila this requirement is met through the combination of the long-range Capital Facilities Element of the Comprehensive Plan, the CIP/FPM, and supporting documents such as this Background Report and the various functional plans for sewer, water, parks, open space and recreation, etc. Capital facilities planning is guided by the overall goals and policies of the Comprehensive Plan and the specific revenue, spending, and priorities of the Capital Facilities Element, as well as the priorities of Tukwila's Strategic Plan (2012; last amended in 2018).

Tukwila has its annual budget linked to its six-year CIP/FPM, and its CIP/FPM linked to its Capital Facilities Element. These links connect the short and long-term capital planning and the financial plan that is needed to support City goals. The unique feature of the Capital Facilities Element is the tie between the capital project timing (i.e., "when"), number ("how much"), and location ("where.") The Comprehensive Plan sets policies about operational versus capital spending, prioritizing capital projects among the competing priorities of, for example, transportation, parks, and general government and creates a connection between the overall community goals, planned growth, and maintaining adopted standards for these public facilities and services.

The Capital Facilities Element of Tukwila's Comprehensive Plan is different from the Capital Improvement Program because it looks beyond the six-year CIP/FPM window to years 7 through 20. With available revenue, the six-year CIP/FPM rolls ahead each budget year with new capital projects. The CIP/FPM is an integral part of Tukwila's regular budget cycle and bridges between the biennial planning and the twenty year planning horizon.

The CIP/FPM divides projects into two categories, those projects utilizing general government funds and those utilizing enterprise funds. The largest sources of general government funds are local taxes, grants, developer contracts, and bonds. Projects planned with these funds include residential and arterial street improvements, parks, trails, fisheries projects, and buildings. As an example, the Justice Center and the West Valley Highway/Longacres Way Project were built with these funds.

In Tukwila, enterprise funds are used to maintain water, sewer and surface water services and the Foster Golf Links. Enterprise funds are mainly generated through user fees, bonds, and grants.

The CFP, which includes the Capital Facilities Element and the CIP/FPM, is informed by various utilities and facilities systems plans (Water, Sewer, Parks, Surface Water, draft City Facilities plan[2]), as well as sub-area land use plans (Tukwila International Boulevard, Manufacturing/Industrial Center, Southcenter Plan, Tukwila South, Shoreline Master Program), and resources that together represent the planning and financing mechanisms required to serve the capital facility needs of Tukwila. These system plans are adopted by reference as part of the Comprehensive Plan, and are consulted for information on capital facility inventories, planning, financing, and programming for the City of Tukwila.

Strategic Plan 2012 (Updated in 2018) - *The city of opportunity, the community of choice.*
During 2012, the City of Tukwila developed a Strategic Plan to guide its actions and investments for the following five to ten years. The process of developing the Strategic Plan included very robust outreach to and engagement with the residential and businesses communities, as well as with City of Tukwila staff.

The Strategic Plan establishes high level aspirations and areas of effort that have informed the CFP by clarifying the issues that are most important to the community. Tukwila's community's overarching direction is to strive to provide superior services that support a safe, inviting and healthy environment for residents, businesses and visitors. As the Strategic Plan is implemented over time, its goals, objectives, and strategies will be reflected in City operations and facilities development. Key goals and objectives have been

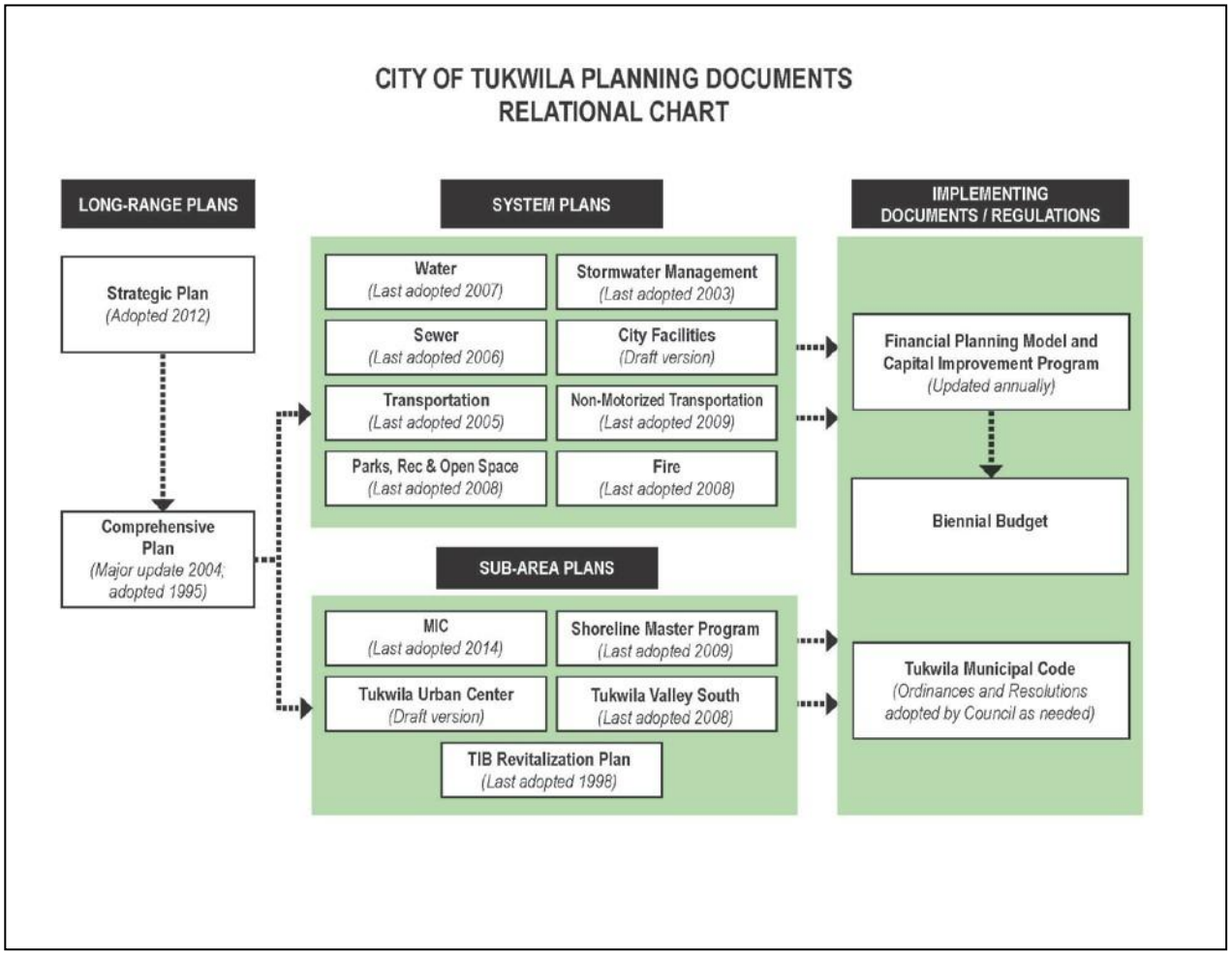
[2] Fire facilities are addressed through the City's annexation to the Kent Fire Department Regional Fire Authority.

integrated into this Capital Facilities Element, and will result in capital improvement projects intended to improve public safety, enhance the appearance and value of neighborhoods, and attract and retain businesses. One such project to emerge from the strategic plan was the development of the 2016 Public Safety Plan, and a voter approved bond that was used, in part, to construct a new Justice Center.

In 2018, the City began implementing a new budgeting method called Priority Based Budgeting. An important step in Priority Based Budgeting is to score the City's programs and services against the City's goals identified in the adopted Strategic Plan. Staff conducted outreach to the community in 2018 to determine if the Strategic Plan still reflected the Community's priorities and values. That exercise identified what items had been accomplished, what still needed to be worked on, and what items might be missing from the plan that the City should include in its priorities.

The following figure lays out the sequence and relationships of the variety of planning efforts and documents that are created to establish standards and facilities for growth.

The following table will be updated with current adoption dates:



IV MANDATES FROM WASHINGTON STATE

The GMA establishes the basic requirements to plan in a coordinated and comprehensive manner, including planning for the development of capital facilities. Multi-County and county-wide plans implement these requirements through their policies and provide further guidance for local jurisdictions' capital facilities planning and priorities. Within that requirement, Tukwila has the responsibility to prepare and implement its own comprehensive plan. The following sections describe these intergovernmental requirements and relationships.

Statutory Requirements for CFPs and Relationship to Other City Planning

The 1990 GMA guides planning for growth and development in the state. Per the GMA, local governments in fast growing and densely populated counties are required to develop and adopt comprehensive plans.

The GMA has established 15 broad goals to guide the policy development of local comprehensive plans, including:

- Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner;
- Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.

A capital facilities element is one of the seven required elements of a comprehensive plan. It is intended to:

- Identify capital facilities needed for the land development that is envisioned or authorized by the Comprehensive Plan's land use element3;
- Ensure the maintenance of the quality of life for existing and future development by establishing and maintaining level of service standards for the capital facilities;
- Coordinate and provide consistency among various plans that deal with capital improvements, including:
    - Other elements of the Comprehensive Plan (such as the Utilities, Transportation, and Parks, Recreation, and Open Space elements)
    - Systems Plans that deal with other City utilities
    - Plans for capital facilities for the state or other regional governments, such as King County
    - Plans for other adjacent cities, and
    - Plans for special purpose districts.
- Ensure the timely provision of adequate facilities that are required by the GMA; and document all capital projects and their financing.

Per the GMA, Comprehensive plans—Mandatory elements Chapter (RCW 36.70a.070) the Capital Facilities Element shall include:

a) An inventory of existing capital facilities owned by public entities, including green infrastructure, showing the locations and capacities of the capital facilities;
b) a forecast of the future needs for such capital facilities;
c) the proposed locations and capacities of expanded or new capital facilities;
d) at least a six-year plan that will finance such capital facilities within projected funding capacities and clearly identifies sources of public money for such purposes; and

[3] This plan is creating a single land use element, vs. having land use information located throughout the Plan.

e) a requirement to reassess the land use element if probable funding falls short of meeting existing needs and to ensure that the land use element, CFP element, and financing plan within the CFP element are coordinated and consistent. Park and recreation facilities shall be included in the CFP element.

Tukwila's Capital Facilities Element addresses these requirements as follows:

a) Inventory: Details of existing and future capital facilities are located in the individual systems/functional plans, including: Water; Sewer; Transportation; Parks Recreation and Open Space; [4]and Surface Water Management. A generalized discussion and listing of public facilities are discussed in a later section of the Report. Fire capital facilities are addressed through the Kent Fire Department Regional Fire Authority.
b) Forecast of Future Facilities: Forecasts of expanded or new capital facilities that are controlled by the City of Tukwila are described in the individual system plans and adopted by reference.
c) Locations of Capital Facilities: Proposed locations and capacities of expanded or new capital facilities that are controlled by the City of Tukwila are described in the individual system plans and adopted by reference. Additional policies are found in various related elements of the Comprehensive Plan.
d) Six-Year Plan: Tukwila's CIP/FPM is updated biannually and describes capital projects that are funded and that will occur over the six-year period. The 2023-2028 CIP/FPM was adopted in November, 2022.
e) Reassessment of land use: The purpose of this requirement is to ensure that adequate facilities will be available at the time growth occurs. This Capital Facilities Element Background Report includes new household and employment targets from the most recent State forecast and are adopted in the latest King County's CPPs. In conjunction with the Urban Growth Capacity Report, the new targets form the basis for Tukwila's land use capacity planning and the capital facilities systems plans.

Tukwila evaluates its capital facilities needs and projects regularly by preparing systems plans and conducting biennial review and adoption of the operating budget and CIP/FPM.

Tukwila policy requires reevaluating land use assumptions if funding for public facilities is inadequate to provide the needed capital improvements that will maintain adopted community standards. If needed, during the reevaluation process, there are several ways of balancing the demand for public services with supply, including some or all of the following:

1. Using demand management to reduce demand for facilities;
2. Reducing City (levels of service) standards;
3. Reducing the cost of the needed facilities; and/or
4. Changing the timeframe for providing the service.

As noted above in #2, the GMA mandates the use of levels of service standards for facilities as the basis for public facilities contained in the CFP (Growth Management - Planning goals Chapter (RCW 36.70A.020.(12)). As a result, public facilities in the CFP must be based on quantifiable, objective measures of capacity, such as traffic volume capacity per mile of road.

One of the primary goals of the GMA is to have capital facilities in place concurrent with growth. This concept is known as concurrency or adequate public facilities. Tukwila has defined through regulation that concurrency means that: 1) transportation, sewer, and water facilities to serve development are in place at the time of development, or within six years of its completion, and 2) that such facilities have sufficient capacity to serve development without decreasing levels of service below minimum standards adopted for the community. The GMA gives jurisdictions the authority to require concurrency for all public facilities, but requires concurrency only for transportation facilities.

[4] This is being incorporated into the Transportation Plan

Regional Planning Requirements

The GMA further requires coordination among local governments and includes provisions for regional growth plans and multi-county and countywide planning policies (RCW 36.70A.210). These regional planning efforts also inform Tukwila's Comprehensive Plan and CFP and relevant concepts from those Plans and policies are described below.

Puget Sound Regional Vision

Description and Overview

The VISION 2050 Regional Growth Strategy and multi-county policies were prepared by the Puget Sound Regional Council and adopted in 2020. Based on Washington's GMA, VISION 2050 and its multi-county policies are integrated strategies and policies to guide development, environmental planning, and provision of transportation and services in the central Puget Sound region. The Regional Growth Strategy is a way to distribute growth coming to the region—a forecast of 5.8 million people and 3.4 million jobs by the year 2050. The Plan sets an ambitious goal of attracting 65% of anticipated population growth to the region's centers and near high-capacity transit. This includes metropolitan and core cities, including Tukwila, that have designated regional growth centers, such as the Tukwila Urban Center and Tukwila Manufacturing/Industrial Center.

VISION 2050 calls for cities and counties to support building more diverse housing types, especially near transit, services, and jobs. The plan also calls for more housing that's affordable to low- and very low-income households. VISION 2050 works to address current and past inequities, particularly among communities of color, people with low incomes, and historically underserved communities. Growth puts pressure on communities. VISION 2050 also seeks to reduce the risks of displacement of lower-income people and businesses by elevating social and racial equity in regional planning and encouraging local jurisdictions to include equity in their plans.

VISION 2050 addresses public services with a goal to have sufficient and efficient public services and facilities provided in a manner that is healthy, safe, and economically viable. VISION 2050 supports a comprehensive transportation system for all modes of travel. The region's light rail, commuter rail, fast ferry, and bus rapid transit lines will expand into one of the country's largest high-capacity transit networks. VISION 2050 includes a goal to reduce greenhouse gas emissions to 80% below 1990 levels. The plan promotes compact growth patterns, low-carbon travel choices, forest and open space protection, and other strategies that help mitigate greenhouse gas emissions and prepare for the impacts from climate change.

Multicounty planning policies serve three key roles: implementing the Regional Growth Strategy, creating a common planning framework for local plans, and providing policy structure for other regional plans. They address wastewater and storm water systems, solid waste, energy, tele- communications, emergency services, and water supply. As Tukwila and the region plan for growth, conservation and improved efficiencies in providing services and facilities are essential.

Growth and development in centers and compact urban communities require strategic investments in services and facilities. Municipalities are identified in the GMA as the preferred providers of public services. Urban types of services, such as municipal sewer systems, are not appropriate in rural areas. Tukwila and its potential annexation areas are within the urban growth boundary.

Multicounty planning policies address conservation measures to increase recycling and reduce waste. They also encourage more efficient use of water, low-impact development techniques, and renewable and alternative energy. Additional policies address siting public facilities, especially regional capital facilities. Jurisdictions and agencies should invest in facilities and amenities that serve centers. Facilities should also be sited in ways that minimize adverse social, environmental, and economic impacts.

King County Countywide Planning Policies—Policy Framework for King County Jurisdictions
Description and Policy Direction

King County's Countywide Planning Policies (CPPs) support Vision 2050's regional growth strategy and provide policy direction at the county and jurisdiction level with appropriate specificity and detail needed to guide consistent and useable local comprehensive plans and regulations.

The CPPs address growth management issues in King County and provide further guidance for coordinating local planning efforts within the county. In addition to the topics discussed under multicounty planning policies, countywide planning efforts also include an analysis of fiscal impacts and include a review and evaluation program. As part of this process, King County works with cities to evaluate future land needs, including regular review of development trends and assumptions.

The CPPs provide a countywide vision and serve as a framework for each jurisdiction, including Tukwila, in developing and updating its own comprehensive plan, which must be consistent with the overall goals for the future of King County. The current CPPs have a guiding principle of centering social equity and health by explicitly countering and remedying disparities in determinants of equity.

Updated CPPs were adopted by the King County Council in December, 2021. The guiding principles for the most recent update are based on the following:

- 2021 Countywide Planning Policies
- Centering social equity and health
- Integrating regional policy and legislative changes
- Providing clear, concise, and actionable direction for comprehensive plans
- Implementing the Regional Growth Strategy with 2044 growth targets that form the land use basis for periodic comprehensive plan updates

The CPPs call for the orderly provision of public services and utilities concurrent with new development, so that minimum acceptable service levels are maintained. They emphasize economic vitality, climate change and sustainability strategies, and integrating health concepts such as access to health food and increased physical activity in planning.

Under the Growth Management Act, King County, in coordination with the cities in King County, adopts growth targets for the ensuing 20-year planning period. Growth targets are policy statements about the amount of housing and employment growth each jurisdiction is planning to accommodate within its comprehensive plan. Growth targets are adopted for each jurisdiction and unincorporated urban King County in the Countywide Planning Policies. Data on development activity, land supply, and capacity is collected, analyzed, and summarized in the Urban Growth Capacity Report. King County and the cities evaluate the consistency of actual development densities with current comprehensive plans and evaluate the sufficiency of land capacity to accommodate growth for the remainder of the planning period.

V GROWTH ASSUMPTIONS AND TARGETS

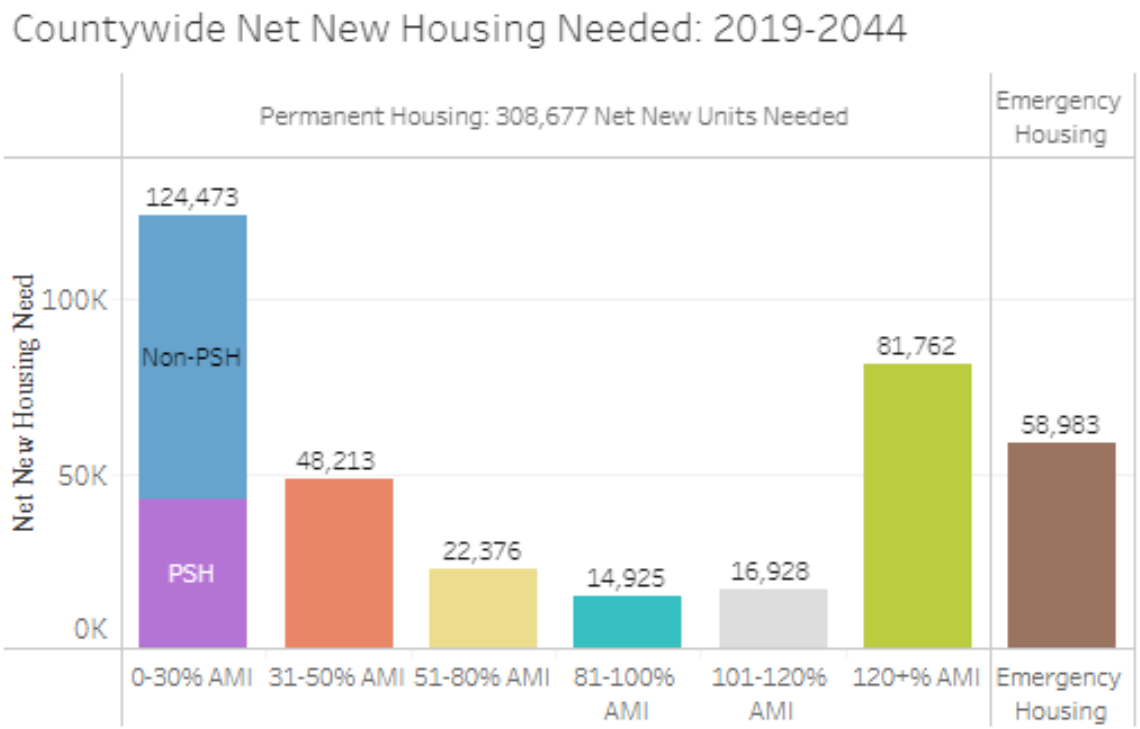
Forecast

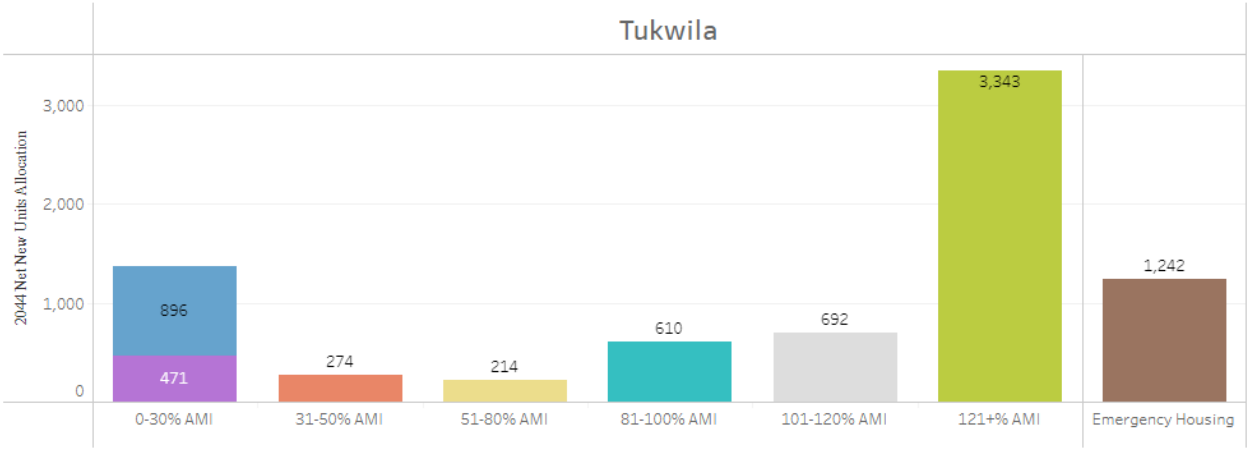
As directed by the GMA, every five years, the Washington State Office of Financial Management (OFM) prepares a range (low, medium, and high) of possible population growth for the next 20-year period for each of the counties planning under GMA. (Determining population — Projections Chapter (RCW 43.62.035))

County officials, also by law, must select a 20-year GMA planning target from within the range of high and low prepared by OFM. King County's Growth Management Planning Council (GMPC) a formal body consisting of elected officials from King County, Seattle, Bellevue, other cities and towns in King County, special purpose districts, and the Port of Seattle, then divides the forecast population into the cities, towns, and unincorporated areas of King County. These specific local targets are incorporated into King County's CPPs Table DP-1 and are included in Appendix C.

When taken together, all the comprehensive plans of King County jurisdictions must "plan for and accommodate" the existing and projected housing needs of the county (RCW 36.70A.020 and 36.70A.070). The King County CPPs contain the assigned targets for each of the cities and unincorporated areas for 2019-2044. The housing target for Tukwila and its Potential Annexation Areas (PAA) is 6,500 new net units over the planning period. The employment target is 15,890 net new jobs for Tukwila.

In addition to the overall need for housing units, jurisdictions must plan for the countywide need for housing affordable to households with low-, very low-, and extremely low-incomes, including those with special needs, at a level that calibrates with the jurisdiction's identified affordability gap for those households.





Data Notes: See Appendix 1 for Local Factors used.
Produced by King County Department of Community and Human Services, Performance Measurement and Evaluation, March 3, 2023

Existing Capacity

Tukwila is required to ensure that its planning policies and regulations are consistent with OFM population projections. (Comprehensive plans — Urban growth areas (RCW 36.70A.110)). Its comprehensive plan and development regulations must provide sufficient land capacity for development (RCW 36.70A.115). In order to ensure compliance with the population projections, all affected agencies with land use authority review their "buildable land" capacity. That means that the City reviews the vacant land, under-developed land and zoning regulations to evaluate the available capacity for additional housing units and commercial and industrial building square footage. The results of Tukwila's last review of its capacity in 2021, demonstrated that there was the potential for 8,219 additional dwelling units and the potential for an additional 14,012 jobs, which means there is a surplus of available land for 2,723 housing units.

2033 Housing capacity

The 2021 Urban Growth Capacity Report was calculated at the allowable density within Tukwila's Low Density Residential Zone of 5-7 housing units per acre. However, as Tukwila comes into compliance with recent state laws mandating a greater variety of housing types within residential low density neighborhoods additional capacity will become available The remaining zoned housing capacity is within higher density zoned districts, either multi-family zones or mixed use districts that allow multi-family and commercial uses combined. The Housing Background Report provides additional information regarding the City's housing capacity.

Annexation – Additional Capacity

Two areas remain within the City's potential annexation area. In recent years, there has been little action by the City to pursue annexation.

- The North Highline Potential Annexation Area, which is currently under consideration by the Boundary Review Board, is designated as industrial by Tukwila's Comprehensive Plan, although it is also likely that this area will be annexed by another jurisdiction. There is no potential development for housing units within this area.
- The Orillia Road annexation area is designated as low density residential. This area is 52.24 acres with 8 existing homes located on steep slopes. The area is located between Interstate 5 and Orillia Road, a principal arterial. A rough capacity calculation for potential future housing assumed 25% of the area would be set aside for public infrastructure such as streets and would be undevelopable because of the topography. Applying a potential density of 5.7 units per acre[5] to the remaining 39 acres provides a potential capacity for 254 new housing units. Realistically, however, this area is very encumbered by critical areas and may have limits to its future capacity.

[5] 5.7 units per acre is the average density being achieved with the City of Tukwila based upon an analysis of LDR platting between 2001-2005.

In summary, the 2021 King County Urban Growth Capacity Report shows that Tukwila has available zoned capacity to meet its housing and growth targets.

Historic Growth Trends

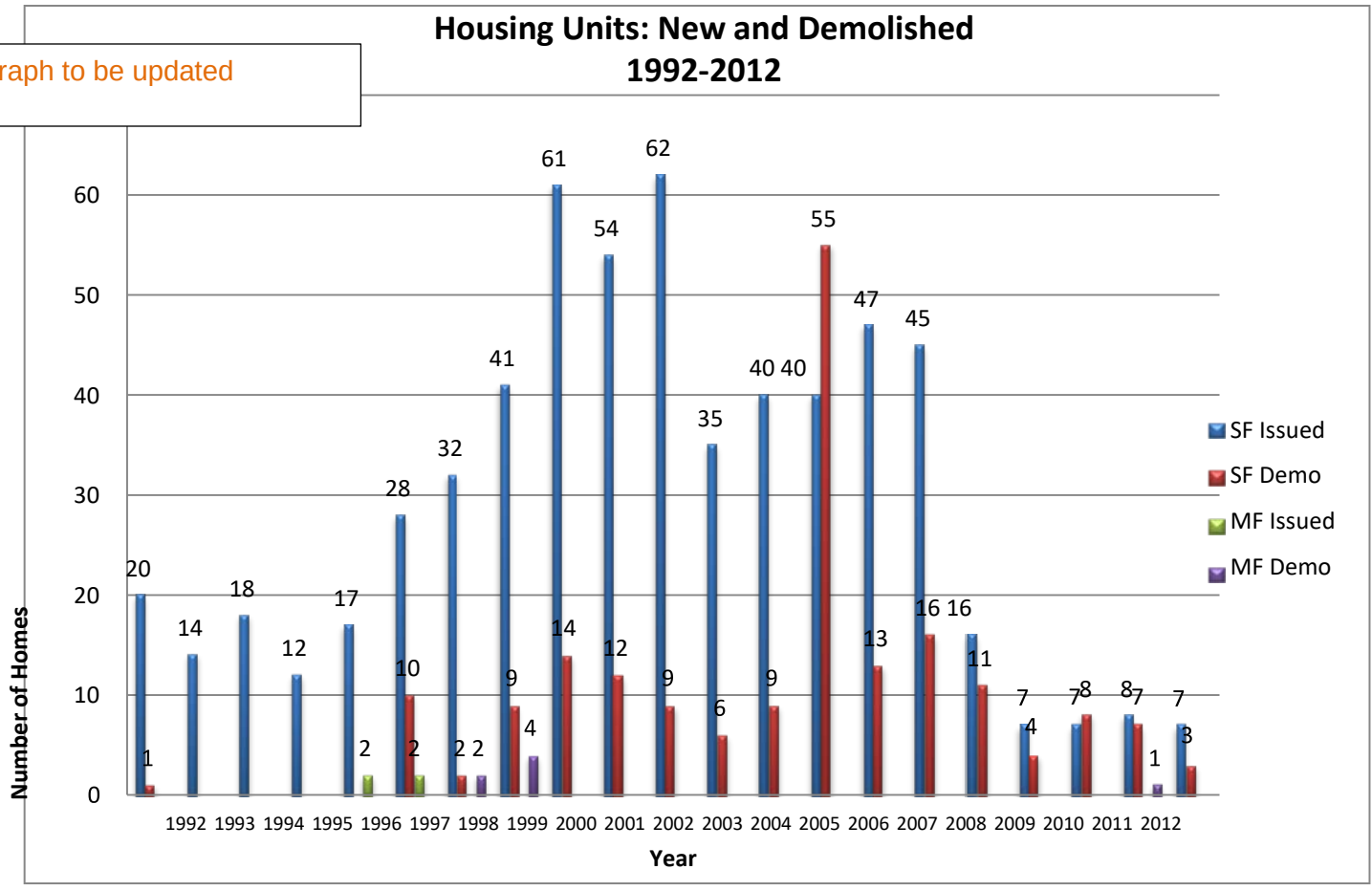
Housing

Over the past 116 years Tukwila has transitioned from a rural area to a traditional suburb with an emerging urban center. The residential neighborhoods that have grown slowly through infill with additional housing as transportation improved and sewers were installed. Between 2006 and 2018, Tukwila added only 130 new units. While most of Tukwila's low density residential neighborhoods have little remaining vacant land for new homes at the current density, recent changes to State law will allow for creation of additional housing through addition of accessory dwelling units, land division, or redevelopment to small multi-family buildings.

Multi-family housing developments came in the latter half of the twentieth century and are interspersed along the edges of the single family neighborhoods, separating the lower density housing from commercial and freeway transportation corridors. No multi-family building larger than a fourplex was built between 1998 and 2018, though since then we have seen the construction of nine new buildings totaling 1,333 units in the Southcenter and TIB Districts. Additional growth is expected in these areas as well as Tukwila South.

Below is a table that shows the growth in housing units over the last 20 years. This information is generated from the building permits that were finaled in the categories of single family (SF) and multi-family (MF).

Graph to be updated



The total number of housing units in Tukwila in 2021 was 8,255, according to American Community Survey

data. There were 7,755 households with an average of 2.8 persons per household, which is about 10% higher than surrounding areas.

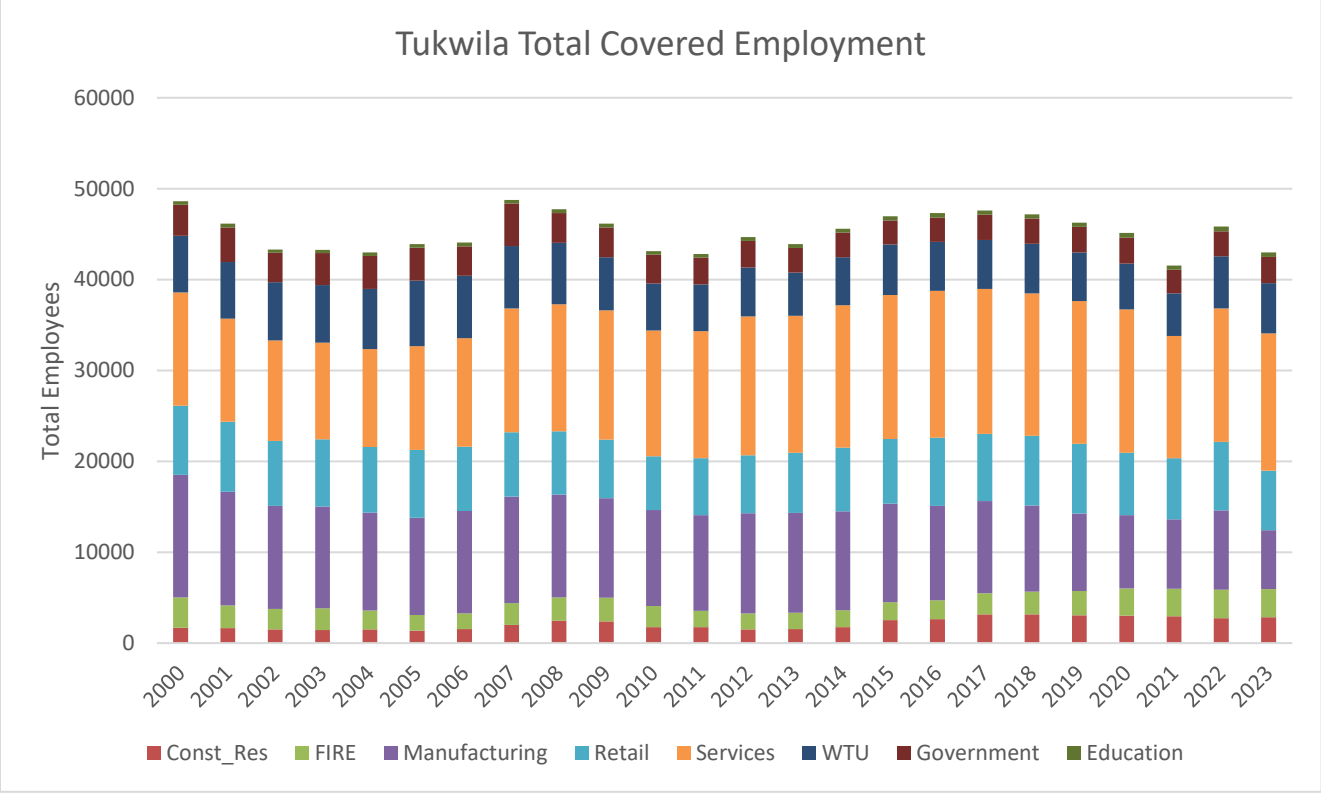
While Tukwila has zoning and infrastructure in place that allows denser development, market forces ultimately determine what and when new housing is built.

Jobs

With its emphasis on both commercial and industrial development, Tukwila has a significant job base, with more than 46,000 covered jobs in 2023. The city contains two regional centers: the Tukwila regional growth center, which contains the Westfield Southcenter Mall area, and the North Tukwila manufacturing/industrial center, located at the north end of the city adjoining the Duwamish manufacturing/industrial center in the City of Seattle. More than 70% of the city's jobs are located within the city's regional growth center and manufacturing center.

The Puget Sound Regional Council is the source of jobs information. Their data derive from the Quarterly Census of Employment and Wages (QCEW), which come from administrative records employers report, by law, to the Washington State Employment Security Department (ESD). The unit of measurement is jobs, rather than working persons or proportional full-time employment (FTE) equivalents.

Covered employment refers to both full- and part-time jobs in the labor force that are "covered" under state and federal unemployment insurance laws and programs. Certain categories of employment are excluded such as: self-employed individuals, active military, proprietors, railroad workers, unpaid family workers, and all other workers not covered by Unemployment Insurance (UI) laws. Covered employment represents approximately 90% of total employment. The table below shows the covered employment within Tukwila since adoption of the current Comprehensive Plan.



The data fluctuate by jobs over the years, fluctuating between 40,000 and 50,000 total jobs. The most consistent trend seen is a continuous shrinking of jobs within the manufacturing industry, consistent with broader regional trends.

Summary

In 1995, the City of Tukwila elected to have a designated regional growth center as well as a manufacturing and industrial center. These designations bring with it the requirement to prepare plans to accommodate higher than normal housing and employment targets. In the 2024-2044 planning period, the housing and employment targets for Tukwila are respectively 6,500 and 15,890. The planning concept is that most of that household growth will occur in higher density housing within a transformed Southcenter neighborhood, with additional growth in the Tukwila International Boulevard and Tukwila South districts. The jobs will primarily be dispersed among the Tukwila Urban Center, Manufacturing/Industrial Center and new development within Tukwila South. The maps in Appendix B show how Tukwila staff anticipates the new housing units and jobs will be distributed within Tukwila.

The amount of housing capacity currently available in both the incorporated City and future City areas provides adequate capacity for Tukwila's housing and job targets. The goals and policies of the existing Comprehensive Plan are designed to accommodate this additional housing at a variety of affordability levels through the continued implementation of the Southcenter Subarea Plan, the zoning redevelopment along the TIB corridor, and the development of Tukwila South.

Targets, Capital Facilities planning and Comprehensive Plan goals

The targets discussed above are *estimates* of the number of new housing units and jobs that Tukwila should strive to accommodate during the period through 2044. The targets for each of the cities and the unincorporated areas are intended as a guide with some flexibility to reflect the limited capability of individual jurisdictions to determine their precise rates of growth. Each jurisdiction must adopt policies and regulations that allow that targeted growth to be accommodated.

The GMA requires that provisions be made to reassess the Land Use Element of the Comprehensive Plan periodically. The intent of this requirement is to ascertain that adequate facilities will be made available at the time development (as called for in the Comprehensive Plan) occurs and needed facilities provided. If the anticipated funding for needed capital facilities is not adequate, the GMA requires a reassessment of the Land Use Element to determine what changes, if any, need to be made.

The targets are the starting point for planning capital facilities, gauging needs and determining if level of service standards can be met, and at what cost. They are *estimates* of the number of new housing units and jobs that jurisdictions should be prepared to accommodate during the planning period. While the targets represent a commitment to plan for and accommodate, they do not obligate a jurisdiction to guarantee that a given number of housing units will be built or jobs added during the planning period.

VI LEVEL OF SERVICE STANDARDS AND CONCURRENCY

The intent of the City is to provide adequate public facilities and services, as efficiently and cost- effectively as possible, to serve both existing and new development. Facilities and services will be designed to meet the service standards of the community and to support Tukwila's land use growth and development goals. In situations where the public facility is not owned directly by the City, the City will advocate for the provision of adequate services and coordinate with the responsible agency.

Level of Service (LOS) standards are crafted and adopted to measure the adequacy of services being provided. The GMA requires jurisdictions to establish LOS for transportation-related facilities (RCW 36.70A.070(6)(a)), but LOS may also be established for other public facilities and services. Once an LOS standard is established, the performance of a specific capital facility or service can be measured. A capital facility operating at or above the established LOS indicates no need for improvements or new facilities. A facility operating below the established LOS is an indication that there may be a need for improved or new facilities. However, if funding is not available to bring the service back to the established level, then there are a number of actions that can be taken. LOS can be reexamined to determine if it reflects the desired community service level or development can be modified, or the City may shift its resources and change the service levels among the various "products" that the City provides.

In the context of development and capital facilities planning, "concurrency" means that adequate public facilities, services or strategies are in place to serve new development at the time the development is ready to be occupied. Washington's GMA (Comprehensive plans — Mandatory elements *(RCW 36.70A.070(6)(b) and .108))* requires that facilities such as transportation and utilities are to be in place at the time development is completed - or that a commitment has been made to complete the facilities within six years.

The GMA does not specifically require concurrency for facilities other than transportation facilities. However, GMA goals, the Washington Administrative Code (WAC), subdivision statutes, and case law encourage or require provision of a broader range of facilities and system improvements prior to development approval. For instance, the subdivision statute requires local jurisdictions to find that "appropriate provision" is made for "open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds, sidewalks and other facilities," prior to subdivision approval (RCW 58.17.110.) Building code statutes require evidence of an adequate water supply before a building permit may be issued (RCW 19.27.097.)

Currently, there are three types of services that Tukwila provides, or coordinates with other service providers to provide, and that are subject to the requirement of the City's concurrency management ordinance. They are transportation[6], water, and sanitary sewer facilities. For facilities subject to concurrency, LOS standards are used to determine the need for such facilities, test the adequacy of such facilities to serve proposed development concurrent with the impacts of the development, and ensure that appropriate levels of capital resources are allocated.

For facilities not subject to concurrency, LOS standards are helpful as a management tool to see what facilities and services may be needed in the future and to measure overall performance of City provided services and facilities.

Tukwila has chosen to not require parks facility staffing and response standards to be subject to concurrency. That means that development will not be stopped should the City not be able to maintain those levels of services as the City grows. As of 2025, fire staffing and response will be addressed through the City's agreement to annexation into the Kent Fire Departments Regional Fire Authority.

Impact fees are collected from applicants proposing new development, proportionate to its impact. Fees are collected to pay for transportation facilities and parks. Impact fees may not be used to correct deficiencies and must be applied to a scheduled project from which the new development could reasonably benefit.

[6] With this update to the Comprehensive Plan, the City is transitioning to a multimodal level of service.

The following are Parks service levels for City of Tukwila that are codified for purposes of impact fee assessment and/or concurrency:

Parks Level of Service Standards

Tukwila Parks and Recreation has two LOS standards, one as outlined in the 2014 PROS Plan based on access, and one included in the proposed amended version of the 2014 PROS Plan based on the per capita investment.

- Parks LOS 1: All residents and visitors should be within ¼ to ½ mile of a City-owned park.
- Parks LOS 2: The investment per capita of the City's park systems including land and facilities commensurate with the current level of investment as growth occurs.

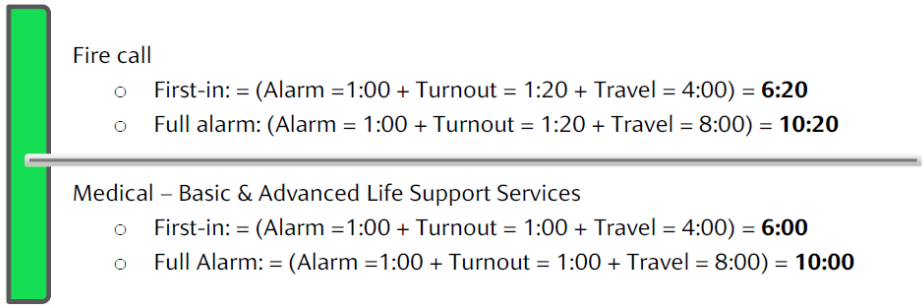
PARKS: RESIDENTIAL	SINGLE FAMILY	MULTIFAMILY	TOTAL
Identified Service Area Capital Need from Growth			$23,531,750
Per Capita Investment Needed to Respond to Growth for Service Area Population			$1,542
Household Size	2.89	2.51	
Unadjusted per Unit Fee	$4,448.83	$3,875.51	
Expected Revenue per Capita			$13.80
People per Unit	2.89	2.51	
Expected Revenue per Unit	$39.81	$34.68	
Adjusted Parks Impact Fee Rates per Unit ***	**$4,409.02**	**$3,840.83**	

PARKS: COMMERCIAL	RETAIL	OFFICE	INDUSTRIAL	TOTAL
2016 Built Square Feet	7,087,600	7,183,598	13,778,128	28,049,326
Identified Service Area Capital Need from Growth				$23,531,750
Per Capita Investment Needed to Respond to Growth for Service Area Population				$1,542
Expected Employees per 1,000 Sq. Ft.	2.47	2.22	1.23	
Expected Employees Adjusted for Population Coefficient	1.32	1.19	.66	
Unadjusted Fee per 1,000 Gross Sq. Ft.	$2,034.97	$1,834.56	$1,017.49	
Expected Revenue per Employee				$13.80
Expected Employees per 1,000 Sq. Ft.	2.47	2.22	1.23	
Expected Revenue per 1,000 Gross Sq. Ft.	$34.03	$30.63	$16.92	
Adjusted Parks Impact Fee Rates per 1,000 Gross Sq. Ft. * **	**$2,000.94**	**$1,803.93**	**$1,000.57**	

Fire Level of Service Standard

The Puget Sound Regional Fire Authority (PFS) uses two measures for evaluating response - one for Fire Response and one for Medical Response. For Fire, the key is time to Flashover. The need to arrive prior to Flashover (the point at which an entire room bursts into flame, spreading outside of the room involved) is critical to life and property preservation. For Medical, the measure is time to "brain death." The need to arrive prior to brain death is critical to meaningful recovery from a medical event. This is often measured in resuscitation success rates for cardiac events. For medical events involving trauma, the time to delivery at a Trauma Center is key. Essentially, the quicker the response, the better the outcomes.

PSF relies on nationally recognized standards published by the National Fire Protection Association (NFPA).



Fire call

- First-in: = (Alarm =1:00 + Turnout = 1:20 + Travel = 4:00) = **6:20**
- Full alarm: (Alarm = 1:00 + Turnout = 1:20 + Travel = 8:00) = **10:20**

Medical – Basic & Advanced Life Support Services

- First-in: = (Alarm =1:00 + Turnout = 1:00 + Travel = 4:00) = **6:00**
- Full Alarm: = (Alarm =1:00 + Turnout = 1:00 + Travel = 8:00) = **10:00**

PSF also uses several other resources to determine the best industry practices, including the Center for Public Safety Excellence which provides a wide range of standards, and Fire Department Accreditation, Fire and Emergency Services professional Credentialing, and Education Programs on contemporary fire and emergency services "Best Practices."

Surface Water Facilities Level of Service Standard

Surface Water facility designs that meet the requirements of the Water and Sewers Chapter of the Tukwila Municipal Code (TMC 14.30 - Surface Water Management.) All developments that meet the Code's design requirements are considered to meet the concurrency standards for Surface Water.

Water Level of Service Standard

Water rights and the water system capacity, including water mains, pump stations and other facilities as may be necessary, to provide

- For Residential uses: 1,500 gallons per minute (as feasible); or
- For commercial/industrial uses: 4,500 gallons per minute (as feasible).

For additional detail, review the current Water System Plan.

Sewer Level of Service Standard

An on-site sewage system design from the Seattle- King County Department of Environmental Health in accordance with the rules and regulations of the King County Board; or the necessary sewer system capacity, including sewer mains, pump stations and other facilities as may be necessary to preclude sewerage that rises to the surface; or that such capacity will be available by the time a certificate of occupancy is issued.

Transportation Facilities Level of Service

Transportation facility designs must meet the level of service standards established in the Transportation Element.

VII PUBLIC FACILITIES AND SERVICES INVENTORY SUMMARY

The following is a summary inventory of providers furnishing public facilities and services within the City of Tukwila. The involvement of public service providers and private service providers results in a complicated planning process for public services and capital facilities.

There are three different types of service providers serving the City of Tukwila:

1. Facilities and services owned by the City: streets, sewerage collection, water storage and distribution, surface water conveyance and treatment, parks and recreation programming, police service, local judicial system, local government administration/buildings;
2. Facilities and Services Provided by Other Public Agencies and Private Corporations: electricity, gas, telecommunications, schools, libraries, solid waste landfill, freeways, transit, air transportation; and
3. Facilities and services provided by a consortium of public agencies: emergency dispatch, jail.

The City also receives services resulting from its City's annexation into the Kent Fire Department Regional Fire Authority,

Facilities and Services Provided by the City of Tukwila:

Tables with inventories and maps of City owned Facilities are attached (Appendix D.)

Transportation

By far the largest capital facility in the City in terms of acreage, cost and overall impact is the City street and multimodal network. The transportation network is described in detail in the Transportation Element of the Comprehensive Plan, along with the goals and policies regarding this subject.

Municipal Buildings and Non-Park Land

City services are provided to the citizens of the City in structures that are owned and leased by the City. Among the necessary facilities are general office space, a court, and utility and vehicle maintenance and storage facilities. The City receives fire services through facilities provided through the Kent Fire Department Regional Fire Authority, and arrangements made with the City of Tukwila for use of some fire stations in Tukwila. There are also a number of miscellaneous properties that are either vacant or provide a current or anticipated future public service. Among these miscellaneous properties are three houses where temporary emergency housing is provided through a City contract with a nonprofit.

Parks, Recreation and Open Space

The City of Tukwila provides a variety of recreational opportunities to its citizens and visitors. In addition, Tukwila owns and operates Foster Golf Links and the Tukwila Community Center. A Recreation, Parks, and Open Space Master Plan, adopted on a revolving six-year schedule, provides more detailed information. The most recent PROS Plan was adopted in 2020.

Water Storage and Conveyance

Water service to the City of Tukwila is by the City's own water utility as well as, Highline Water District, Water District #20, Water District #125, and the City of Renton. The main source of the water used by the providers comes from Seattle Public Utilities (SPU), which obtains its water from the Cedar River watershed and the Tolt River watershed. The water is sold by SPU to the Districts by direct contract or through the Cascade Water Alliance. Highline and the City of Renton also have water rights for ground water withdrawn to supplement (SPU) water.

Common issues facing the City's five water purveyors are:

- Declining water consumption due to increased water conservation thereby causing customer water rates to increase to cover the providers fixed costs of providing service.

- The changes in regulations from the Washington State Dept. of Health requiring providers to increase the storage of water in reservoirs for emergency use.
- The Federal Government Safe Drinking Water Act requiring additional testing for various substances which may be present in drinking water sources.
- The threatened species regulations for Puget Sound Chinook Salmon and Bull Trout affect source water system operations thereby increasing costs to the water purveyors.
- The costs of replacing aging infrastructure because most of the piping is coming up on the end of its design life.

Sanitary Sewer Collection

Wastewater service to the City of Tukwila is provided by the City's own wastewater utility, as well as the City of Renton, and the Valley View Sewer District. King County Wastewater Treatment Division (WTD) provides treatment of wastewater to the three providers. The wastewater treatment plant is at King County's Renton facility located off Monster Road. Common issues facing the three wastewater providers to the City are:

- The costs of replacing aging infrastructure because most of the piping is coming to the end of its design life.
- Increased costs for the treatment of the wastewater.
- Finding uses for reclaimed treated wastewater.
- Disposal of solid material removed from the wastewater.
- Meeting the new and higher requirements of the Environmental Protection Agency and the Washington State Department of Ecology.

Surface Water Management

The City of Tukwila Surface Water Utility provides storm water conveyance and treatment facilities throughout the City of Tukwila. The Surface Water Management (SWM) program includes a comprehensive maintenance program, watershed planning, engineering, public information, and financial management. The program addresses all surface waters within the city including built stormwater infrastructure, creeks, and rivers to manage stormwater conveyance and treatment, reduce flooding and restore habitat was designed to address existing and future stormwater quality and quantity issues facing the City of Tukwila. As a specific function of government, SWM addresses point and nonpoint source pollution, rainfall-related erosion and sedimentation, rainfall runoff management, and flood control.

Facilities and Services Provided by Other Agencies:

Non-Tukwila providers furnish public services and facilities to Tukwila residents and businesses. The City of Tukwila, as a governing agency, is involved in these services through formal or informal agreements, through franchise or contractual agreements or development permits, but has no direct involvement in their operations and capital investments. The City of Tukwila's involvement in capital planning may occur during comprehensive system planning, environmental review, or on the project level via development review and permitting. With the exception of schools, most of the providers are regional in nature. Most of the facilities and services are utilities such as sewer, water, electricity, telecommunications, etc., and are described and discussed in the Utilities Element.

Two of the most visible services that are equated with place/geography are schools and libraries. There is a strong link between quality of life and the level of service received through schools and libraries. The Tukwila community relies heavily on its schools and libraries and there is a strong collaboration
th area. The Highline, Kent and Seattle School Districts also each have some portion of the City of Tukwila within their district boundaries. Other than the Tukwila School District, only the Highline District has a school within the municipal boundaries of Tukwila. See the Attached School District Boundary Map in Appendix D. between the City of Tukwila and the Tukwila School District and the King County Library System.

Schools

Most of the City's residents are served by the Tukwila School District. Approximately 15% of the residents are served by the Highline School District. Approximately five Tukwila students attend schools in the Renton School District, whose District includes a large area and assessed valuation within Tukwila's boundaries including a large portion of the Southcenter area (Tukwila's urban center,) and most of the Tukwila Sou

Most of Tukwila's low density residential neighborhoods are "built out," that is, there is no more vacant land for new homes at the current density. However, recent changes to State law will allow for creation of additional housing through addition of accessory dwelling units, land division, or redevelopment to small multi-family buildings. Larger household and residential population growth is expected to occur through redevelopment within portions of Tukwila International Boulevard, the Southcenter District and Tukwila South.

Representative of other school districts, the Highline School District reported that, between 2010 and 2017, schools experienced steady increases in enrollment, but in 2018 and 2019, enrollment numbers declined. This decline has been attributed to smaller birth cohorts, slower regional population growth, the presence of Charter schools in the area and the reduced rates of new home construction, particularly affordable housing. Enrollment experienced a significant drop beginning in 2020 with the pandemic. This decline is expected to continue for the next 5 years, with enrollment gradually picking up again in 2028.

Once enrollment growth occurs again, it is expected to be modest during the early part of the planning period. Recent housing construction has been in senior housing, however, as a greater variety of housing types come into the market, student growth should accelerate over time. Specific information on school district facilities including, but not limited to, enrollment, classroom size, service standards, and financing, is contained in each school district's CFP.

Issues[7]:

- Tukwila School District anticipates their capital facilities needs can be met through use of portables, and selected upgrades as specified in the 2008 State Study and Survey, which is a requirement of the State (WAC 180-25-025,) and prepared by NAC Architecture.
- Highline School District has adopted a CFP and within that document shows a forecast and need to build an additional elementary school and expand the number of portables. Most of the growth is anticipated to occur within the unincorporated areas of White Center/Boulevard Park and in the City of Kent. In order to meet that capital need they have calculated an impact fee of $7,912 for new single family homes and $3,101 for each new multi-family housing unit.
- Renton School District--Future housing development is expected in the Tukwila Urban Center and possibly in Tukwila South, which would impact Renton Schools enrollment. However, growth is expected to be slow and delayed. This District is supported by significant property taxes from within the City of Tukwila. The District also has an impact fee of $1, 308 (2012) for multi- family housing units, which could potentially stymy the Tukwila goal of housing within its urban center.
- Seattle School District – The Seattle school system encompasses Tukwila's industrial center and the Ryan Hill neighborhood. Tukwila's Manufacturing/Industrial Center is home to the new Aviation High School, a Highline School District Facility. At present, the undeveloped portions of the Ryan Hill neighborhood do not have sewer and water service and therefore have limited growth potential, however there are plans underway to expand this service to allow greater development in the future.
- Kent School District – A small segment of the Tukwila South and the Orillia Road PAA are within the Kent District. The District has an impact fee system to assist in paying for its facilities. During the environmental review for the Segale Properties' Tukwila South Development, there were no comments from either the Renton or Kent School systems about the estimated impact to their facilities from the possible projected student growth.

Library Services

King County Library System (KCLS) provides library services at the Tukwila and Southcenter libraries. KCLS is a regional service provider with 50 locations throughout King County

The 10,000 square foot Tukwila Library opened in 2017 on Tukwila International Boulevard and features free computers with internet access, a flexible meeting / study / activity room, and an exterior Book Locker that allows patrons to pick up requested materials 24/7. In 2022, Tukwila Library users logged 20,000

[7] Updated information was requested from these school districts; not all responded after many attempts.

computer sessions and borrowed 90,000 items.

The 5,000 square foot Library Connection@Southcenter is located in the Westfield Southcenter mall and is one of the busiest KCLS libraries for foot traffic – more than 100,000 visits in 2022. The library was significantly expanded in 2017 with additional space, seating, and computers. Nearly 60% of items borrowed by Southcenter Library users are from KCLS' extensive digital collection of eBooks, films, music, and streaming media.

King County Library System plans to continue its commitment to digital and environmental equity by providing library services and facilities Tukwila residents value. KCLS conducts regular polling of users and commissions research on King County's changing demographics. One result has been the launch of Welcoming Center services for immigrants that provides library ambassadors who assist new arrivals in multiple languages.

Welcoming Centers are currently located in the Auburn, Kent, and Federal Way libraries, with a Welcoming Center at the Tukwila Library planning to open soon.

Transit

Transit services for the City of Tukwila is provided by King County and Sound Transit. The role of transit services is discussed in greater detail in the Transportation Element.

River Flood Protection

All King County property taxpayers are assessed a tax to support the flood protection measures of the King County Flood Control District. There are four river basins within the County. Specific measures are built and maintained along each of these rivers to protect property from river floods. This function/facilities and service is an integral part of the public safety and economic health of Tukwila. The Green River is one of the major environmental features and assets of the City yet the flooding protection facilities are managed and certified by other agencies.

Issues:

- Coordination on flood prevention facilities is primarily through the City's Surface Water program. All of the City's surface water that is not recharged into ground water, flows into the Green River.
- A significant amount of City resources are spent coordinating flood protection measures. The City assumes a role of advocating for City health and benefit as well as supplementing when the District's efforts are not sufficient.
- With global climate change, warmer and wetter will mean the potential for bigger costs and higher potential flooding impacts from this environmental feature of the City or from the surface water features in the City that flow into the river.

Facilities and services provided by a consortium of public agencies

Jail

SCORE (South Correctional Entity) is a misdemeanor jail in Des Moines, Washington, serving the confinement needs of seven member cities, including Tukwila, and a number of contract agencies with a total capacity of 813 inmates. The facility opened in September 2011 and will provide long-range capacity needs for the next 20 years. The jail provides programming space for education, community transition, and job training.

Emergency Dispatch

Valley Communications Center is the regional 9-1-1 Center for South King County. It is located in Kent, Washington and provides emergency communications services to communities of South King County. Valley Com, as it is commonly known, is responsible for answering emergency 9-1-1 calls and dispatching resources such as police officers, firefighters and paramedics to citizens requiring assistance. Its service area spans the area from Seattle's southern border to a few blocks south of the Pierce County line and from Vashon Island to the foothills of the Cascade Mountain Range. In 1976, the mayors of the Cities of Auburn, Kent, Renton and Tukwila entered into an Interlocal Agreement to consolidate their police and fire dispatching services into one organization. In 2000, the City of Federal Way was added as a partner/owner and on August 23, 2000, the Valley Communications Center Public Development Authority was created for

the purpose of financing the construction of a new state-of-the-art 24,000 square foot facility. On June 23, 2002, Valley Com moved into the new facility with planned space for 20 years of operations.

Fire

The City of Tukwila entered in a contractual consolidation with Puget Sound Regional Fire Authority (PSF) in 2023, and then annexed into PSF on January 1, 2024. The PSF service area includes the cities of Covington, Kent, Maple Valley, SeaTac, and Tukwila, as well as unincorporated areas of King County within Fire Districts 37 and 43. Services are delivered 24-hours per day, 365 days per year by career firefighters and support staff. Services delivered by PSF include fire suppression, fire prevention, code enforcement, fire investigation; emergency and non-emergent medical services (medical), hazardous materials response, specialized rescue, emergency management, community risk reduction, and community relations.

Under the GMA, Tukwila requires that new growth and development should pay a proportionate share of the cost of new facilities needed to serve the new growth and development. As such, the City assesses fire impact fees to promote orderly growth and development. The financing for system improvements to serve new development must provide for a balance between impact fees and other sources of public funds; and cannot rely solely on impact fees.

PSF uses state growth projections, along with overall emergency calls for services; housing and population projections; and commercial development in planning for capital resource needs. They evaluate impacts to System Capacity (facility space needs for equipment and staffing) and can re-deploy apparatus or staffing to increase Concentration of service.

Emergency Calls for Service**s**

Emergency incidents continue to increase each year commensurate with growth. Notable increases have occurred in Tukwila, along with Covington and Maple Valley. All PSF areas have experienced a steeper increase in 2021 and 2022 leading to higher overall call volumes. PSF call volume is expected to grow consistent with historical trends identified in this plan. Predicted growth is high in Tukwila, and PSF expects that additional resources may need to be added to fire stations serving the area.

5-Year Annual Incident Count						
	2018	2019	2020	2021	2022	5 year Change
Covington	1,618	1,635	1,644	1,848	2,126	31%
FD37	498	511	516	579	615	23%
FD43	1,096	1,203	1,281	1,229	1,263	15%
Kent	17,844	18,244	17,720	19,402	20,820	17%
Maple Valley	1,508	1,572	1,561	1,859	1,936	28%
Tukwila	5,734	5,979	5,284	6,869	7,527	31%
SeaTac	4,658	4,840	4,690	5,452	5,430	17%
TOTAL	32,956	33,984	32,696	37,238	39,717	21%

Fee Process

Fire Impact and Level of Service fees are assessed, and typically paid, concurrent with the local jurisdiction's permitting process. The fees are paid to the local jurisdiction and then transferred to PSF via interlocal agreements. PSF then uses those funds to maintain the adopted level of service concurrent with growth.

PSF uses two basic land use categories: residential, and commercial. Residential properties include both single family and multifamily (duplex, townhome, apartments) units. Commercial property is those uses that would otherwise be classified as industrial, business, retail sales, services, wholesale sales, storage, assisted care facilities, churches, medical facilities, etc.

PSF's Capital Facilities and Equipment Plan identifies the resources and revenue needed to provide adequate service and maintain public health and safety over a 20-year planning cycle. Each year an updated Six Year Capital Improvement Plan (CIP) is adopted. The CIP updates capital and equipment needs for the PSF. The CIP provides projected costs and data in the next six years to be used in the calculation of Fire Impact and Level of Service fees.

VIII APPENDIX

A. Capital Facilities Definition:

For the purpose of the Capital Facilities Element and Planning, a capital facility is a major improvement, maintenance, replacement, or acquisitions that costs at least $100,000 (including the cost of new equipment necessary to make a project operational), and must meet the following criteria:

- Have a life expectancy of ten years or more,
- Result in an addition to the City's fixed assets, and/or
- Extend the life of an existing City-owned capital asset

Not all capital projects are included in the Capital Facilities Program. Temporary projects are excluded as are small projects, unless several can be bundled together to add up to $100,000.

Examples of capital facilities are:

- Land or site purchases or development
- Building or structure purchases and/or construction
- Purchase and/or construction of infrastructure such as streets, roads, highways, sidewalks, street/road lighting systems, traffic signals, storm and sanitary sewer systems, solid waste facilities such as landfills or recycling centers, parks and recreational facilities
- Major remodeling or maintenance of infrastructure
- Major design, professional consulting, engineering, and construction services associated with a capital project
- Purchase of major computer systems.

Capital projects do NOT include rolling stock, routine maintenance, routine computer purchases, or environmental cleanup.

Background

Why does the City need a definition of a capital facility? The State of Washington requires that Tukwila prepare a capital facility plan. Public facilities and services[8] are listed; however, within those categories, a monetary and definitional boundary is not provided. In order to manage the decision-making process, agreement on scope is helpful.

The City makes thousands of purchases over the course of a year and over the course of its existence. The primary purpose of the Capital Facility Plan is to ensure that the City is planning and budgeting to meet its adopted level of service standards.

The State has defined capital facilities[9] for cities planning under the GMA when levying an additional tax on the sale of real property.

[8] RCW 36.70A.030 (12) "Public facilities" include streets, roads, highways, sidewalks, street and road lighting systems, traffic signals, domestic water systems, storm and sanitary sewer systems, parks and recreational facilities, and schools.
(13) "Public services" include fire protection and suppression, law enforcement, public health, education, recreation, environmental protection, and other governmental services.

[9] RCW 82.46.035(5) "Capital project" means those public works projects of a local government for planning, acquisition, construction, reconstruction, repair, replacement, rehabilitation, or improvement of streets, roads, highways, sidewalks, street and road lighting systems, traffic signals, bridges, domestic water systems, storm and sanitary sewer systems, and planning, construction, reconstruction, repair, rehabilitation, or improvement of parks.

A wide range of public facilities and equipment should be considered in capital planning. While there are no hard and fast rules, **capital planning deals with the purchase or construction, major repair, reconstruction or replacement of capital items such as: buildings, utility systems, streets, bridges, parks, and heavy equipment which are of high cost and have a useful life of many years**.

Capital expenditures are sometimes difficult to identify. A utility truck or a new computer, thought of as a very costly capital item in a small community, may be considered in the operating budget in a larger jurisdiction. **In contrast, operating activities** generally have a low cost per unit and recur on a frequent or regular basis.

Capital expenditures are usually determined based on their projected life span and initial cost estimates. In some jurisdictions a capital expenditure may be an item that has an initial cost greater than $2,500 and a useful life of five or more years. Other communities might set initial cost limits at $20,000 and life span expectations at a minimum of ten years.

Capital expenditures can be considered costs other than those covered in regular operating budgets for the following three major categories:

1. Infrastructure (roads, bridges, parks, facilities [including building systems and remodeling], sewers, solid waste, water systems);

2. Heavy equipment and vehicles; and

3. Office equipment (computers, calculators, furniture).

There can be a further distinction between capital outlays and capital projects;

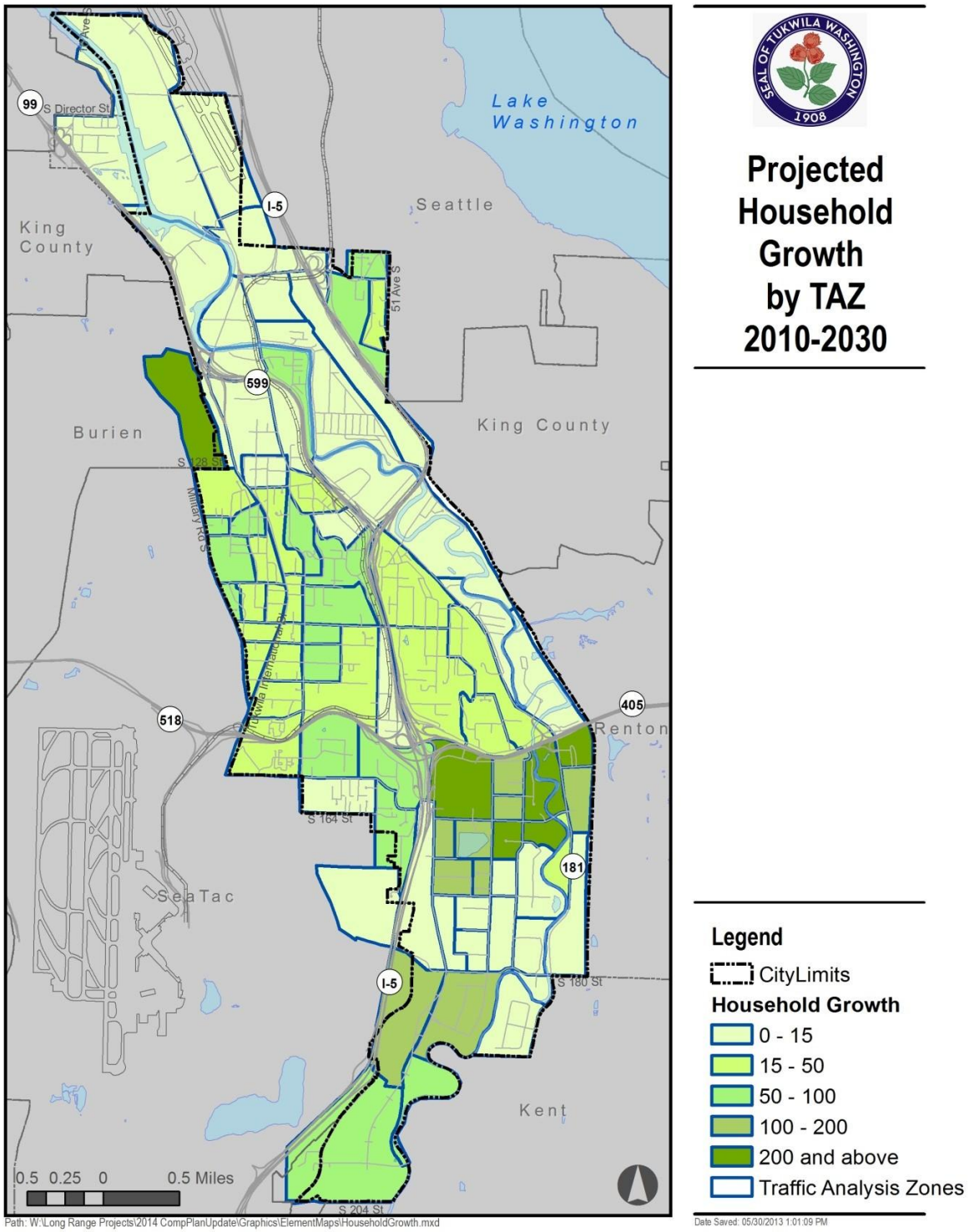
Capital Outlay. Any non-major capital expenditure having a service life of two years (for example) or more and a value of $150 (for example) or more that is not physically dependent on or affixed to a particular stationary fixed asset. Examples: office equipment and vehicles.

Capital Projects. A major capital expenditure exceeding $1,000 in value, (for example) with a fixed life of one year (for example) or more; a separate, discrete improvement that has a specific purpose in developing, upgrading, replacing or maintaining the existing infrastructure. Examples: upgrades to facilities, roads, sewers.

These **ARE** Capital Improvements:	These **MAY BE** Capital Improvements:
• City Halls • Land Purchases • Courthouses • Street Lighting Systems • Fire and Police Stations • Storm Sewers • Major Building Additions & Remodeling Park Land & Development Airports • Streets, Roads, & Sidewalks • Disposal Sites & Equipment • Parking Lots & Buildings • Jails • Sewer & Water Mains • Recreation Buildings • Schools Tennis • Courts • Hospitals • Swimming Pools • Water & Sewage Treatment Plants	• Road Graders & Similar Equip. • Police Cars • Computer Systems • Pickup Trucks • Police & Fire Radio System • Street & Road Repairs Trash • Compactor Trucks • Playground Equipment • Minor Building Remodeling or Additions These **ARE USUALLY** Operating Expenses: • Office Furniture • Pothole Repairs • Lawn Mowers • Road Gravel

B. 2030 Housing and Job Growth Distribution in Tukwila

[THIS MAP WILL BE UPDATED IN THE FINAL PLAN]



C. KC GMPC 2044 Targets by City and Unincorporated Areas

	Jurisdiction	2019-2044 Housing Target	2019-2044 Jobs Target
Metro Cities	Bellevue	35,000	70,000
	Seattle	112,000	169,500
Metropolitan Cities - Subtotal		**147,000**	**239,500**
Core Cities	Auburn	12,000	19,520
	Bothell	5,800	9,500
	Burien	7,500	4,770
	Federal Way	11,260	20,460
	Issaquah	3,500	7,950
	Kent	10,200	32,000
	Kirkland	13,200	26,490
	Redmond	20,000	24,000
	Renton	17,000	31,780
	SeaTac	5,900	14,810
	Tukwila	6,500	15,890
Core Cities - Subtotal		**112,860**	**207,170**
High Capacity Transit Communities	Des Moines	3,800	2,380
	Federal Way PAA	1,020	720
	Kenmore	3,070	3,200
	Lake Forest Park	870	550
	Mercer Island	1,239	1,300
	Newcastle	1,480	500
	North Highline PAA	1,420	1,220
	Renton PAA - East Renton	170	0
	Renton PAA - Fairwood	840	100
	Renton PAA - Skyway/West Hill	670	600
	Shoreline	13,330	10,000
	Woodinville	2,033	5,000
High Capacity Transit Communities - Subtotal		**29,942**	**25,570**
	Jurisdiction	**2019-2044 Housing Target**	**2019-2044 Jobs Target**
Cities and Towns	Algona	170	325
	Beaux Arts	1	0
	Black Diamond	2,900	680
	Carnation	799	450
	Clyde Hill	10	10
	Covington	4,310	4,496
	Duvall	890	990
	Enumclaw	1,057	989
	Hunts Point	1	0
	Maple Valley	1,720	1,570
	Medina	19	0
	Milton	50	900
	Normandy Park	153	35
	North Bend	1,748	2,218
	Pacific	135	75
	Sammamish	2,100	728
	Skykomish	10	0
	Snoqualmie	1,500	4,425
	Yarrow Point	10	0
Cities and Towns - Subtotal		**17,583**	**17,891**
Urban Unincorporated	Auburn PAA	12	0
	Bellevue PAA	17	0
	Black Diamond PAA	328	0
	Issaquah PAA	35	0
	Kent PAA	3	300
	Newcastle PAA	1	0
	Pacific PAA	134	0
	Redmond PAA	120	0
	Sammamish PAA	194	0
	Unaffiliated Urban Unincorporated	448	400
Urban Unincorporated - Subtotal		**1,292**	**700**
Urban Growth Area - TOTAL		**308,677**	**490,831**

Table DP-1: King County Jurisdiction Growth Targets 2019-2044			
		Net New Units and Jobs	
	Jurisdiction	2019-2044 Housing Target	2019-2044 Job Target
Metro Cities	Bellevue	35,000	70,000
	Seattle	112,000	169,500
	Metropolitan Cities Subtotal	**147,000**	**239,500**
Core Cities	Auburn	12,000	19,520
	Bothell	5,800	9,500
	Burien	7,500	4,770
	Federal Way	11,260	20,460
	Issaquah	3,500	7,950
	Kent	10,200	32,000
	Kirkland	13,200	26,490
	Redmond	20,000	24,000
	Renton	17,000	31,780
	SeaTac	5,900	14,810
	Tukwila	6,500	15,890
	Core Cities Subtotal	**112,860**	**207,170**
High Capacity Transit Communities	Des Moines	3,800	2,380
	Federal Way PAA	1,020	720
	Kenmore	3,070	3,200
	Lake Forest Park	870	550
	Mercer Island	1,239	1,300
	Newcastle	1,480	500
	North Highline PAA	1,420	1,220
	Renton PAA - East Renton	170	0
	Renton PAA - Fairwood	840	100
	Renton PAA - Skyway/West Hill	670	600
	Shoreline	13,330	10,000
	Woodinville	2,033	5,000
	High Capacity Transit Communities Subtotal	**29,942**	**25,570**

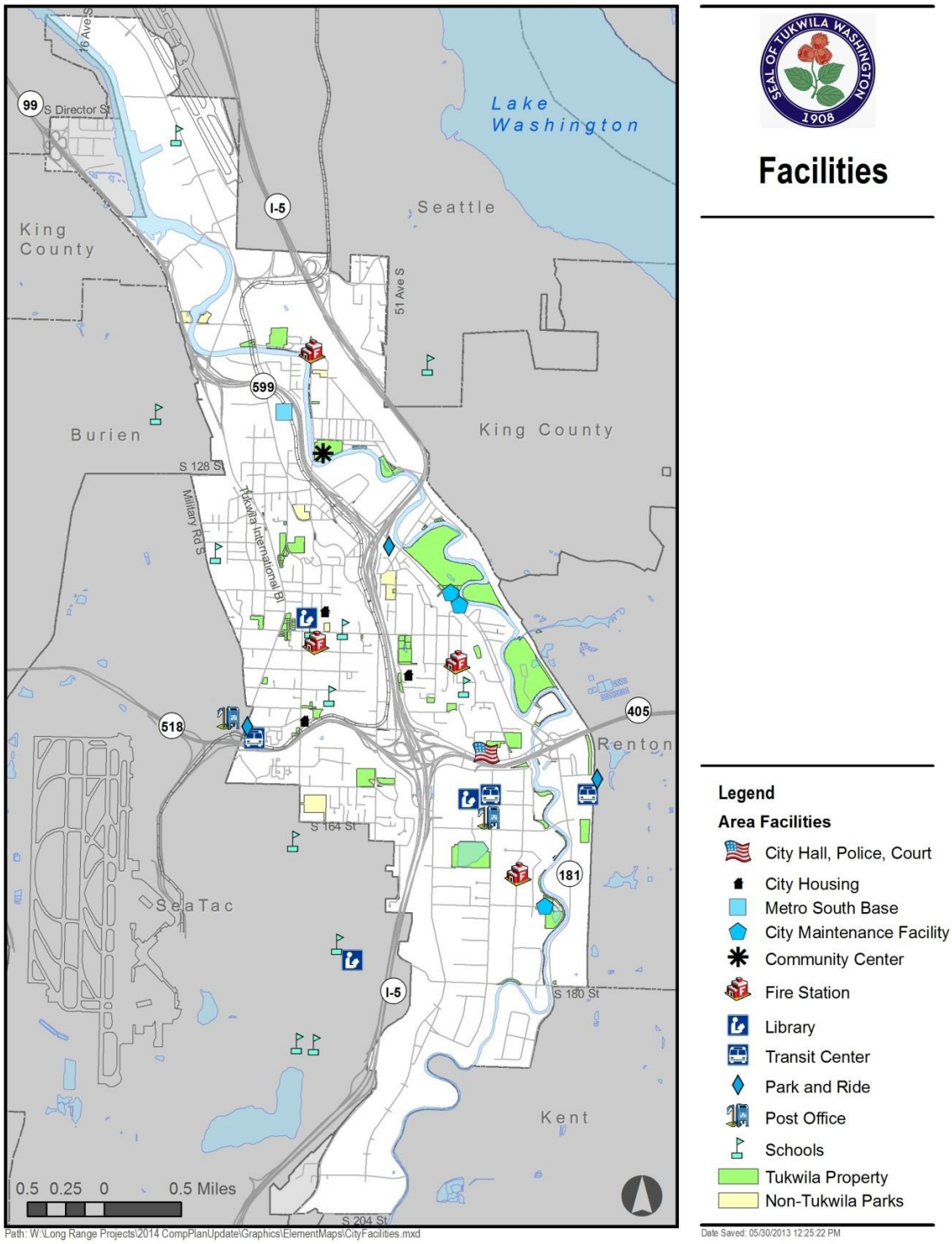
Table DP-1: King County Jurisdiction Growth Targets 2019-2044		Net New Units and Jobs	
	Jurisdiction	2019-2044 Housing Target	2019-2044 Job Target
Cities and Towns	Algona	170	325
	Beaux Arts	1	0
	Black Diamond	2,900	680
	Carnation	799	450
	Clyde Hill	10	10
	Covington	4,310	4,496
	Duvall	890	990
	Enumclaw	1,057	989
	Hunts Point	1	0
	Maple Valley	1,720	1,570
	Medina	19	0
	Milton	50	900
	Normandy Park	153	35
	North Bend	1,748	2,218
	Pacific	135	75
	Sammamish	*	*
	Skykomish	10	0
	Snoqualmie	1,500	4,425
	Yarrow Point	10	0
Cities and Towns Subtotal		**15,483**	**17,163**
Urban Unincorporated	Auburn PAA	12	0
	Bellevue PAA	17	0
	Black Diamond PAA	328	0
	Issaquah PAA	35	0
	Kent PAA	3	300
	Newcastle PAA	1	0
	Pacific PAA	134	0
	Redmond PAA	120	0
	Sammamish PAA	194	0
	Unaffiliated Urban Unincorporated	448	400
Urban Unincorporated Subtotal		**1,292**	**700**
Urban Growth Area Total		**306,577**	**490,103**

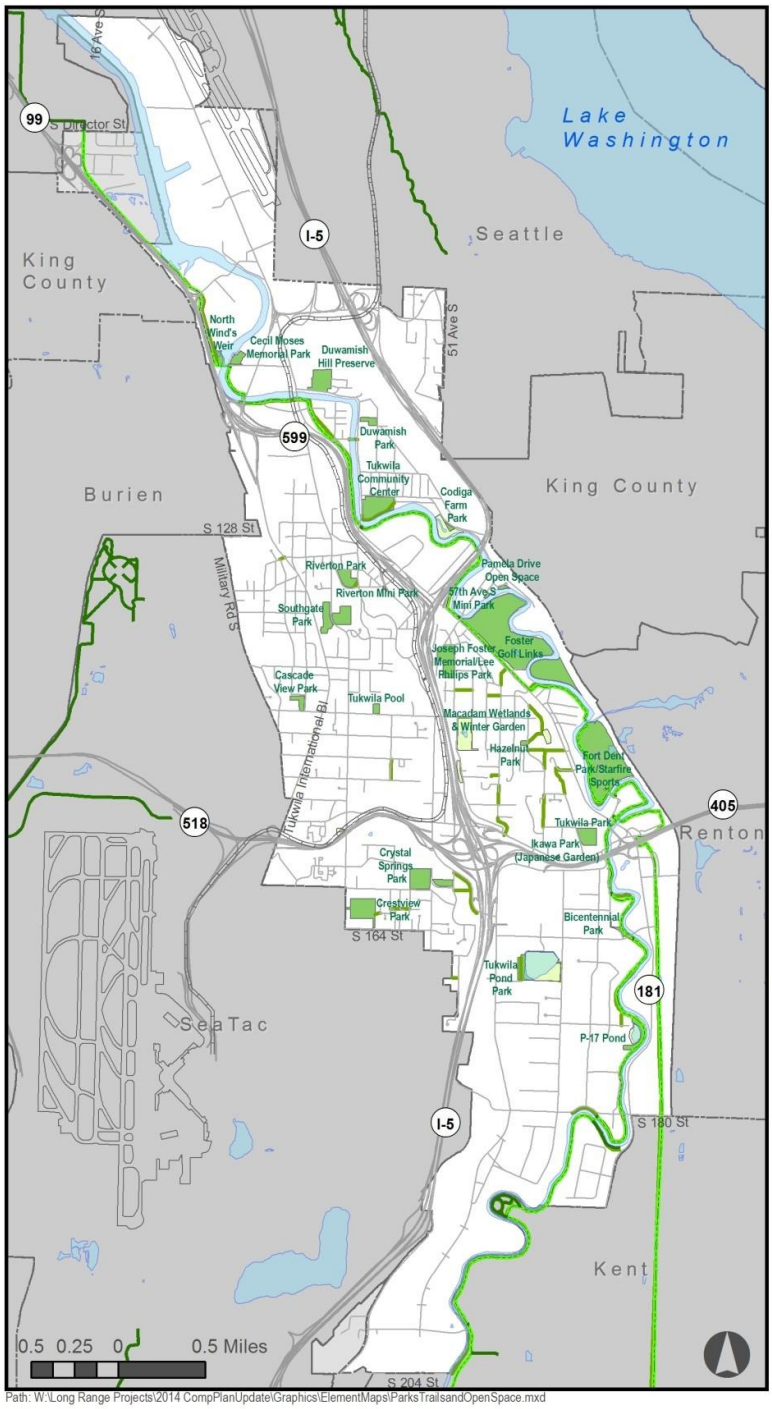
* Growth Management Planning Council (GMPC) Motion 21-4 established a process to revise the 2019-2044 growth targets for the City of Sammamish to reflect updated sewer capacity. Sammamish shall submit final growth targets to the GMPC by June 1, 2021 for action by the GMPC and recommendation to the King County Council.

D. Facility Inventory Maps and Tables

[THESE MAPS and FACILITY TOTALS WILL BE UPDATED IN THE FINAL PLAN]

Government Building/Facilities/Land





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Parks, Open Space & Trails

Legend

- Open Space
- Parks

Trail Owner

- Other City
- King County
- Tukwila

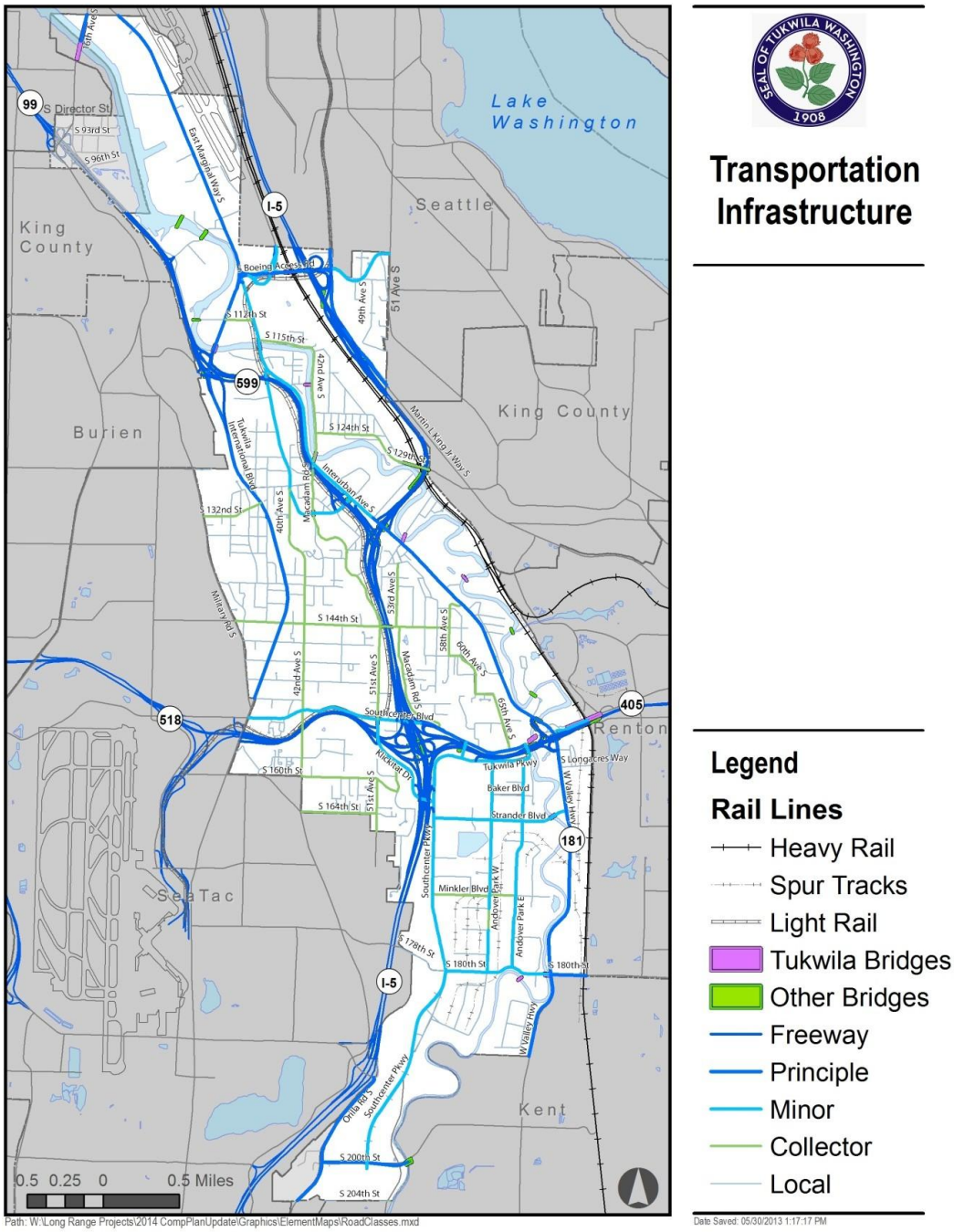
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Government Buildings and Land Inventory				
Type Of Facility	**Property Size - Sq ft**	**Location**	**Parcel#**	**Capacity/Comments Facility size – sq ft**
City Hall	117,774	6200 Southcenter BL	3597000282	25,159
City Hall Annex	67,417	6300 Southcenter BL	0003200005	33,230
Tukwila Historic and Cultural Center (Original City Hall)	50,530	14475 59 AV S	3365901275	2,304
Minkler Shop	484,823	600 Minkler BL	2523049070	7,480; Site includes P-17 Pond surrounding adjacent King County pump station/parcel.
Fleet & Facilities	172125 300623	11210 Tukwila Int'l Blvd 1231 East Marginal Way S	0923049152 1023049059	
Justice Center	123859	15005 Tukwila International Blvd	0041000480	
George Long Shop *(currently vacant)*	166,439	14000 Interurban AV S	3365900925 3365901015 3365900975 3365901016	Vacant
Parks Maintenance Facility		13450 Interurban AV S	Located on Golf Course parcel	2,900
Tukwila Community Center	557,568	12424 42 AV S	0179003239	35,260 – Gym, racquet courts, fitness facility, locker rooms, kitchen, meeting rooms,
North Hill Reservoir	43,565	15345 57 AV S	1157200193	2 million gallon potable water storage
Retired Fire Station No. 1 (With detached garage)	21,042	12026 42 AV S	3347400300	4,608; garage used for Police evidence storage.
Fire Stations #51	81,000	444 Andover Park E	223400080	15,519
Fire Station #52	50,530	14475 59 AV S	3365901275	3,300
Fire Station#53	111,064	4202 S 115 ST	3351400825	5,264
Fire Station #54	38,860	4237 S 144 ST	0040000365	5,390
Streets and Surface Water Divisions Storage Facility	138,382	Bounded by BNSF RR, I-405, Longacres Way, and UP RR.	2423049034	No structure
Gilliam Creek Regional Detention Facility	130,644	4250 Southcenter BL	0042000362 0042000355 2223049058 0042000346	
Storm water facility	7,596	~ 4805-4815 S. 144 Street	0040000509	
Cascade Glen Storm water facility	9,653	~ 13230 40 Av S	1422600230	
Single Family home	6,500	14239 42 AV S	1523049208	990 sq ft. w/3 bed & 1 bath

Single family home	204,781	14688 53RD AV S	7661600270	1,800 house; lot contains south end of Macadam Wetland
Vacant Land (not designated Open Space)				
Left over from purchase for S 180th Street Project	5,400		0000200003	TUC zoning district
Levy and unimproved pedestrian path	30,492	Intersection of Andover Park East and S 180 Street	3523049002, 3523049003	TUC Zoning district
Adjacent to W. Valley HY	9,633	2140 SW 43 ST & W Valley HY	3623049037	Lease to Clear Channel; TUC Zoning district
Easement to City of Renton Strander BL storm water facility and right of way	243,350	Bounded by UPRR and BNSFRR and south of Strander BL when extended	2523049006	Southern portion contains wetlands and wetland mitigation TUC Zoning District
Gilliam Creek	44,874	b/w Tukwila Parkway, I-405, and the S and T line bridges	0003200022	TUC Zoning district
Northbound I-405 off ramp to Interurban/W. Valley HY	1,742	South side of off-ramp	0005800010	TUC Zoning district
NE corner of S 130 Street and TIB - single family lot	8,500	Northeast corner of intersection	7359600230	Slope easement for TIB & S. 130 Street improvement, LDR Zoning district
2 Vacant lots	58,396	Located between Macadam Road and I-5	8733000005; 7661600212	Shallow wide lots, LDR Zoning district
Black River/UPRR property	11,808	14299 Beacon Coal Mine Road S. (Should be Monster Rd.)	1323049080	Zoned IM (City of Renton) Vacant; Could be of use for regional Lake to Sound Trail

Neighborhood Connector	**Linear Ft.**			
Path 1	960	S 147 Street ROW		B/W 59 Av S. and Interurban Av. S
Path 2	534	62 AV S ROW		B/W S 149 and 147 Streets
Path 3	1,325	65 AV S ROW		B/W S 151 ST and Interurban Av. S.
Path 4	972	62 AV S ROW		B/W S 151 and 153 ST
Path 5	338	57 Av. S.		B/W S 141 ST and Interurban AV S
Path 6	528	52 AV S ROW		B/W 55 and 53 AV S
Path 7	370	57 AV S ROW		B/W S 151 and S 152 Streets

Path 8	634	57 AV S and Macadam RD S ROW	Concrete stairs and unpaved path	B/W S 152 PL to Southcenter BL
Path 9	486	S 159 Street		B/W 53 Av S. and Klickitat
Path 10	562	S 142 Street		B/W 53 and 55 AV S
Path 11	586	S. 162 Street ROW		B/W 48 and 46 Avenue S.
Path 12	137	S 163 Place		45 AV S to Crestview
Path 13	113	46 Avenue S. ROW		B/W S 150 and S 148 Streets
Path 14	~200	S 164 Street????		BW 51 AV S and 53 AV S
Path 15	222	S 150 Street - Dedicated tract in Junction subdivision	Concrete stairs	B/W 57 AV S. and end of S 150 ST cul-de sac.
Path	12	S 130 Street	Concrete stairs	B/W TIB and 34 AV S
Klickitat Way	1,632	53 Avenue S to I-5 Bridge	Elevated wooden walkway with chainlink fence	
Neighborhood Connector Total	**9,611 linear feet**			
Regional Trail	**Miles**			
Green River	7.76	Northern City limits to southern city limits		Generally – 8-10 feet wide asphalt path with trail amenities such as signs
Interurban	5.30	Intersection with Green River Trail on north end, city limits south of S. 180 Street/43 Av. S. on south end.		8-10 feet wide asphalt path.
Regional Trail Total	**13.06 miles**			



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Transportation Infrastructure

Legend

Rail Lines

- Heavy Rail
- Spur Tracks
- Light Rail
- Tukwila Bridges
- Other Bridges
- Freeway
- Principle
- Minor
- Collector
- Local

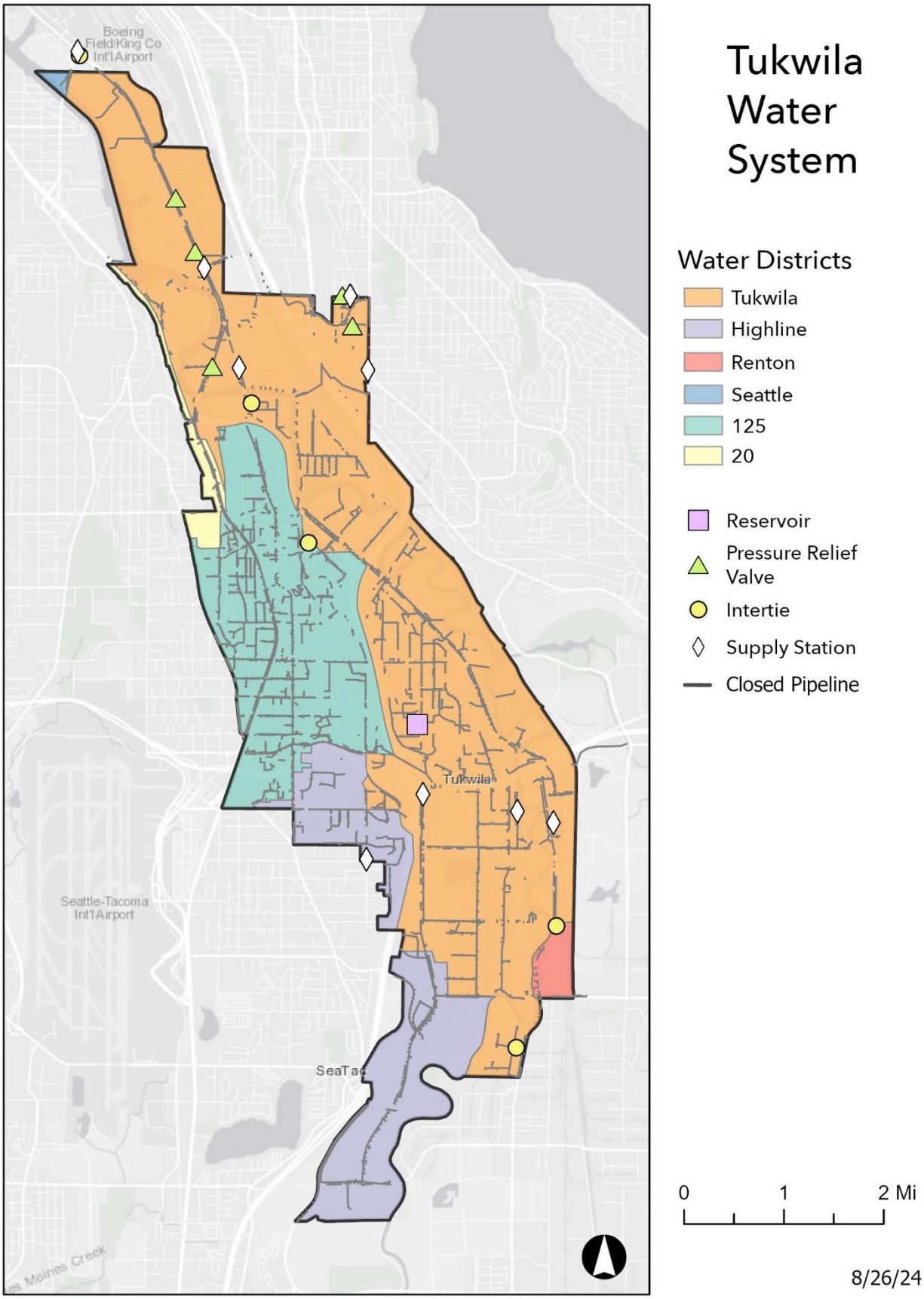
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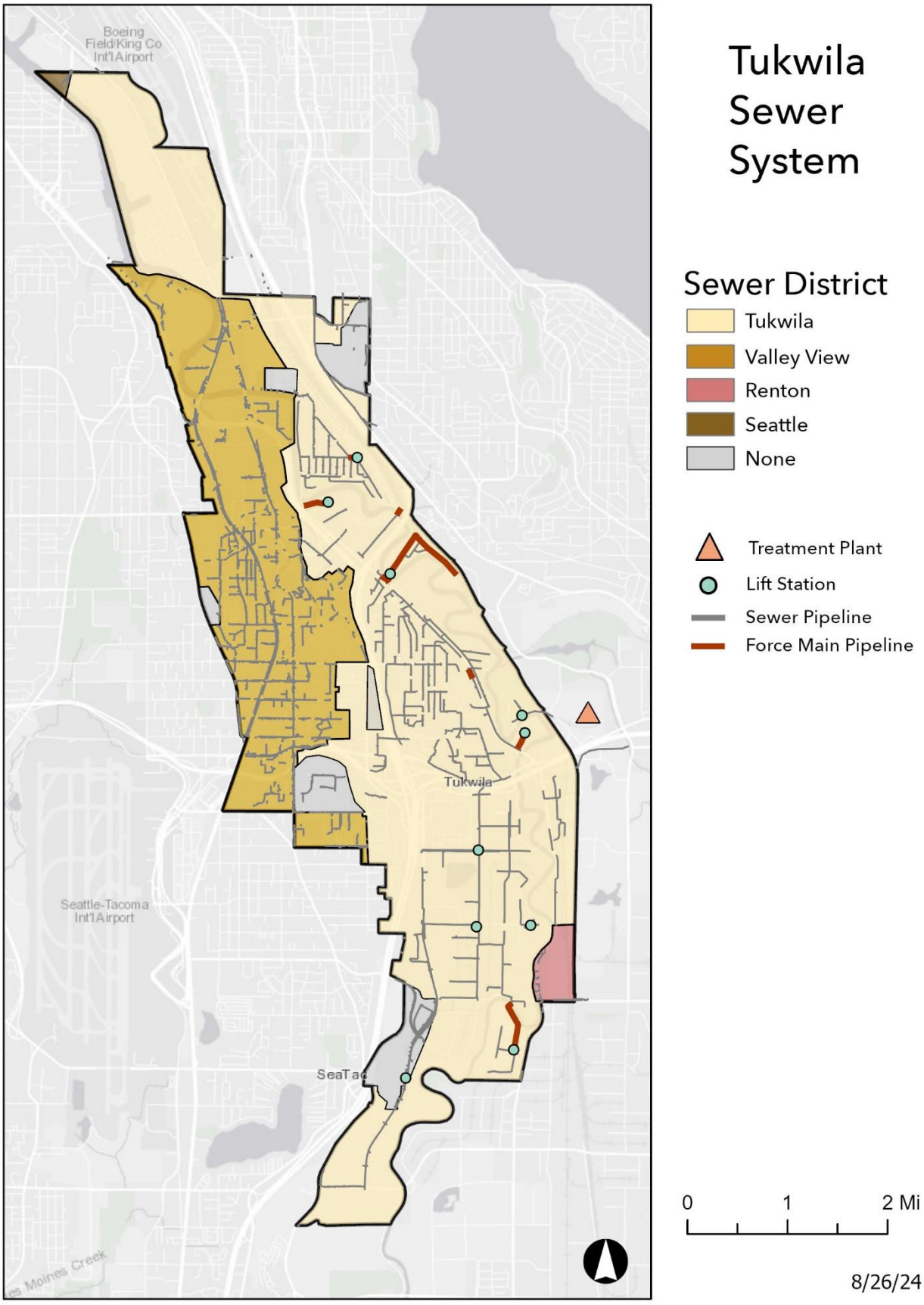
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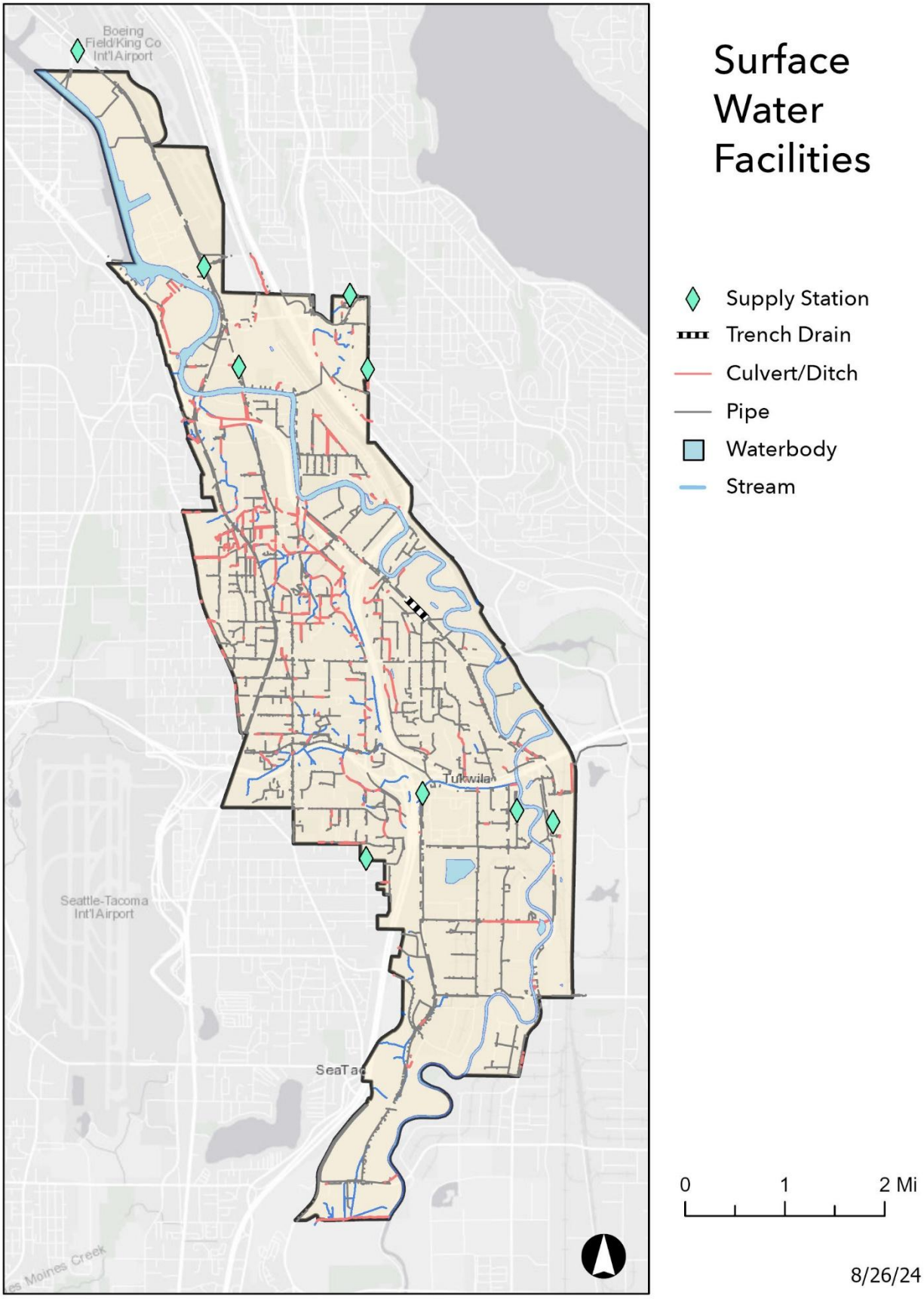
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Transportation				
Facility	**Total Quantity**	**Current Capacity**	**Condition**	**Comments**
Roadway – arterials	110 lane miles		Good	
Roadway – local access	90 lane miles		good	
Bridges				
Motorized – (limited Nonmotorized)	12			
Nonmotorized	4			
Traffic Signals*	54		Very good	50 Accessible from Traffic operations center
Street Lights*	1,792	N/A	Low Pressure Sodium and Metal Halide LED	621 in PSE service area; 1,171 in SCL service area
Sidewalks*	57 miles (2009 Walk and Roll Plan)		Fair	
Paved shoulders*			Good	
Bike Lanes*	3.93 miles (2008 condition)			Add E. Marg Way and S. 112

*Indicates that the facility is not on Inventory Map.


Boeing Field/King Co Int'l Airport
Tukwila
Seattle-Tacoma Int'l Airport
SeaTac
Des Moines Creek
Tukwila Water System
Water Districts
Tukwila
Highline
Renton
Seattle
125
20
Reservoir
Pressure Relief Valve
Intertie
Supply Station
Closed Pipeline
0
1
2 Mi
8/26/24

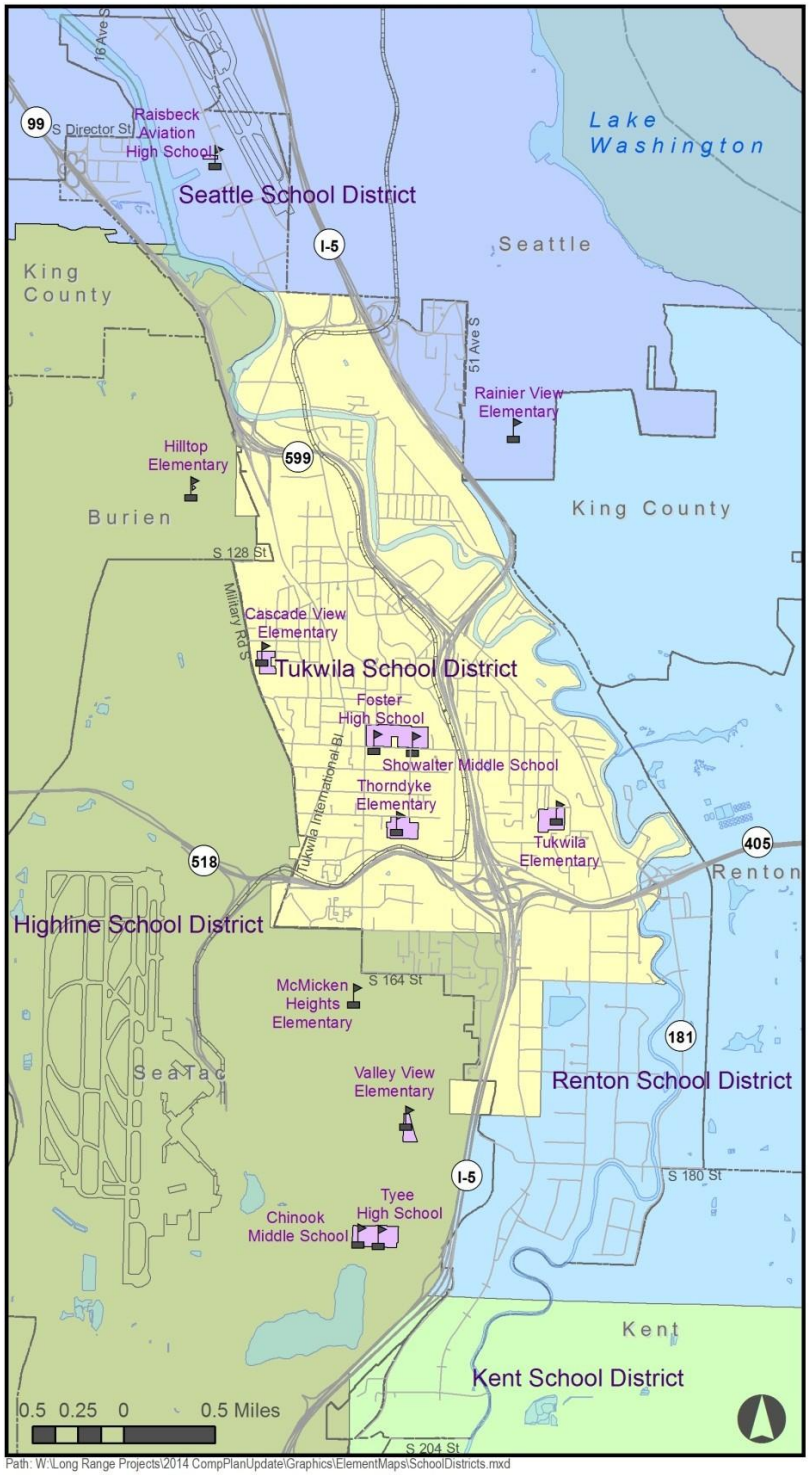

Boeing Field/King Co Int'l Airport
Tukwila
Seattle-Tacoma Int'l Airport
SeaTac
Des Moines Creek
Tukwila Sewer System
Sewer District
Tukwila
Valley View
Renton
Seattle
None
Treatment Plant
Lift Station
Sewer Pipeline
Force Main Pipeline
0
1
2 Mi
8/26/24


Boeing Field/King Co Int'l Airport
Tukwila
Seattle-Tacoma Int'l Airport
SeaTac
Des Moines Creek
Surface Water Facilities
Supply Station
Trench Drain
Culvert/Ditch
Pipe
Waterbody
Stream
0
1
2 Mi
8/26/24

This table is being updated

Enterprise Funds Inventory				
Facility	**Total Quantity**	**Current Capacity**	**Condition**	**Comments / (GIS Data Features)**
Water				
Water Mains*	190,000 lineal feet	2 inch to 18 inch	Varies	
Reservoir	1	2 million gallons	Fair to good	(1 feature)
Supply Station	7	3,030 GPM	Fair to good	Seattle Public Utilities
Intertie Stations	4	Two 6-inch meters, one 8-inch meter, and one 10-inch meter.	Varies fair to good	Renton, Kent, Highline WD, KCWD# 125 (7 Features)
Fire Hydrants*	300	Unknown	Varies greatly	(975 Features)
Residential Service Meters*	1040	¾" inch to 2 inches	Varies	
Commercial Service Meters*	660	3”-12”	Varies	
Sanitary sewer				
City Connections to King County	25	1,201,780 gallons per day (1998)	Varies	
Lift Stations	10	7,170 gpm	Varies	16 Sewer Vaults?
Sewer lines 8 inches and smaller*	129,805 feet	4” to 8”	Varies	(543 Features)
Sewer Lines 10-12 inches*	38,427 feet	10” to 12”	Varies	(176 Features)
Sewer Lines 14-36 inches*	26,983 feet	14” to 36”	Varies	(105 Features)
Surface Water				
Pipes*	50,000 linear feet		Look for total length of pipe across the city	(7,487 Features)
Type 1 Catch Basin and manhole*				(4,465 Features)
Type 2 Catch Basin and manhole*				(1,800 Features)
Outfalls*				(150 Features) (OTAK/Russel’s Comments
Detention/Water Quality Facility	19			(77 Features; lots of NULL, only 28 if you take them out)
Tukwila Pump Station	7			(7 but possible 8 Features; one is all NULL)
King County Pump Stations	2			

*Indicates that the facility is not on Inventory Map.



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School Districts

Legend

School Districts

- Highline
- Kent
- Renton
- Seattle
- Tukwila
- Schools

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