Enhancing Community Health and Equity through Transportation and Connectivity Improvements

A Health Impact Assessment of the Picture Pac Ave Subarea Plan in Tacoma, Washington

Created by the Georgia Health Policy Center with the Tacoma–Pierce County Health Department

January 2026

Table of Contents

Authors and Acknowledgments **3**

List of Acronyms **4**

Executive Summary **5**

What is a Health Impact Assessment? 5

Picture Pac Ave Subarea Plan HIA 5

Current Health Conditions 7

Walking and Biking Experience 7

Preventive Health Infrastructure and Services 8

Recommendations 9

Prioritized Recommendations 10

Introduction **13**

What is a Health Impact Assessment? 13

Picture Pac Ave Subarea Plan 13

Health Impact Assessment Methods 15

Assessment **20**

Current Health Characterization 20

Walking and Biking Experience 24

Preventive Health Infrastructure and Services 32

Air Quality 41

Recommendations **43**

Prioritized Recommendations 43

Remaining Recommendations 46

Monitoring and Evaluation **50**

Monitoring 50

Evaluation 51

References **53**

Appendix A – Health Data Methodology **59**

Appendix B – All Health Data **61**

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List of Acronyms

ADS	Anti-Displacement Strategy
AMI	Area Median Income
BRFSS	Behavioral Risk Factor Surveillance System
CBO	Community Based Organization
CO	Carbon Monoxide
DPM	Diesel Particulate Matter
ED	Emergency Department
EPA	Environmental Protection Agency
ESSENCE	Electronic Surveillance System for the Early Notification of Community Based Epidemics
GHPC	Georgia Health Policy Center
HIA	Health Impact Assessment
HVAC	Heating, Ventilation, Air Conditioning
MERV	Minimum Efficiency Reporting Value
NO_2	Nitrogen Dioxide
$PM_{2.5}$	Particulate Matter less than or equal to 2.5 micrometers in diameter
PSCAA	Puget Sound Clean Air Agency
RHINO	Rapid Health Information Network
SAP	Subarea Plan
SDOH	Social Determinants of Health
SOV	Single Occupancy Vehicle
TRAP	Traffic Related Air Pollution
UHI	Urban Heat Island
VOC	Volatile Organic Compound

Executive Summary

What is a Health Impact Assessment?

The way we build our communities impacts our physical, social, and mental health. The conditions in which we live, or Social Determinants of Health (SDoH), have a far greater impact on our health than traditional medical practices and dollars spent on healthcare. These include exposure to pollution, stable and quality housing, education, access to nutritious foods, and safe places to walk and roll. Consequently, improvements in public health can only occur if we consider the impacts of SDoH in development projects, planning policies, and other government programs in non-health related sectors.

A Health Impact Assessment (HIA) is a practice that aims to protect and promote health and reduce health inequities during a decision-making process in a range of non-health sectors. A Health Impact Assessment:

- Informs the public and decision makers when policies, plans, programs, and projects in a range of sectors have the potential to significantly impact human health.
- Is a collaborative and iterative process that seeks to draw from the lived experience and expertise of a diversity of individuals and groups who may be impacted by a policy, plan, program, or project.
- Makes practical recommendations to increase positive health effects and minimize negative health effects and thus should be conducted before a decision (plan, program, policy) is implemented.

Picture Pac Ave Subarea Plan HIA

Tacoma-Pierce County Health Department (Health Department) contracted with Georgia Health Policy Center (GHPC) to conduct this HIA to evaluate the health impacts of the Picture Pac Ave Subarea Plan.

Pacific Avenue, often referred to as "Pac Ave," is a transportation corridor that connects downtown Tacoma to Tacoma's South End and Eastside neighborhoods, and traverses through Parkland and Spanaway to Mount Rainier National Park. In 2019, City of Tacoma (City) passed Resolution 40287, which directed their Planning and Development Services team to develop a Subarea Plan (SAP) for Pacific Avenue from its overlap with I-5 to South 96th Street. The SAP study area includes Pacific Avenue and the land bordering it on either side out to about a quarter mile (Figure 1). The SAP, informally referred to as "Picture Pac Ave," aims to outline a long-term vision for growth and development that will guide future investments and complement planned and completed transit improvements along Pacific Avenue.

Discussions between Health Department and City staff determined that a HIA would provide useful information to aid in the City's development of the SAP. After careful consideration of the information provided by subject matter experts, the HIA advisory group, and the larger community, we selected **the Walk/Bike Experience and Preventive Health Infrastructure and Services as the primary assessment topics for this HIA.** We selected air quality as a secondary assessment topic.

Figure 1. Picture Pac Ave Approximate Study Area.

Current Health Conditions

The Pac Ave HIA Study Area (Study Area)—comprised of the census tracts surrounding Pacific Avenue from Interstate-5 to 96th Street South—is home to a diverse group of residents, totaling approximately 22,000 people (Figure 2). Compared to the larger Pierce County, the Study Area has a higher percentage of:

- People of color.
- People living in poverty.
- Households without a vehicle.
- People who speak English "less than well."[1]

Compared to Pierce County, people who reside in the Study Area have higher rates of:

- Asthma-related hospital Emergency Department (ED) visits.[2]
- New cases of stomach cancer and lung cancer.[3]
- Years of potential life lost before age 65.[4]
- Death from diabetes, circulatory disease, heart disease, and all-cancers (rate of death for all cancer types combined).[4]
- Premature birth and low birth weight.[5]

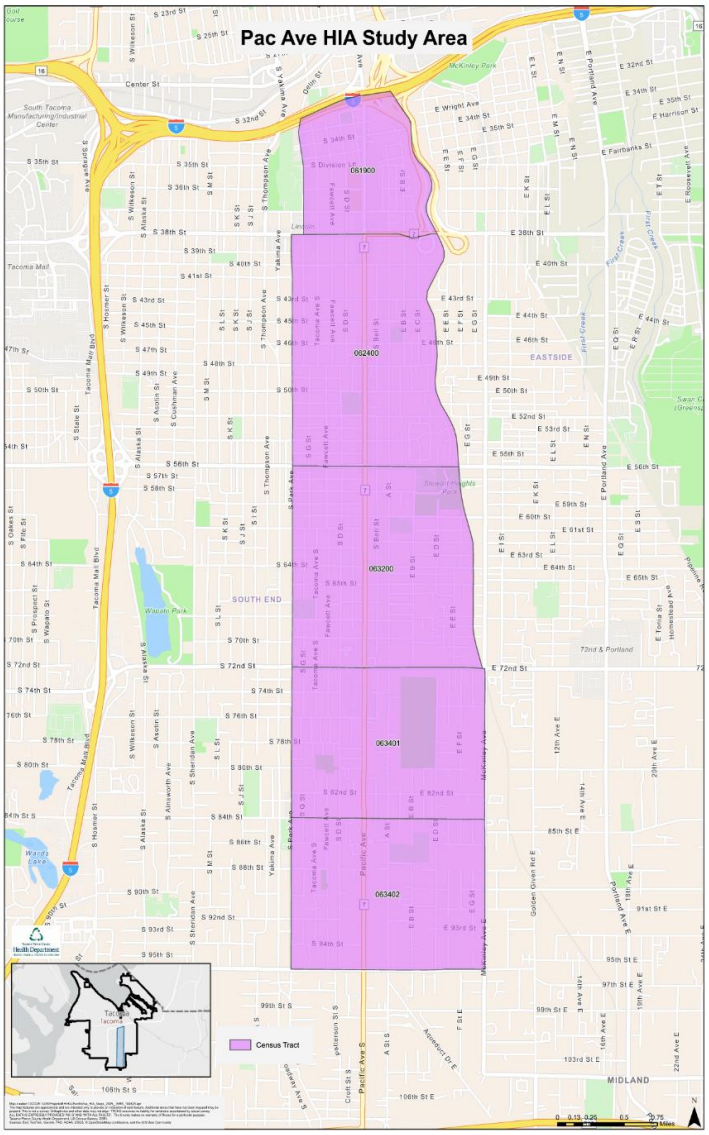

Figure 2. Pac Ave HIA Study Area.

Because residents in the Study Area experience significantly higher rates of certain health conditions compared to the larger Pierce County population, they can be more sensitive to environmental exposures that could exacerbate symptoms or increase their vulnerability to worsened health outcomes.

Further, SDoH in the Study Area and the communities that surround it rank disproportionately lower than neighboring areas, according to City of Tacoma's Equity Index.[6] Lastly, Washington State Department of Ecology (Ecology) identified both Eastside and South Tacoma (including the Southend in their assessment) as communities overburdened by air pollution.[7] All of these conditions present potential barriers for residents in these areas to achieve their best possible health outcomes.

Walking and Biking Experience

Multiple factors contribute to the experience a person has when they walk, bike, or roll. The quality of this experience also plays a role in someone's choice (if they have a choice) to bike or walk. The walking and biking experience is influenced by the natural, built, and social environments.

While the Study Area is near some large green spaces with pedestrian and bike friendly paths like Wapato Park and Swan Creek Park, many challenges in the area contribute to poor natural environment conditions. The lack of tree canopy in the Study Area contributes to higher temperatures, which can be as much as five degrees warmer than other areas of the City.[6] The Study Area is part of the geographies identified by Ecology as "overburdened by air pollution." This means that the people that live in this area are at greater risk of adverse health impacts from air pollution because of their environmental surroundings and socioeconomic vulnerabilities.[7]

Like the natural environment, the built environment in the Study Area is not conducive to fostering a safe and healthy built or social environment. The Tacoma Vision Zero Action Plan identifies the Pacific Avenue Corridor as a "Pedestrian and Motorist High Risk Corridor" because of the disproportionately high number of injuries and deaths from collisions with vehicles. Reported in both academic journals and by the HIA Advisory Group, poor nighttime lighting, closed businesses, vacant land, and parking lots can have a negative effect on a person's sense of safety and security.[8] However, the area does boast higher than average access to public transit options, which can increase social connection for the area's residents.

Subarea Plan goals related to creating complete neighborhoods by promoting pedestrian friendly infrastructure and transit access will have the greatest and most immediate impact on the walking and biking experience. None of the effects are likely to be immediate but will be seen over time as the SAP is implemented. Well-designed built environments make it easier and more enticing for people to use active transportation, therefore increasing physical activity, which can improve chronic disease outcomes like cardiovascular health in all populations.[9]

Social connection and sense of community will also increase because there will be access to walkable destinations and healthy places. Walkable communities promote social health by encouraging walking and other outdoor activities, and thereby, facilitating social interactions among neighbors.[10] Regional air quality may improve in the long-term, as more people switch from using SOVs to transit or active modes of transportation.

Some negative near-term effects may also occur. As more people walk and bike, they are exposed to nearby vehicle emissions and are at greater risk of injury due to increased exposure to traffic while they walk, bike, or roll.

As new transit infrastructure, new housing, and new businesses come to the area, current residents—especially low-income residents—may be displaced as higher-income residents move into the area. Locally owned businesses may also be at risk of displacement. Promoting new and retaining existing affordable housing, and preserving and incentivizing existing businesses, will be particularly important as property values in the area may rise as services and retail options expand.

Preventive Health Infrastructure and Services

Preventive health is a broad term that can refer to many activities and services that reduce the risk for disease, disability, and death before they occur.[11] Overall, Pierce County has a substantial shortage of all types of preventive care providers. The Study Area includes one public health agency, two primary care clinics, four

behavioral health providers, and four pharmacies. Pierce County has been designated as a Medically Underserved Area, meaning there is a lack of access to primary care services.[12] Because of these shortages, people who live in the Study Area may have a more difficult time reaching preventive health services, making access to transportation an essential element of their preventive health strategy.

Residents of the Study Area generally have many nearby transit routes, including rail and bus service stops, park and ride locations, and are within Pierce Transit's Core Shuttle service area.[6] However, residents in the southeastern area of the Study Area are generally further away from a transit stop than residents in other areas of the Subarea. Many households in the Study Area—especially those in the southern end—do not have access to a vehicle.[1, 13]

Insurance coverage is a key factor related to American's ability to pay for—and access—health coverage. On average, an estimated 10% of residents in the Study Area do not have any form of health insurance.[13] For people with health insurance, fewer have employer-sponsored health insurance, and more people have public health insurance, compared to Pierce County as a whole.[1]

Subarea Plan goals related to expanding transit infrastructure are most likely to have the greatest, most immediate, and most equitable impact on access to preventive health infrastructure and services. Enhancing transit, bike, and pedestrian connections could improve access to preventive health services by reducing transit time and expanding route options. These connections could significantly benefit residents who rely on public transportation, especially in areas with low vehicle ownership and higher public health insurance coverage.

The SAP's Economic Opportunities goals may have impact on access to preventive health infrastructure and services. The distribution of these impacts is uncertain and will depend on the types of businesses that locate in the area and who benefits from them. Creating opportunities for new businesses to locate in the area and for existing businesses to expand could result in more local employers that offer employer-sponsored health insurance.

While some new businesses could be preventive health facilities, many are likely to be for-profit establishments like restaurants and fitness centers. The short-term impact on access to preventive health services—particularly the ability to pay for services—will be minimal without intentional outreach to- and coordination with-healthcare providers, and/or additional funding for public health agencies to increase their services and reach.

Recommendations

In 2017, City of Tacoma adopted a Health and Equity in All Policies Resolution (Res. No. 39893). The resolution acknowledges that "public policies can contribute to the health inequities visible throughout Tacoma, resulting in large variances in quality of health and life expectancy." Further, the resolution directed the City to "analyze proposed policies using a health and equity lens."

This HIA is one tool the City is using to develop the Picture Pac Ave Subarea Plan. The findings and recommendations of this HIA do not imply that the environmental conditions in and surrounding the Pac Ave

Subarea are the primary cause of the health disparities described in the Assessment section. Rather, these findings can support policymakers in making decisions through a Health and Equity in All Policies lens.

The HIA Project Team developed a list of 42 detailed recommendations. These recommendations have distinct categories represented by an illustrative icon:

Align with Existing Plans

Focus on Healthy Environmental Design

Connect with the Community to Promote Health

Enhance and Sustain Equitable Engagement

Coordinate Investments

Adjust to Other Policies or Programs

From this list of 42, the HIA Project Team selected a set of 15 recommendations that included the most representative of each category, and with input from the Advisory Group, ranked them by priority. We listed the prioritized recommendations below, and the remaining 27 recommendations in the Recommendations section of this report, starting on page 43. We updated some recommendations after the prioritization process occurred to make them more detailed and actionable. We noted these with an asterisk.

Prioritized Recommendations

1. Minimize injury risk for people who walk, bike, and roll by implementing recommendations from the Tacoma Vision Zero Action Plan focused on the Pacific Avenue Subarea, specifically:
    * Increase lighting at crossings and intersections.
    * Consider consistent speed limits between Neighborhood Business District speed control areas and school zones.
    * Install raised median with marked crosswalks at uncontrolled crossings.
    * Install advanced stop markings and signs at enhanced pedestrian crossings.
    * Install median treatment for pedestrian/bike safety (e.g., pedestrian refuge island) at controlled crossings.
    * Evaluate and design for appropriate speed limits for all road users.
    * Reduce lane widths.

2. Finalize and implement corridor design for Pacific Avenue and A Street "bike boulevard" that priorities safety, accessibility, and mobility instead of serving vehicles.

3. Reduce risk of lost social connections by implementing the Anti-Displacement Strategy, particularly strategies that allow existing residents to remain in their neighborhoods as new business and residents move in over time:

* Preservation Ordinance (ADS 2.1): This objective will help reduce the likelihood and impacts of displacement that will occur when landlords/property owners remodel their property to take advantage of the new density allowances.
* Right of First Refusal Policy (ADS 2.2): This objective will help ensure both naturally occurring and formal affordable housing remains affordable if the property changes ownership.
* Down payment homebuyer assistance (ADS 1.3): Expand education and funding for the program targeting current residents of color and tailoring it to their needs.
* Housing Preservation Fund (ADS 2.4): Set up this fund as soon as possible to keep rents stable, make property improvements, and extend or attach affordability periods to units in densifying neighborhoods.
* Improve the livability of existing owner-occupied homes (ADS 2.5): Continue and expand support for the City's contracts with community partners to provide home repair and weatherization services to low-income homeowners.

4. Explicitly include preventive health infrastructure and services in the City's definition of "public benefit use" and extend the associated density bonuses for these types of uses to include all Centers (i.e., areas zoned for mixed use), not just Downtown. Similarly, formalize a definition of "community amenity space" that includes preventive health infrastructure and explore requirements for these amenities in residential/commercial projects on city-owned land. Consult the Health Department on the most appropriate definition of preventive health infrastructure.
    * Consider prohibiting non-compete covenants when new preventive health infrastructure and services locate in the Subarea.

5. Reduce barriers for people who walk, bike, and roll by ensuring a network that includes sidewalks, curb ramps, accessible pedestrian signals, and shared use paths that connect Pacific Avenue to the rest of the City, as recommended in the City of Tacoma's Transportation and Mobility Master Plan.

6. Consider changing standard use of county-wide area median income (AMI) in affordable housing policy (e.g., Multi-Family Tax Exemption, Home in Tacoma Bonus Program) to allow affordability calculations to be based on localized geographies more constrained to the project area.

7. Reduce exposure to roadway air pollution by ensuring sensitive uses, like schools, daycares, and housing are not developed directly along the roadway, and when they are, requiring appropriate design mitigations (*e.g., HVAC equipped with a MERV 13 or equivalent filter and locating playgrounds away from roadways).
    * Consider prohibiting sensitive uses within 500 feet of Pacific Avenue if they do not use these design mitigations.

8. Work with a range of community partners to encourage providers of preventive health resources to locate along the corridor, particularly on publicly owned land.

9. Consider changes to city policy/landscaping code to give the City more authority to plant and maintain street trees, giving the Urban Forestry Department a more active role in helping promote health by increasing residents' exposure to green space and reducing near-term negative impacts on air quality from increased exposure to vehicular traffic.

10. Enhance requirements for tree planting and retention*, greenery, vegetated buffers, and minimize use of heat-trapping materials (e.g., asphalt) throughout the Subarea. Give priority to green infrastructure designs that demonstrate co-benefits for air quality, noise buffering, and the bicycle/pedestrian experience.

11. Work with affected community members to design a plan for resident engagement in place-making in the Subarea early and often. This builds on SAP engagement and sustains community involvement at the project-level. The City should model this through any development processes they lead and consider how to work with private developers to implement a similar level of engagement for their projects, especially in the design phase.

12. Develop a coordinated approach to enhance social connections in the community through increasing awareness of and reducing barriers to active modes of transportation in the Subarea.

13. Actively engage community members, the Health Department, and other health-oriented organizations in future transit service planning to ensure health-promoting destinations are accessible by transit, particularly publicly owned facilities.

14. Explore opportunities for Medicaid to expand non-emergency medical transportation benefits for funding trips to pharmacies, grocers, food pantries, and other health-promoting destinations.

15. Explore opportunities for mobile preventive health resource providers along Pacific Avenue as a way of increasing access to—and availability of—preventive health infrastructure and services.
    * Include exploration of opportunities for the Health Department to supplement permanent, stationary preventive health services and infrastructure along Pacific Avenue.

Introduction

What is a Health Impact Assessment?

The way we build our communities impacts our physical, social, and mental health. The conditions in which we live, or Social Determinants of Health (SDoH), have a far greater impact on our health than traditional medical practices and dollars spent on healthcare. These include exposure to pollution, stable and quality housing, education, access to nutritious foods, and safe places to walk and roll. Consequently, improvements in public health can only occur if we consider the impacts of SDoH in development projects, planning policies, and other government programs in non-health related sectors.

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Picture Pac Ave Subarea Plan

Pacific Avenue, often referred to as "Pac Ave" is a transportation corridor that connects downtown Tacoma to Tacoma's South End and Eastside neighborhoods, and traverses through Parkland and Spanaway to Mount Rainier National Park. Pacific Avenue also serves as a major commerce route for the Port of Tacoma. With the rising popularity of automobiles and increased suburbanization in the mid-20th century, communities on either side of Pacific Avenue were disconnected from each other, and the area became less safe for pedestrians and the associated social connections were disrupted as it became more vehicle centric.[14]

In 2019, City of Tacoma (City) passed Resolution 40287, which directed its Planning and Development Services team to develop a Subarea Plan (SAP) for Pacific Avenue from its overlap with I-5 to South 96th Street. The Pac Ave Subarea consists of Pacific Avenue and the land bordering it on either side out to about a quarter mile (Figure 2). The SAP, colloquially referred to as "Picture Pac Ave," will outline a long-term vision for growth and development that will guide future investments and complement planned and completed transit improvements along Pacific Avenue.

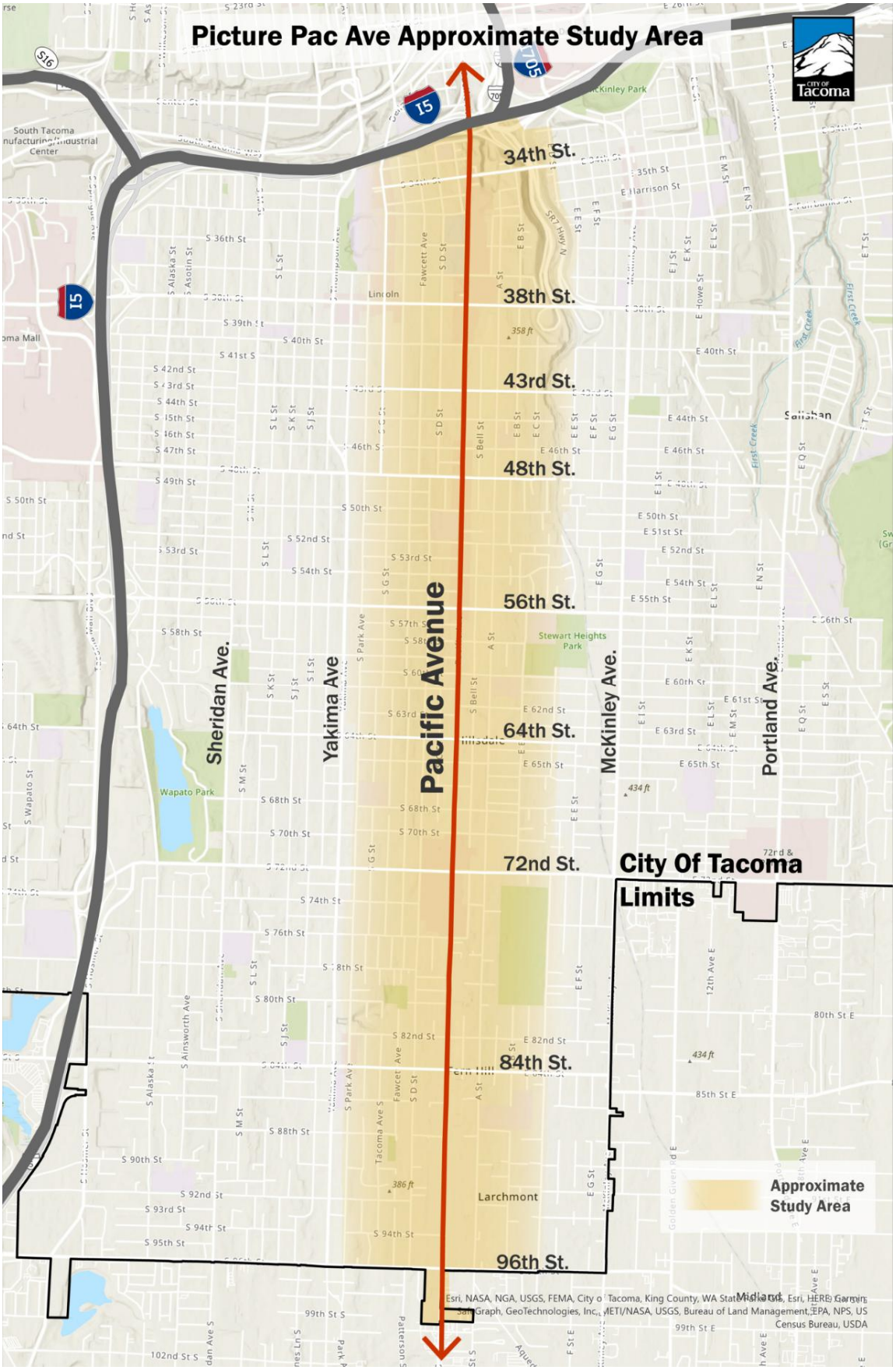

Figure 3. Picture Pac Ave Approximate Study Area, also referred to as the "Pac Ave Subarea."

Currently the SAP is still under development. When this HIA process began in the Spring of 2023, City of Tacoma provided the HIA Team a set of SAP goals to help shape the assessment. As the City continued to consider the needs of the community, their goals shifted. See new goals in Table 1. While these goals are slightly different than what the HIA Team originally used to conduct the assessment in this HIA, they are similar enough that the assessment and resulting recommendations are still relevant and actionable.

Table 1. Draft goals of the Picture Pac Ave Subarea Plan.

Goal ID	Growth Strategy Goals
G.1	Develop healthy communities with community-serving mixed-use centers.
G.2	Ensure equitable access to daily essentials within a 15-minute walk.
G.3	Expand housing options across a range of housing types and prices.
G.4	Promote new, and retain existing, affordable housing.
	Complete Neighborhoods Goals
C.1	Strengthen distinctive, community-focused identities in centers and transit station areas.
C.2	Activate public spaces with community and cultural programming.
C.3	Support community-led placemaking initiatives.
C.4	Design a resilient pedestrian- and transit-friendly public realm.
	Transportation Goals
T.1	Prioritize safe and people-centered streets.
T.2	Connect surrounding neighborhoods to Pacific Avenue.
T.3	Support and enhance future transit improvements including safe, high-quality station areas.
T.4	Develop solutions for parking and curb management.
	Economic Opportunity Goals
E.1	Strengthen equitable economic opportunities for existing and new businesses.
E.2	Support workforce development and job access.
E.3	Advance a green and creative economy.
E.4	Create an employment-focused district along the southern corridor.
	Utilities and Services Goals
U.1	Coordinate infrastructure investments with planned development and transit improvements.
U.2	Promote sustainable, resilient, and efficient utilities.
U.3	Address past deficiencies and rectify gaps to ensure equitable access to City services.

Health Impact Assessment Methods

The Health Department contracted with the Georgia Health Policy Center (GHPC) to conduct this HIA. We formed an HIA Project Team to aid in GHPC's understanding of the local planning environment and public health conditions, and to connect the local community to the HIA. The HIA Project Team included representatives from the Health Department, the City's Planning and Development Services Department, and GHPC.

This HIA used the *Minimum Elements and Practice Standards for Health Impact Assessment* from the Society of Practitioners of Health Impact Assessment.[15] This methodology has six iterative phases.

- **Screening Phase.** Results in a decision about whether to conduct an HIA and, if moving forward, a rationale for why an HIA is an appropriate approach for the context.
- **Scoping Phase**. Results in a list of research/analysis questions, identification of the geographic focus of the HIA, and creation of a plan for the remaining phases. This phase decides which topics the HIA will focus on.
- **Assessment Phase.** Results in a baseline health characterization of affected populations and an analysis of the beneficial and adverse health effects of the proposed action(s).
- **Recommendations Phase**. Results in a list of specific, prioritized recommendations based on the findings of the assessment to manage the identified potential health and equity impacts of the proposed action(s).
- **Reporting and Dissemination Phase**. Communicates the HIA findings and recommendations to decision-makers, the public, and other affected communities in a final report. This report should be easily understood and disseminated, and may include one-pagers, infographics, or websites.
- **Monitoring and Evaluation Phase**. Evaluates the HIA process, impact, and health outcomes (when possible). Monitoring includes strategies for how the affected community and decision-makers could sustain their involvement in the decision-making system and/or build upon successes and lessons learned through the process.

Screening

Discussions between Health Department and City staff determined that an HIA would provide useful information to aid in the City's development of the SAP. Georgia Health Policy Center facilitated a more in-depth screening process to identify which aspects of the Picture Pac Ave Subarea Plan would be most suitable for an intermediate scale HIA.

To begin the Screening phase, the HIA Project Team reviewed potential topic areas and decision points within the subarea planning process that might benefit from the information an HIA could provide. The potential topic areas and decision-points reviewed are as follows, with **those selected for further consideration in bold**:

- **How the SAP enhances transit investment.**
- Outline specific infrastructure plans, design guidelines, and incentives for bringing diverse, full-service supermarket, or supercenter into the crossroad mixed-use center.
- Foster the development and investment of new and existing greenspace near the Health Department's Communities of Focus along the Pacific Avenue corridor.
- **Prioritize safety for pedestrians and bikers near future transit stations and businesses along the corridor, including the continuation of Complete Streets.**
- Emphasize job training, collaboration, employment opportunities and outreach to meet projected economic development needs for Picture Pac Ave.

- Develop appropriate measures to ensure affordable housing is available to vulnerable and lower-income populations in the Communities of Focus along the Pacific Avenue corridor.
- **Establish the health impacts associated with transit-oriented development strategies like encouraging active transportation and mode-shift by allowing for higher concentrations of housing and jobs near major transit stops.**
- **Recommended capital investments for prioritization in the SAP.**

Early Community Input

In the Summer of 2023, City staff collected community input on the SAP through an online survey. More than 200 people participated in the online survey, with all but five respondents indicating they either live, work, or spend time on and near the Picture Pac Ave study area. Responses to two survey questions, included as Figure 4 and Figure 5 below, demonstrate that the community has concerns about and a desire for improved pedestrian and bicycle safety along the corridor. The HIA Project Team examined these data as in August 2023 and noted pedestrian safety among the most discussed topics. Equipped with this indication of community perspectives, the Project Team chose to further explore possible decisions related to active transportation as the HIA's focus.

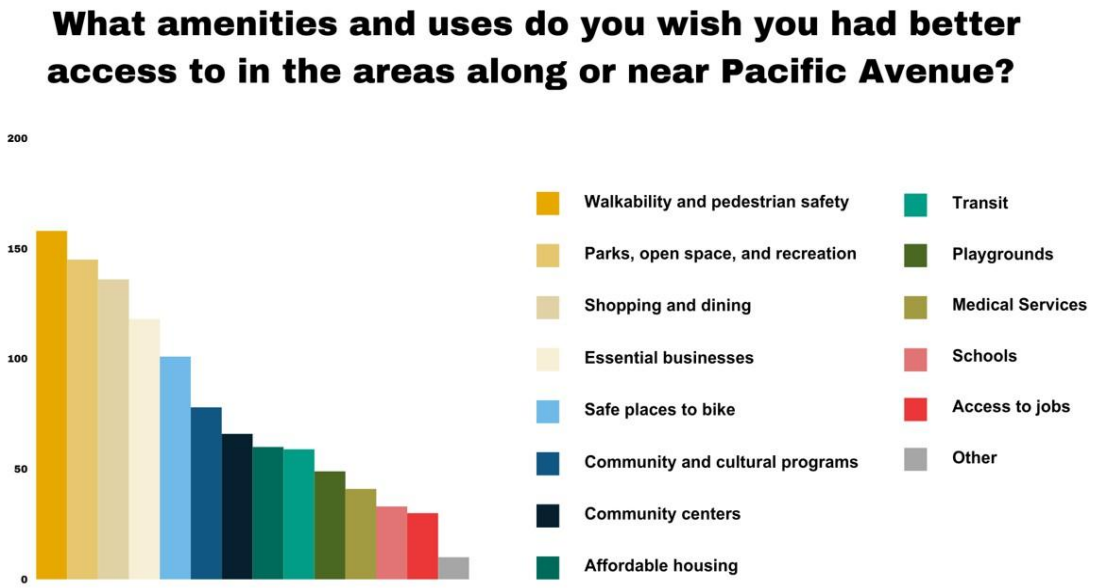

Figure 4. Distribution of responses to the community survey question asking about access to amenities along Pacific Avenue.

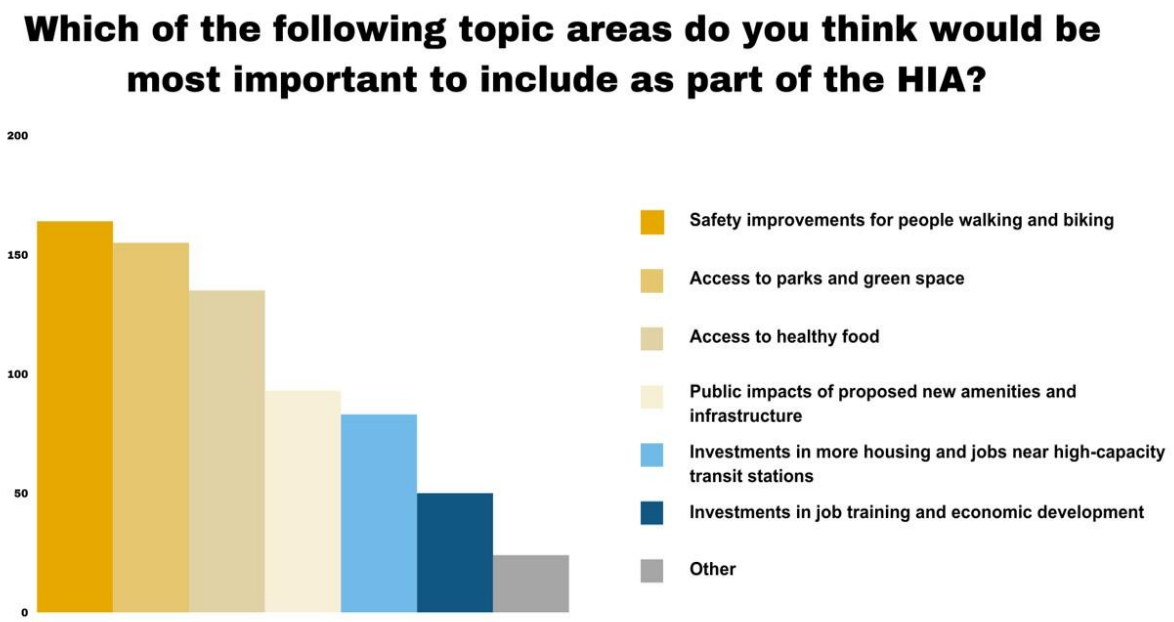

Figure 5. Distribution of responses to the community survey question about what topics should be assessed in the HIA.

Screening Decision

After reviewing the potential decision-points mentioned above, early community input, other HIAs that evaluated policies like the SAP, and through discussions with other Health Department and City staff, the Project Team decided the HIA would examine the potential health implications of planning decisions related to active transportation. The Project Team anticipated the assessment would include an analysis of how the inclusion, exclusion, or prioritization of code and policy changes related to active transportation along the corridor could both negatively and positively impact health outcomes.

Decisions made during the scoping phase allowed the HIA Team to determine what aspects of active transportation the HIA would focus on.

Scoping

During the scoping phase, the HIA team built on the screened decision by working with stakeholders to determine the potential health impacts that the HIA will examine.

Advisory Group

To begin the Scoping phase, the HIA Project Team established a seven-person Advisory Group. The Advisory Group provided consultation and insight to the Project Team throughout the HIA process and ensured a dedicated community presence and voice throughout the process as feasible. Members of the Advisory Group included members of the Picture Pac Ave SAP Advisory Committee, community leaders who use the Pac Ave Subarea, and subject matter experts who work for the City and the Health Department.

Community Feedback on Scoping

The HIA Project Team and the Advisory Group hosted a community open house in November 2023 to gain insights into community member experiences and perspectives on how health is impacted in the Pac Ave Subarea. Common themes emerged as topics of interest/concern for potential assessment in the HIA and are listed below alphabetically.

- Air Quality.
- Bike/Walk Experience.
- Driver Experience.
- Economic Opportunity.
- Governmental and Community Partnerships.
- Healthy Places.
- Inclusivity/Equity.
- Intergenerational Sustainability/Sustained Opportunity.
- Longevity / Mortality.
- Mental Health.
- Noise Pollution.
- Physical Activity.
- Preventive Health Infrastructure and Services.
- Public Transportation Frequency and Quality.
- Social Environment.
- Stormwater.

Assessment Topic Selection

Advisory Group members voted on the assessment topics listed above, indicating their first, second, and third priority topics. Based on the votes, the most prioritized topics were:

- Walking and Biking Experience (9 points).
- Preventive Health Infrastructure and Services (8 points).
- Healthy Places (7 points).
- Inclusivity/Equity (5 points).

The Project Team decided to limit the scope of the HIA to include an analysis of the Biking and Walking Experience and preventive health infrastructure and services, while working to integrate healthy places and inclusivity and equity into those analyses.

The Health Department added air quality as a third topic in the final HIA scope based on the regional importance of this issue, its connection to long-range transportation planning, and implications for environmental justice.

The final scope of the HIA includes the Walking and Biking Experience and Preventive Health Infrastructure and Services as the main topics, with Air Quality as a secondary focus for discussion and limited analysis.

Assessment

The communities and residents within the Pac Ave Subarea make important contributions to community health in a variety of ways. These communities are home to a variety of people, cultures, languages, gathering spaces, and resource centers, and a strong network of community leaders and local business owners. Important gathering and resource centers near Pacific Avenue include:

- Eastside Family Resource Center.
- Eastside Community Center.
- Eastside Community Health Care Clinic.
- Portland Ave Park and Community Center.
- Puyallup Tribe of Indians Community Center.
- Swan Creek Park.
- McKinley Park.
- Lincoln Park.
- Lincoln International District.
- Wapato Park.
- Charlotte's Blueberry Park

However, residents living near Pacific Avenue also experience inequitable access to quality community conditions compared to other areas of Tacoma and Pierce County. Challenges or barriers to accessibility, livability, education, economic opportunity, and the environment contribute to a patchwork of differing health-promoting opportunities for residents and people who frequent the area.[6]

People who live along Pacific Avenue experience some of the highest rates of poor health outcomes compared to other areas in Washington.[16] Chronic disease, mental health, and traffic injury are all health outcomes of concern along Pacific Avenue, though there is variation in these outcomes throughout the area.

In the following section, we characterize the current health outcomes facing people who live in the Pac Ave Subarea.

Current Health Characterization

To characterize current health outcomes for the community within Pac Ave Subarea, the HIA team created a HIA Study Area comprised of the census tracts that fall within the Pac Ave Subarea (Figure 6).

We selected which health outcomes to assess based on findings from the literature review and from concerns of the community. We pulled health outcome data from publicly available datasets:

- Electronic Surveillance System for the Early Notification of Community Based Epidemics (ESSENCE).
- Behavioral Risk Factor Surveillance System (BRFSS).
- Rapid Health Information Network (RHINO).
- Washington State Department of Health Death Certificate and Birth Certificate data.
- Washington State Cancer Registry.

We procured demographic data from the Washington State Office of Financial Management from 2019–2023.

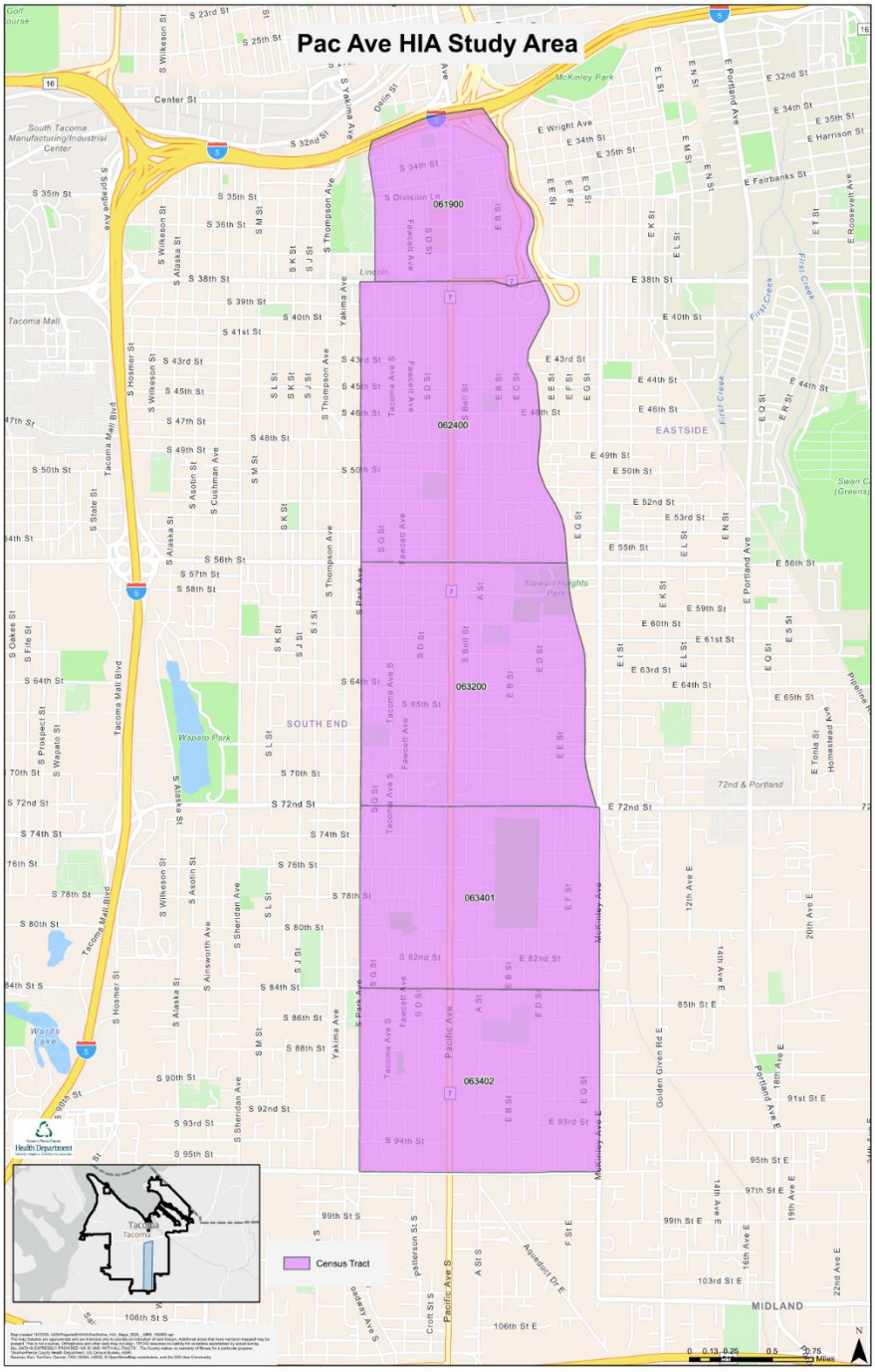

Figure 6. Pac Ave HIA Study Area.

We also retrieved demographic and health outcome data for all of Pierce County to make general comparisons. Some of the health data we analyzed showed meaningful differences between the Pac Ave HIA Study Area and Pierce County. These differences are statistically significant, meaning they are unlikely to be due to random chance or sampling error, and marked with an asterisk (*). The complete list of health outcome data retrieved for this assessment, selected definitions, and citations are shown in Appendix B.

About 21,846 people live within the Pac Ave HIA Study Area. Tables 2 and 3 show that compared to Pierce County, the Pac Ave HIA Study Area has a higher percentage of:

- People of color.
- People living in poverty.
- Households without a vehicle.
- People who speak English "less than well."[1]

Table 2. Demographics of residents in the Pac Ave HIA Study Area and Pierce County (2019-2023).[1]

	Pac Ave Study Area		Pierce County	
	Estimate	Percent	Estimate	Percent
Population	21,846	--	946,300	--
Sex				
Male	10,949	50.1%	476,788	50.4%
Female	10,897	49.9%	469,512	49.6%
Age Groups				
Infants & Toddlers (0-4 yrs)	1,305	6.0%	56,716	6.0%
Children & Teenagers (5-17 yrs)	3,362	15.4%	160,743	17.0%
Young Adults (18-34 yrs)	5,102	23.4%	217,180	23.0%
Adults (35-64 yrs)	8,722	39.9%	359,017	37.9%
Older Adults (65+ yrs)	3,355	15.4%	152,644	16.1%
Race				
White	10,817	49.5%	571,025	60.3%
Black or African American	2,112	9.7%	67,273	7.1%
Hispanic/Latino	3,251	14.9%	125,009	13.2%
American Indian & Alaska Native	328	1.5%	9,483	1.0%
Asian	2,371	10.9%	67,671	7.2%
Native Hawaiian & Other Pacific Islander	601	2.8%	19,889	2.1%
Two or More Races	2,366	10.8%	85,950	9.1%

Table 3. Select social determinants of health for residents of the Pac Ave HIA Study Area and Pierce County (2019–2023).[1]

	Pac Ave Study Area	Pierce County
% people of color	50.5%	39.7%
% who speak English "less than well"*	5.0%	3.8%
% living in poverty†*	17.5%	8.9%
% living with a disability	13.9%	13.7%
% households without a vehicle*	6.1%	5.2%

† Household income is at or below the Federal Poverty Level.

As seen in Table 4, compared to the larger Pierce County population, people who reside in the Pac Ave HIA Study Area experience significantly higher rates of:

- Asthma-related Emergency Department (ED) visits.[2]
- New cases of stomach cancer and lung cancer.[3]
- Years of potential life lost before age 65.[4]
- Death from diabetes, circulatory disease, heart disease, and all-cancers (rate of death for all cancer types combined).[4]
- Premature birth and low birth weight.[5]

Table 4. Select health outcomes for residents of the Pac Ave HIA Study Area and Pierce County.

	Pac Ave Study Area	Pierce County
	Rate per 10,000 ED Visits	
Asthma-related ED visits‡	550.4	483.9
	Incidence Rate per 100,000 New Cases	
Lung cancer*	70.4	55.2
Stomach cancer*	11.6	7.4
	Rate per 100,000 Deaths	
Years of potential life lost before age 65*	7,306.8	4,770.0
Diabetes mortality*	43.3	25.5
Circulatory disease mortality*	258.7	206.0
Heart disease mortality*	177.8	142.6
All-cancer mortality*	163.3	143.3
	Prevalence (% of total births)	
Premature birth*	12.6	10.7
Low birth weight*	8.2	7.1

* Significant differences exist when comparing the Pac Ave HIA Study Area data to that of Pierce County.
‡ These datasets are the actual rates of hospital ED visits, showing higher rates of visits in the Pac Ave HIA Study Area compared to Pierce County.

Because residents in the Pac Ave HIA Study Area experience higher rates of certain health conditions (like lung and stomach cancer) compared to the larger Pierce County population, they can be more sensitive to environmental exposures and social and economic conditions that could exacerbate symptoms and increase their vulnerability to worsened health outcomes.

Social Determinants of Health in some communities surrounding Pacific Avenue rank disproportionately lower than neighboring areas, according to the City's Equity Index.[6] Lastly, Ecology identified Eastside Tacoma as a community overburdened by air pollution.[7] All of these conditions present potential barriers to residents in these areas from achieving their best possible health outcomes.

Consequently, adopting a Picture Pac Ave Subarea Plan that is more protective of human health is one opportunity the City has to address these health disparities.

Walking and Biking Experience

This section of the assessment focuses on how the Picture Pac Ave SAP could influence the Walking and Biking Experience. To assess the Walking and Biking Experience, the HIA Team identified the following research questions:

- What makes up the walking and biking experience?
- How do walking and biking affect community health?
- What is the current state of the walking and biking experience along Pacific Avenue?
- How will changes to the walking and biking experience impact the relevant health determinants (i.e., external factors that influence a person's health)?

Defining the Walking and Biking Experience and its Impact on Health

Multiple factors contribute to the experience a person has when they walk, bike, or roll. The quality of this experience also plays a role in someone's choice (if they have a choice) to bike or walk. The walking/biking experience is influenced by the natural, built, and social environments. Understanding the factors which impact the walking and biking experience is necessary for proper investment and planning to provide the conditions and an environment that encourages walking and biking.

Natural Environment

The natural environment includes elements like greenspace, tree canopy, clean water for drinking and recreation, fresh air, and light.[8] These elements provide a pleasant atmosphere to encourage walking and biking. When greenspaces, like parks and trails, are easily accessible, people are more likely to walk or bike within these areas.[17, 18] Four studies from a systematic review evaluated the impact of green space on transportation bicycling (i.e., bicycling to reach a destination, rather than for recreation). All identified positive relationships between the presence of green spaces and transportation cycling.[19]

The natural environment can also be described by air quality and weather conditions, including temperature. Long term exposure to poor quality ambient air can lead to respiratory diseases like asthma, bronchitis, and lung cancer.[20] Inhaling polluted air during physical activity (like walking and biking) can exacerbate existing respiratory or heart diseases because respiration increases during exercise. This leads to more air entering the lungs, which can worsen the health effects of air pollutants.[21]

Hotter temperatures can also limit physical activity.[22] Multiple studies found that weather conditions affect the biking experience.[23] More specifically, extreme heat and humidity are barriers to biking, especially when combined with hilly terrain due to the increased risk of dehydration and heat exhaustion.[24]

Many studies show a direct association between decreasing tree canopy and increasing respiratory disease and other chronic conditions, and death.[25] The presence of a healthy urban forest reduces the risk of respiratory illnesses and cardiovascular diseases because trees mitigate air pollution by absorbing harmful pollutants known to cause these health conditions, including carbon dioxide, nitrogen oxides, sulfur dioxide, and particulate matter.[26, 27]

Choosing to bike or walk over motorized transportation reduces air pollution, greenhouse gas emissions, and traffic congestion.[28] Access to parks, forests, and green areas encourages physical activity. Regular exercise improves cardiovascular health, reduces stress, and enhances mental well-being.[29] Furthermore, exposure to nature, fresh air, and sunlight can also reduce stress, anxiety, and depression. It also enhances mood and cognitive function.[30]

Built Environment

The built environment encompasses all the physical components of where we live and work, like homes, buildings, streets, open spaces, and infrastructure.[31] In regard to the walking and biking experience, these components include accessible sidewalks, trails, bike lanes, and bike friendly paths. Well-maintained sidewalks encourage walking by providing safe pathways for pedestrians to walk from one place to another.[32] Designated bike routes encourage biking to be a viable mode of transport by providing a safe space away from vehicular traffic, reducing car collisions with pedestrians and cyclists, and related hospitalizations and emergency department visits.[33]

A systematic literature review indicated that bicycle-specific infrastructure (e.g., bike lanes and bike paths) have lower injury and crash risk, while multilane roundabouts without bike lanes, sidewalks, multi-use trails and major roads have higher risk.[34]

Population density plays a significant role in influencing use of walk/bike infrastructure. Higher population density often leads to compact development. In such areas, people can conveniently walk, bike, or roll shorter distances to work, shopping, or recreational opportunities. Low-density development with sprawling layouts may discourage walking and biking due to longer distances and limited connectivity.[35] Inaccessible or nonexistent pedestrian infrastructure contributes to sedentary habits. These habits can lead to poor health outcomes, including cardiovascular disease, diabetes, and certain types of cancer.[32]

Impervious surfaces like roads, parking lots, and buildings, etc. absorb and retain heat from the sun to create a heat island. Because of the way we have built infrastructure, many urban areas experience higher temperatures compared to their less urbanized surroundings. This difference in temperature is what defines an urban heat island (UHI).

Urban areas experience higher temperatures due to the urban heat island effect, which can exacerbate heat-related illnesses and heat stress.[26, 36] Planting trees and vegetation helps reduce UHI effects. Trees provide natural shade and evaporative cooling, helping to lower ambient temperatures and create more comfortable microclimates. By lowering temperatures, trees and vegetation help mitigate the health impacts of extreme heat. Mature trees provide these benefits on the largest scale.[37-39]

The built environment can be support a safe and enjoyable walk/bike experience by increasing sidewalk width, expanding bike lanes, and creating protected bike lanes to pleasurable destinations, among other strategies. When these types of infrastructure elements exist, people feel more comfortable walking or biking.[32]

Social Environment

The social environment includes the social relationships and cultural norms and practices within which defined groups of people function and interact. Often the built environment is included as a component of the social environment.[40] Having safe places to walk and bike like trails and parks for example, not only fosters social connection between people, but those social connections can also positively influence physical activity behaviors and lead to lower rates of chronic disease.[41] Connecting with others while enjoying the outdoors fosters a sense of community and reduces feelings of isolation.[30]

When people are socially connected and have stable and supportive relationships, they are likely to have better mental and physical health outcomes than those lacking these connections. They are also better able to cope with hard times, stress, anxiety, and depression. Research shows that people with stronger social bonds have a 50% increased likelihood of survival compared to those with fewer social connections.[42]

The social environment also includes actual and perceived sense of safety and security, which is influenced by presence of other pedestrians and cyclists, and elements of the built environment. Reported in both academic journals and by the HIA Advisory Group, poor nighttime lighting, closed businesses, vacant land, and parking lots can affect a person's sense of safety and security.[8, 53] Social environments that are more supportive of walking and biking include well-lit paths and pedestrian-friendly infrastructure. When people perceive their surroundings as safe, they are more likely to choose active transportation options rather than driving.[43]

Accessibility and connectivity to destinations is also a part of the social environment. Several studies found that the closer a destination, the greater the opportunity to increase walking or cycling. In addition, other studies suggest that the better adults perceive neighborhood street connectivity, the higher the probability of using walking or cycling as a mode of transportation, and the more reassured adolescents are about taking active modes of transportation to and from school. In communities that prioritize creating supportive communities, promoting safety, and emphasizing the benefits of active transportation, more people can choose walking and cycling as part of their daily lives.[44]

Characterization of the Walking and Biking Experience along Pacific Avenue

Natural Environment

While the Pac Ave HIA Study Area is near some large green spaces with pedestrian and bike friendly paths like Wapato Park and Swan Creek Park, many challenges in the area contribute to poor natural environment conditions.

Tree canopy and impervious surface cover is not distributed evenly in the City. Tacoma's tree canopy ranges from 3% in some census block groups to more than 60% in others. Tree canopy coverage is also not distributed equitably across Tacoma. Based on the Equity Index map, the average canopy cover in areas classified as very low opportunity (like much of Eastside and Southend Tacoma) is approximately 15%, while the average canopy cover in areas classified as very high opportunity is more than 26%.[45] The Pac Ave HIA Study Area has a tree canopy coverage of 18%. The lack of tree canopy in the Pac Ave HIA Study Area contributes to higher temperatures, which can be as much as five degrees warmer than other areas of the City.[6]

The Study Area is part of the geographies identified by Ecology as “overburdened by air pollution.” (Figure 7). This means that people that live in this area are at greater risk of adverse health impacts from air pollution because of their environmental surroundings and socioeconomic vulnerabilities. Compared to the statewide population, communities identified as “overburdened by air pollution” tend to have higher rates of chronic conditions and cardiovascular mortality, and average life expectancy is 2.4 years shorter in these communities.[7]

In general, older adults, children, pregnant people, and those with preexisting health conditions are most at risk from exposure to air pollutants, especially fine particulate matter ($PM_{2.5}$).[46] Particulate matter contains microscopic debris that are so small they can be inhaled, and in some cases enter the bloodstream.[47]

Those living near heavily trafficked roadways—like Pacific Avenue—exhibit the greatest cancer risk from air pollution, primarily driven by their exposure to Diesel Particulate Matter (DPM).

An equity analysis performed by the Puget Sound Clean Air Agency (PSCAA) in 2023 shows communities near heavily trafficked roadways often also have a higher percentage of residents who are people of color and and/or of lower income.[48] This finding has been replicated in studies assessing the effect of air pollution on health outcomes in other populations in other geographies.[49-50] Compared to Pierce County, the Pac Ave HIA Study Area has a higher percentage of people of color and people living in poverty.

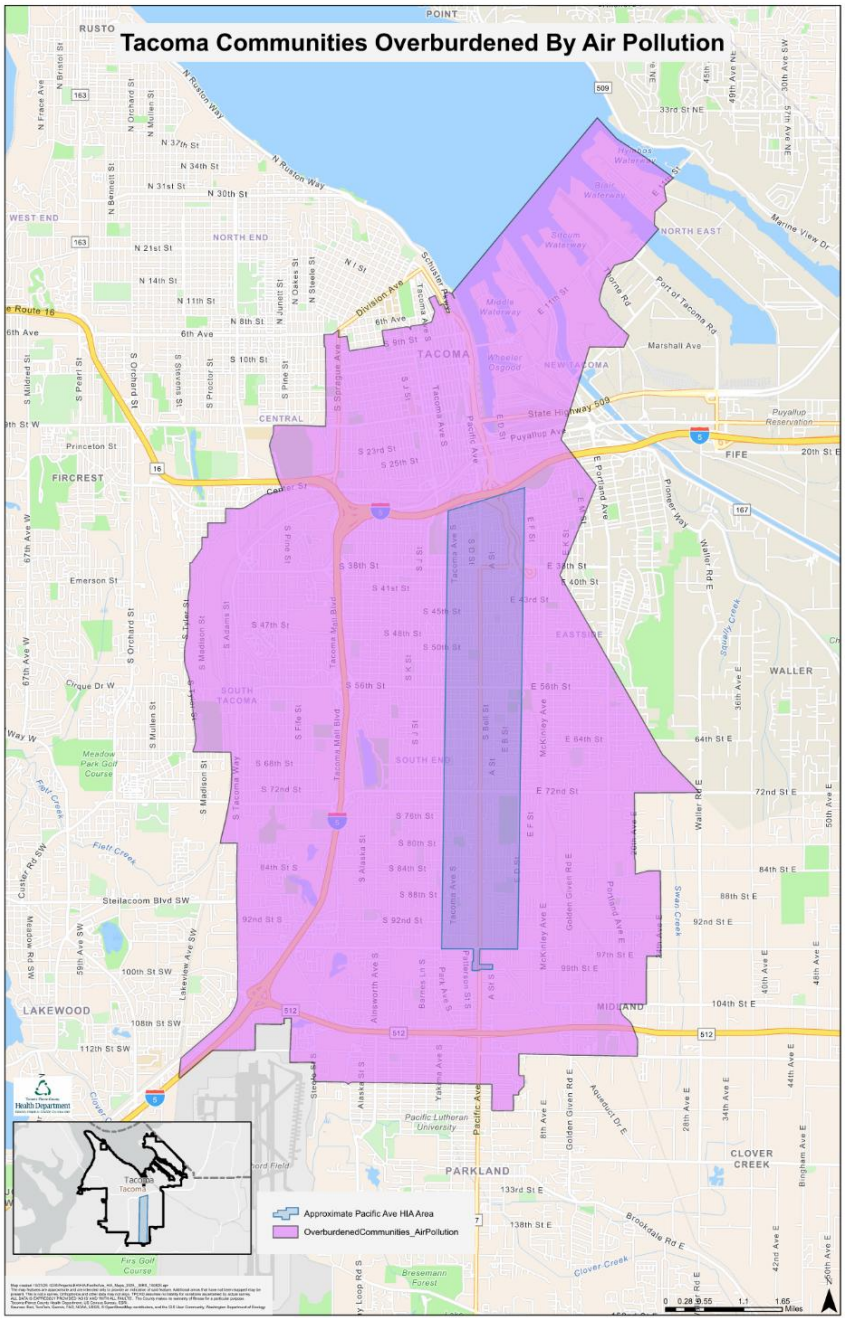

Figure 7. Tacoma's communities overburdened by air pollution.

Built Environment

While the Pac Ave HIA Study Area has many miles of sidewalk and a high density of public transit stops, many challenges in the area contribute to poor built environment conditions.

Environmental Protection Agency (EPA) defines walkability as "areas with mixtures of land use and transportation infrastructure that may encourage walking as a mode of transportation." The Study Area is considered very walkable by this index.[51] While Pacific Avenue may have some of the infrastructure needed to be "walkable", in many cases it is not safe to walk there.

Tacoma Vision Zero Action Plan identifies the Pacific Avenue Corridor as a "Pedestrian and Motorist High Risk Corridor." According to the plan, from 2016–2020, 28 people were killed or seriously injured in crashes along the corridor, of which 16 were pedestrians or bicyclists.[52] From 2022–2024, approximately 30 serious or fatal crashes involving bicyclists or pedestrians occurred in the Study Area.[6] Residents also report that sidewalks along Pacific Avenue need repair, are too dark and need additional lighting, and are not wide enough to accommodate strollers and walkers.[53]

During the City's 2023 community engagement sessions, residents could share their input and ideas regarding the Picture Pac Ave Subarea Plan on an online ideas wall. Using this platform, community members shared concerns around not feeling safe and not having an aesthetically pleasing environment in which to walk and/or bike. Residents cited that Pac Avenue is "unpleasant and treacherous to walk" and needs "safer paths for both pedestrians and cyclists."

Social Environment

As highlighted above, the Study Area is on average not conducive to creating a safe and healthy social environment for walking and biking. Some residents do not feel safe in the area. Reported in both academic journals and by the HIA Advisory Group, poor nighttime lighting, closed businesses, vacant land, and parking lots can affect a person's sense of safety and security.[8, 53]

Another data point in the characterization of the social environment in the Study Area is the results of the Action Mapping Project. This project was a collaboration between Tacoma high school students and undergraduate and graduate students from the University of Washington Tacoma. The Action Mapping Project maps youth experience, perceptions, and use of neighborhood space.

Figure 8 shows opportunities for improvements in walkability for Tacoma's youth. Priority areas highlighted in white and pink are the areas youth participants identified as routes they use for active transportation (walking, biking, skateboarding, scootering, etc.). They perceive these routes as unsafe or otherwise unsuitable for active transportation.[54]

Within the Study Area (red outline) Pacific Avenue between South 37th Street and South 58th, and the intersection of South 72nd are areas that if prioritized for investment could result in improvements in the walking and biking experience for youth.

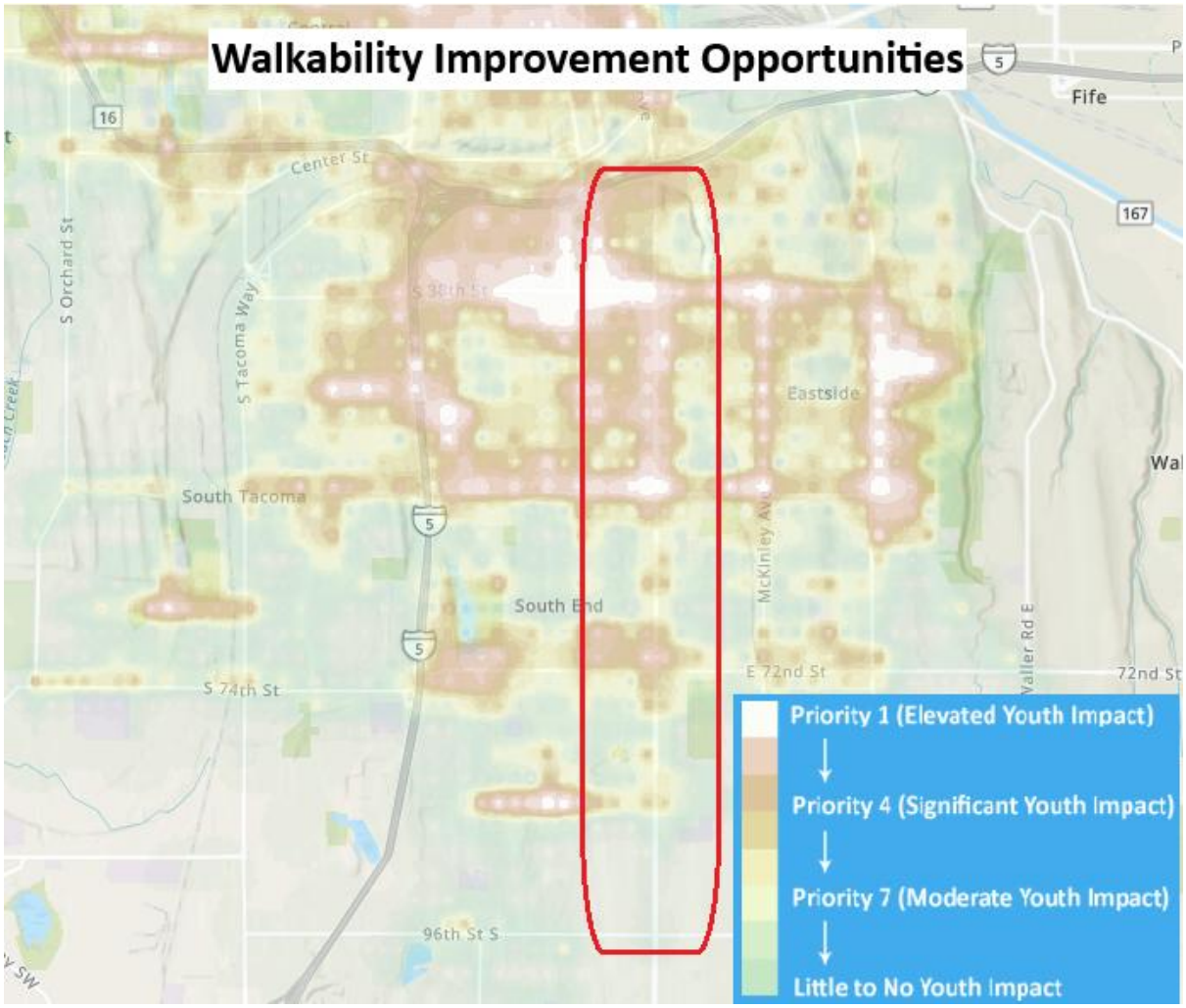

Figure 8. Walkability Improvement Opportunities identified by the Action Mapping Project.[54]

However, the area does boast higher than average access to public transit options, which can increase social connection for the area's residents. Many of the transit stops along Pacific Avenue are uncovered. Some HIA Advisory Group members said it makes them feel disrespected or like "the City does not care about them."[53]

Assessment of the Pac Ave Subarea Plan Impact on the Walking/Biking Experience

The Growth Strategy, Complete Neighborhoods, and Transportations goals of the SAP are likely the most impactful to the walking and biking experience in the Study Area. Mostly long-term positive effects for health, with some minor potential for negative effects on the residents that live and work on the corridor can be expected. None of the effects are likely to be immediate but will be seen over time as the SAP is implemented.

Each Transportation goal will influence the built, natural, and social environments. Well-designed built environments make it easier and more enticing for people to use active transportation, therefore increasing physical activity.[9] Connecting activity-friendly routes to everyday destinations can increase physical activity levels by walking, biking or rolling, which can ultimately improve chronic disease outcomes like cardiovascular health in all populations.[9]

Social connection and sense of community will also increase because there will be access to walkable destinations and healthy places. Walkable communities promote social health by encouraging walking and other outdoor activities, and thereby, facilitating social interactions among neighbors.[10]

Residents' sense of community is greater in a pedestrian-oriented neighborhood than in an auto-oriented counterpart, and the perception of pedestrian environment is the most significant predictor of sense of community.[10] All these factors work together and reinforce one another to improve the walking and biking experience, and thus improve community health. We summarized each goal's potential impacts below.

Growth Strategy Goals

The Growth Strategy goals of the Picture Pac Ave SAP are:

G.1	Develop healthy communities with community-serving mixed-use centers.
G.2	Ensure equitable access to daily essentials within a 15-minute walk.
G.3	Expand housing options across a range of housing types and prices.
G.4	Promote new, and retain existing, affordable housing.

Planning for a neighborhood where residents have access to a variety of services and retail options within walking and biking distance, while maintaining the affordability of existing housing, and expanding housing options across a range of housing types and prices can have many public health benefits. If more residents walk, bike, or roll to nearby services and retail stores—instead of driving or taking public transit—social connections may grow, and long-term air quality may improve by reducing vehicle emissions.

However, there may be negative near-term impacts on existing greenspace if it is not protected during new development. Further, as more people walk and bike, they will be exposed to nearby vehicle emissions and will be at a greater risk of injury due to increased exposure to traffic while they walk, bike, or roll.

Promoting new and retaining existing affordable housing will be particularly important as property values in the area may rise as services and retail options expand. In other words, one potential impact of the City's investments and actions to improve conditions along Pacific Avenue is gentrification. This process has been defined in many ways and is often thought of as negative, but typically refers to when an area that historically faced divestment and economic decline experiences increased investment, leading to new residents with higher incomes and more resources moving into the neighborhood, displacing current working-class residents with lower incomes and fewer resources. [55-58]

With gentrification, existing locally owned businesses may also be displaced as commercial rents rise, and/or business owners themselves are displaced. As culturally relevant businesses and institutions leave an area, cultural displacement may occur when residents leave an area because they no longer feel a sense of belonging, or they are no longer being served by the new businesses in their neighborhood.[102]

A recent systematic review explores the relationship between gentrification and population health impacts.[59] The authors found evidence of a significant association between gentrification (and similar urban renewal processes) and health, but with mixed results and many nuances. In some studies gentrification was associated with positive health impacts, while in others it was associated with negative health impacts.

Associations also differed depending on if the outcome was being studied in a subset of the population, or the general population. The studies examined how gentrification and similar renewal processes impacted a variety of health outcomes including: homicide, violence, safety, mortality, birth outcomes, health behaviors like physical activity, healthcare access and children's behavioral health, chronic diseases (cancer, hypertension), self-rated health and general illness, mental health, and blood lead levels.

Importantly, multiple studies show that white populations or residents of white majority neighborhoods benefited from gentrification, while Black populations experienced negative health impacts from gentrification. The authors noted multiple limitations of their review including the difficulty of comparing results due to the varying definitions of gentrification, the use of many different types of data, the broad range of health impacts examined across studies, and the inclusion of studies on general and subpopulations.[59]

Complete Neighborhood Goals

The Complete Neighborhood goals of the Picture Pac Ave SAP are:

C.1	Strengthen distinctive, community-focused identities in centers and transit station areas.
C.2	Activate public spaces with community and cultural programming.
C.3	Support community-led placemaking initiatives.
C.4	Design a resilient pedestrian- and transit-friendly public realm.

Planning for a neighborhood that highlights and enhances community identity through activating public spaces while promoting safe and accessible active transportation and public transit systems should have many public health benefits. As the neighborhood is enhanced with community and cultural programming and community-led placemaking initiatives in public spaces, residents will likely feel safer to use these public spaces for walking, biking, and rolling. Air quality may improve in the long-term, as more people shift from using SOVs to these active transportation modes. This mode shift can also result in decreasing traffic congestion and reduced risk of traffic-related injury in the long-term.

The immediate risk of injury may increase however, as more people transition to active transportation. We expect these risks to be mitigated in the long-term as more active transportation infrastructure improvements come online. The overall impact on air quality and social interaction will be positive, though any positive impacts that may be felt through increased exposure to nature will depend on the integration of green spaces into the pedestrian environment. Enhancing streetscapes with trees and other vegetation types will also enhance air quality benefits as these elements help filter air pollution from vehicles, mitigating the near-term risk of increased exposure to vehicle emissions as more people walk, bike, and roll along Pacific Avenue.

The health effects will primarily occur along the corridor for populations engaged in walking, biking, and rolling—and those shifting to those modes. Improvements in air quality and reduced traffic congestion could benefit the entire city over the long term.

Transportation Goals

The Transportation goals of the Picture Pac Ave SAP are:

T.1	Prioritize safe and people-centered streets.
T.2	Connect surrounding neighborhoods to Pacific Avenue.
T.3	Support and enhance future transit improvements including safe, high-quality station areas.
T.4	Develop solutions for parking and curb management.

Planning a neighborhood that prioritizes safety of residents using active transportation while connecting them to resources, services, and communities outside their neighborhood through enhanced public transit can improve public health. Urban planning and road design aimed at restricting vehicle ease of movement can facilitate a significant mode shift. If residents feel safer using active transportation modes (walking, biking, and rolling) and public transit services, they are more likely to shift to those modes over SOV use.

Air quality may improve in the long-term as vehicle emissions will decrease when more people shift from using SOVs to these active transportation modes. While there is an initial risk of injury with increased pedestrian and cyclist activity, well-designed streetscapes with safe crossings and narrower streets can mitigate this risk.

This mode shift can also result in decreasing traffic congestion and reduced risk of traffic-related injury in the long-term. If parking and curb space is optimized to favor bike lanes, pedestrian walkways, and alternative transportation, reliance on SOVs will reduce, fostering healthier lifestyles through increased physical activity, enhanced social connections, and improved air quality in the long-term. The overall impact on air quality and social interaction will be positive, though any positive impacts that may be felt through increased exposure to the outdoors will depend on the integration of green spaces into the pedestrian environment.

These health impacts will be felt primarily by residents and users of Pacific Avenue and surrounding routes, benefiting local residents, including low-income and diverse groups, with minimal negative health effects.

Preventive Health Infrastructure and Services

This section of the assessment focuses on how the Picture Pac Ave SAP could influence Preventive Health Infrastructure and Services within the Subarea. To assess preventive health infrastructure and services, the HIA Team identified the following research questions:

- What does preventive health infrastructure and services include?
- How do preventive health infrastructure and services affect community health?
- What is the current state of preventive health infrastructure and services along Pacific Avenue?
- How will changes to the current preventive health infrastructure and services along Pacific Avenue impact related health determinants (i.e., external factors that influence a person's health)?

Defining Preventive Health Infrastructure and Services

Preventive health is a broad term that can refer to many activities and services that reduce the risk for disease, disability, and death before they occur.[11] Centers for Disease Control and Prevention recognize that clinical

providers, public health practitioners, insurers, and community-based organizations all contribute to preventive health infrastructure and services.[61] Public health infrastructure includes local, state, territorial and tribal health departments, the activities of those health departments, the public health workforce, public health data and surveillance, and collaboration with the health sector to promote population and community health.[62]

During the November 2023 HIA community open house, community members shared thoughts on aspects of preventive health infrastructure and services like the importance of having access to a pharmacy in the community, access to clinics, and the importance of having positive mental health. When the advisory group voted on topics of focus for the HIA, the preventive health infrastructure and services topic included reference to primary care and core public health functions related to primary and secondary prevention.

Health Impacts of Preventive Health Infrastructure and Services

Preventive care reduces the risk for poor health outcomes by helping people and populations develop knowledge, practice behaviors, live in environments and receive care that support health and allow illness to be identified and managed early in its progression. While primary care, mental health and pharmacies primarily target services to people, public health activities seek to monitor health outcomes at the population level and deliver programs that prevent poor health outcomes among entire communities and populations.

To balance the scope of the HIA, the importance of access to health services, chronic disease, and mental and behavioral health highlighted in the Pierce County Community Health Needs Assessment,[63] and the feedback shared during the community open house, this assessment focuses on preventive health infrastructure and services administered by the public health agencies, primary care clinics, mental health clinics, and pharmacies, and how residents access these resources.

Public Health

The Foundational Public Health Services framework identifies the minimum public health capabilities and programs within the domain of governmental public health, including foundational capabilities like assessment and surveillance, community partnership, emergency preparedness and response, among others.[64] Governmental public health agencies provide these capabilities within the community-specific services of communicable disease control, chronic disease and injury prevention, environmental health, maternal, child and family health, and access to and linkage with clinical care. Some public health agencies provide substance use treatment.

Public health agencies often provide services that are not otherwise available from other preventive health facilities, providing fundamental healthcare services to individuals, while fostering a framework the population-based services noted above that keep entire communities healthy.[107, 108]

Primary Care

Primary care is associated with better access to healthcare services, positive health outcomes, and fewer hospitalization and emergency department visits.[65] Additionally, primary care, in contrast to specialty care, is associated with a greater distribution of health in populations.[66] Preventive health care includes regular well checks with a primary care provider; blood pressure, diabetes, and cholesterol tests; cancer, colonoscopy, depression and other screenings; routine vaccinations, and dental care.[11, 67]

Since the passage of the Affordable Care Act in 2010, private health plans are required to cover many essential preventive health services, including a variety of services under the broad categories of evidence-based screening and counseling, routine immunizations, preventive services for women, and preventive services for children and youth.[68]

Mental Health

The Health Department identifies a broad range of factors that impact behavioral health, or the way people think, feel and act, like social connection, environmental conditions, physical health, and substance use. Mental or behavioral health is preventive by nature because having good behavioral health helps people "navigate life, have positive relationships and adapt to change." While poor behavioral health can contribute to additional health concerns like injury from substance use.[69] A variety of approaches have been implemented to promote positive mental health and prevent mental illness in different settings including schools, workplaces, clinical settings, and the community.[70]

Pharmacies

Though typically known for dispensing medication, pharmacies increasingly play a role in delivering preventive health services, including providing education, conducting screenings, and making referrals to other providers.[78] A systematic review of health-promoting services provided in pharmacies identified a variety of services that pharmacists provide to community members including education, vaccination, screening and prevention of disease, family planning, blood pressure monitoring, quitting smoking, adherence to medication, and medication consultation, among others.[71]

Access to Care

Access to care is measured in many ways. For the purposes of this assessment, we will use the Access to Care Framework developed by Levesque, Harris and Russel (2013). It describes the various ways a person may access preventive healthcare infrastructure and services, and their ability to do so.[72] To balance the scope of the HIA, the availability of data, and the ways in which the SAP could most likely have an impact on access to care, the Assessment focuses on components of access related to availability of facilities, services and providers; ability of residents to obtain transportation to reach preventive care; and ability of residents to obtain insurance coverage to help pay for care (Figure 9).

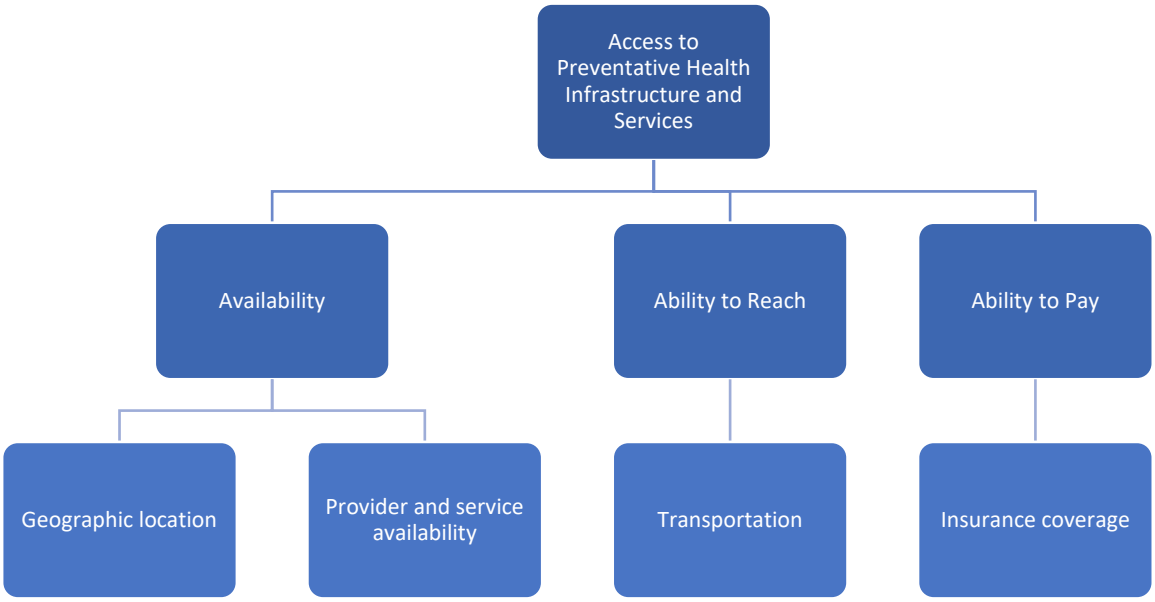

Figure 4. Conceptual framework on access to preventive health infrastructure and services, adapted from Levesque et al., 2013.

Availability

When primary care clinics are not available in a neighborhood, residents are more likely to delay their care and seek care in an emergency setting. This increases the cost for patient and provider and contributes to the increased severity of the disease when treated.

A cross-sectional study of ED visits by pediatric patients in Washington DC between 2003–2006 found fewer primary care clinics in a neighborhood was associated with more frequent use of the emergency department for non-urgent use. Non-urgent visits were more likely in neighborhoods where poverty was greater, for patients using public insurance (versus private), and for African American and Hispanic children compared with white children, highlighting the structural barriers communities of color face at the individual, neighborhood, and system levels of the health care system.[73]

Another study of ED admissions from 2007–2011 in Chicago found patients who lived in medically underserved areas and had lower access to primary care clinics were more likely to visit the ED than a primary care provider for preventable conditions. This study also found community members who have more access to housing, food, transportation, and other social needs may have improved access to preventive services.[74]

A Health Affairs study found patients with access to enabling services—support services that help people access and receive healthcare like transportation and interpretation services—had higher probability of getting routine checkups and having a flu shot.[75] Beyond primary care providers, community pharmacies can be particularly helpful in increasing access to preventive services for those who do not have a regular primary care provider because of the convenience of their locations and extended hours of operation. A review of the health and economic impacts of community-pharmacists found benefits like increasing immunization rates, supporting smoking cessation, managing hormonal contraception therapies, and identifying patients at high risk for certain diseases.[76]

In addition to facilities like clinics and pharmacies, the availability of providers to deliver services in those facilities is a key component of availability. A study of the association between primary care physician supply and population mortality between 2005–2015 found every additional ten primary care physicians per 100,000 people was associated with a 51.5-day increase in life expectancy.[77]

Ability to Reach

The ability to reach or get to preventive care is another key component of access. Not having affordable and reliable transportation can result in delayed or missed appointments.[79] One study found lack of access to a private vehicle was more likely among Black adults, low-income families, adults with a disability, and adults with public insurance. Additionally, those without access to a vehicle who lived in an area with fair or poor access to public transit were more likely to miss health care even when they needed it because of transportation difficulty compared to those with better transit access.[80]

Lack of transportation disproportionately harms certain communities who rely most heavily on it to get around, making ability to reach a health equity issue. This includes older adults, people with disabilities, and people who commute to work. Women, young adults, Black workers and low-income workers make up most commuters.[81] A recent study of National Household Travel Survey data highlighted the importance of removing access barriers to health care to communities disproportionately facing social and economic disadvantage and racism. The study found low-income Black respondents reported a longer trip duration than low-income White respondents, even when they traveled a similar distance to care.[82]

In another study, 20% of older transit users said they rely on trains and buses to get to doctors' appointments. Using public transit for medical appointments can pose multiple challenges for seniors as they may have to battle inclement weather, face multiple chronic conditions that could be exacerbated by outdoor conditions, may have mobility challenges, and may be more likely travel alone, lacking the social support of having a known advocate with them for appointments.[83]

A systematic review of pharmacy mapping found geographical accessibility is a key component of access to medicines, but additional factors like opening hours, density of pharmacies, presence of a pharmacist, delivery services, as well as population perception of accessibility also play a role.[84]

Ability to Pay

For most United States residents, health coverage is a significant determinant of ability to pay for health care. The Affordable Care Act substantially increased access to preventive services by requiring no-cost sharing for several preventive services. Studies of the impact of the policy demonstrated increased colon cancer screening, vaccinations, use of contraception, and chronic disease screening.[85]

The relationship between insurance coverage and health outcomes is complex, but a review of the evidence from 2007–2017 found insurance coverage increases access to care and improves a variety of health outcomes.[86] While health coverage alone is not sufficient to improve health outcomes, studies show having health coverage is associated with improved access to care and better health monitoring.

Characterization of Preventive Health Infrastructure and Services along Pac Ave

Availability

Overall, a substantial shortage of all types of preventive care providers in Pierce County exists. Pierce County has been designated as a Medically Underserved Area. This means there is a lack of access to primary care services.[12] As of 2023, there are 70 primary care providers per 100,000 residents.[87] To achieve the target ratio identified by the Health Resources and Services Administration of one PCP per 3,500 residents, Pierce County would need an additional 271 PCPs.

Public Health

There is one public health agency located in the Study Area—the Health Department. The Health Department offers a variety of preventive health services, including: comprehensive substance use assessment, screening and testing for drug and alcohol, screening for mental disorders, tobacco screening, opioid addiction treatment, programs for pregnant and postpartum women, transportation and housing assistance, mentoring and peer support, and sexually-transmitted infection and HIV (human immunodeficiency virus) education and counseling. The Health Department does not provide primary care or basic pharmaceutical services.

Primary Care

There are two primary care clinics in the Study Area on the northern end of Pacific Avenue at the intersection with South 37th Street. There are a few primary care clinics just south of the Pac Ave Subarea along Pacific Avenue in Parkland and Spanaway.

Of the people residing in the Study Area, 76.2% reported to have a PCP.[88]

Mental Health

The Study Area has four behavioral health providers on Pacific Avenue, concentrated in the middle and northern ends. Services provided at these facilities include consultation and counseling for depression, anxiety, and other chronic mental health conditions, trauma and PTSD, behavior management, parental training, and social skills for children, among others.

Pharmacies

There are four pharmacies in the Study Area, three of which are directly on Pacific Avenue. They offer a variety of services including medication management, blood pressure testing, a variety of health screenings including biometric, blood sugar, and cholesterol, and immunizations.

Ability to Reach

For the purposes of this assessment, the ability to reach preventive health services is defined as the ability to use a mode of transportation (walking/biking/rolling, public transit, or personal vehicle use) to reach a needed heath service. Walkability, distance to the nearest transit stop, and household vehicle access vary along the corridor.

EPA defines walkability as “areas with mixtures of land use and transportation infrastructure that may encourage walking as a mode of transportation.” The Study Area is considered very walkable by this index.[51]

While Pacific Avenue may have some of the infrastructure needed to be considered “walkable”, in many cases it is not safe to walk there.

Tacoma Vision Zero Action Plan identifies the Pacific Avenue Corridor as a “Pedestrian and Motorist High Risk Corridor.” According to the plan, from 2016–2020, 28 people were killed or seriously injured in crashes along the corridor, of which 16 were pedestrians or bicyclists.[52] From 2022–2024, approximately 30 serious or fatal crashes involving bicyclists or pedestrians occurred in the Study Area.[6] Residents also report that sidewalks along Pacific Avenue need repair, are too dark and need additional lighting, and/or are not wide enough to accommodate strollers and walkers.

Residents of the Study Area have many nearby transit routes, including rail and bus service stops, park and ride locations, and are within Pierce Transit’s Core Shuttle service area. However, residents in the southeastern area of the Study Area are further away from a transit stop than residents in other areas of the Study Area.[6]

In addition to its regular service, Pierce Transit introduced its Stream Community Line in the summer of 2025. The Stream Line runs along Pacific Avenue from the Tacoma Dome to Spanaway, with buses serving the most frequently-used stops every 20 minutes during peak morning and evening commute times.[89]

Household vehicle access also varies throughout the Study Area. The percentage of adults who lack reliable transportation goes from 8.8% in the northern end of the Study Area, steadily increasing to 14.6% in the southern end of the Study Area.[13] 6.1% of households do not have access to a vehicle, which is significantly higher than the whole Pierce County population.[1]

Ability to Pay

Insurance coverage is an important factor related to American’s ability to pay for health coverage. On average, an estimated 10% of residents in the Study Area—steadily increasing from 8.8% in the northern end to 13.4% in the southern end of the Study Area—do not have any form of health insurance.[13]

Among people ages 19–64 who reside in the Study Area, only 57.6% have employer-sponsored health insurance, compared to Pierce County’s 66.7%.[1]

Among everyone who resides in the Study area, 43.4% have public health insurance, compared to Pierce County’s 35.5%.[1]

Assessment of the Pac Ave Subarea Plan Impact on Preventive Health Infrastructure and Services

Goals related to expanding transit infrastructure are most likely to have the greatest, most immediate, and most equitable impact on access to preventive health infrastructure and services. Goals that may result in significant changes to the character of the neighborhoods along Pacific Avenue are less likely to have any immediate impact, and could also have important negative impacts on access, particularly for low-income residents who are at risk of being the most burdened by potential increases in the cost of rent.

A national panel of experts seeking to understand how to achieve health equity in preventive services noted that addressing cost or insurance coverage alone would be insufficient, and that any successful solution will

include holistically addressing the social determinants of health and collaboration outside of the clinical care sectors and between clinical and non-clinical partners, including public health agencies.[90, 108] Additionally, community members may have improved access to preventive services when they have support that increases their access to housing, food, transportation, and other social needs.

A Health Affairs study found health center patients with access to enabling services had a higher probability of getting routine checkups and having a flu shot.[75]

Public health agencies can fill these health needs with additional funding and resources.[108] For these reasons, specific transportation related plan elements may be most likely to have an impact on overall access to preventive health services if they expand transportation options while also increasing economic opportunity, expanding access to affordable housing, and increasing access to affordable and healthy food.

The Growth Strategy, Complete Neighborhoods, Transportation and Economic Opportunities goals of the SAP are likely to be most impactful to the Preventive Health Infrastructure and Services along Pacific Avenue and will most likely be felt in the long-term.

Growth Strategy Goals

The Growth Strategy goals of the Picture Pac Ave SAP are:

G.1	Develop healthy communities with community-serving mixed-use centers.
G.2	Ensure equitable access to daily essentials within a 15-minute walk.
G.3	Expand housing options across a range of housing types and prices.
G.4	Promote new, and retain existing, affordable housing.

Planning for a neighborhood where residents have access to a variety of services and retail options within walking and biking distance, while maintaining the affordability of existing housing, and expanding housing options across a range of housing types and prices can have many public health benefits. This type of investment and development will likely attract new residents and employers—potentially including healthcare providers.

However, the impact the Growth Strategy goals could have on access to preventive health infrastructure and services is minimal due to lack of incentives for medical providers to locate in the area. These Growth Strategy goals may enhance residents' ability to reach nearby preventive health infrastructure and services but can't guarantee that those services will be available without more intentional outreach to—and coordination with—healthcare providers, and/or additional funding for public health agencies to increase their services and reach.

Complete Neighborhood Goals

The Complete Neighborhood goals of the Picture Pac Ave SAP are:

C.1	Strengthen distinctive, community-focused identities in centers and transit station areas.
C.2	Activate public spaces with community and cultural programming.
C.3	Support community-led placemaking initiatives.
C.4	Design a resilient pedestrian- and transit-friendly public realm.

Planning for a neighborhood that highlights and enhances community identity through activating public spaces while promoting safe and accessible active transportation and public transit systems should have many public health benefits. Transit, bike, and pedestrian connections could improve access to preventive health services by reducing transit time and expanding route options.

These connections could significantly benefit residents who rely on public transportation, especially in areas with low vehicle ownership and high Medicaid coverage. With nearly 45% of residents in the Study Area having public insurance, the impact on economically vulnerable populations is substantial. Enhanced transit connections will likely distribute benefits in areas with existing transit stops, easing access to health-related facilities for those with limited transportation options.

Transportation Goals

The Transportation goals of the Picture Pac Ave SAP are:

T.1	Prioritize safe and people-centered streets.
T.2	Connect surrounding neighborhoods to Pacific Avenue.
T.3	Support and enhance future transit improvements including safe, high-quality station areas.
T.4	Develop solutions for parking and curb management.

Planning a neighborhood that prioritizes the safety of residents using active transportation while connecting them to resources, services, and communities outside their neighborhood through enhanced public transit can improve public health. Like the Growth Strategy goals, these Transportation goals could increase access to preventive health infrastructure and services because more residents, especially those with limited mobility or other transportation barriers may be more likely to use transit as the transit infrastructure becomes safer.

However, these investments can't guarantee that the preventive health infrastructure and services needed will be accessible and available to residents without intentional outreach to- and coordination with—healthcare providers, and/or additional funding for public health agencies to increase their services and reach.

Economic Opportunities Goals

The Economic Opportunities goals of the Picture Pac Ave SAP are:

E.1	Strengthen equitable economic opportunities for existing and new businesses.
E.2	Support workforce development and job access.
E.3	Advance a green and creative economy.
E.4	Create an employment-focused district along the southern corridor.

Creating opportunities for new businesses to locate in the area and for existing businesses to expand could result in more local employers that offer employer-sponsored health insurance. While some new businesses could be preventive health facilities, many are likely to be for-profit establishments like restaurants and fitness centers.

The short-term impact on access to preventive health services—particularly, the ability to pay for services will be minimal. The long-term effects could be significant if the City's investments lead to gentrification—new residents with higher incomes and more resources moving into the neighborhood, displacing current working—class residents with lower incomes and fewer resources. Locally owned businesses may also be at risk of displacement.

Promoting new and retaining existing affordable housing, and preserving and incentivizing existing businesses, will be particularly important as property values in the area may rise as services and retail options expand.

The distribution of these impacts is uncertain and will depend on the types of businesses that locate in the area and who benefits from them. The negative impacts of could be most impactful to residents of color and low-income residents in the area.

Air Quality

Washington State Department of Ecology determined both the Eastside and South Tacoma (which includes the South End in their assessment) are communities overburdened by air pollution. This means the people that live in these areas are at greater risk of adverse health impacts from air pollution because of their environmental surroundings and socioeconomic vulnerabilities. Compared to the statewide population, communities identified as overburdened by air pollution tend to have higher rates of chronic conditions and cardiovascular mortality, with the average life expectancy being 2.4 years shorter in these communities.[13]

In general, older adults, children, pregnant people, and those with pre-existing health conditions are most at risk from exposure to air pollutants, especially fine particulate matter ($PM_{2.5}$).[91, 92] Particulate matter contains microscopic debris that are so small they can be inhaled, and in some cases enter the bloodstream.[47]

Those living near heavily trafficked roadways—like Pacific Avenue—have a higher risk of developing cancer because of their exposure to Diesel Particulate Matter (DPM). An equity analysis performed by PSCAA in 2023 shows communities near heavily trafficked roadways often also have a higher percentage of residents who are people of color and and/or of lower income.[92]

This finding has been replicated in studies assessing the effect of air pollution on health outcomes in other populations in other geographies.[49, 50] Compared to Pierce County, the Picture Pac Ave Subarea has a higher percentage of people of color and people living in poverty.

Because the Pac Ave SAP will largely focus on community planning strategies that enhance the pedestrian experience by incorporating safer infrastructure and increasing transit services, thereby reducing vehicle traffic, the assessment of Air Quality will focus on Traffic Related Air Pollution (TRAP).

Traffic Related Air Pollution

Traffic Related Air Pollution (TRAP) is a significant health concern for populations living near heavily trafficked roadways. TRAP consists of both tailpipe and non-tailpipe emissions. Tailpipe emissions include nitrogen dioxide (NO_2), elemental carbon, black carbon, hydrocarbons, carbon monoxide (CO), nitrogen oxides, DPM,

and $PM_{2.5}$, as well as the Volatile Organic Compound (VOC) group called BTEX (benzene, toluene, ethylbenzene, and xylene).[93, 94]

Non-tailpipe emissions also present human health risks largely due to the resuspension of road dust that can include $PM_{2.5}$ and heavy metals left behind from the wear and tear of tires, brakes, and roadway surfaces.[93-95] Many negative health outcomes are associated with long term exposure to TRAP including many cancers (particularly lung, liver, colorectal) respiratory disease, cardiovascular disease, lung disease, heart attacks, asthma onset in children and adults, acute respiratory infections in children, increased hospital admissions and emergency department visits for respiratory and cardiovascular problems, and low birth weight.[50, 91-98]

Multiple studies show associations between exposure to $PM_{2.5}$ and gastric (i.e., stomach) cancer,[103-105] and associations between TRAP and stomach cancer mortality.[106] Other lifestyle factors associated with stomach cancer include diets high in red meat, high-fat diets, high-salt diets, heavy alcohol consumption, and smoking.[103]

Several studies show concentrations of TRAP decline to background concentrations between 100–570 meters from the road's edge.[99-101] One of these studies quantified the risk of premature mortality due to $PM_{2.5}$ exposure in terms of proximity to a roadway. Researchers found premature mortality risk was almost 30% greater for people who lived within 100 meters from the roadway compared to people 101–200 meters away, and almost 180% greater than people living 201–300 meters from the roadway.[101]

Assessment of the Pac Ave Subarea Plan Impact on Air Quality

The Growth Strategy, Complete Neighborhoods, and Transportations goals of the SAP are likely to be most impactful to air quality in the study area and neighboring regions. If more residents walk, bike, roll, or take public transit to nearby services and retail stores instead of driving, long-term air quality may improve by reducing vehicle emissions. Enhancing streetscapes with trees and other vegetation types will also enhance air quality benefits as these elements help filter air pollution from vehicles, mitigating the near-term risk of increased exposure to vehicle emissions as more people walk, bike, and roll along Pacific Avenue.

Improvements in air quality from reduced traffic congestion could benefit the entire city over the long term. Acute health benefits of the people who walk, bike, or roll along Pacific Avenue are unlikely to change because they will still be exposed to very nearby vehicle emissions. This exposure could be mitigated slightly by placing vegetated buffers between the roadway and the sidewalk and other active transportation routes.

Recommendations

In 2017 City of Tacoma adopted a Health and Equity in All Policies Resolution (Res. No. 39893). The resolution acknowledges “public policies can contribute to the health inequities visible throughout Tacoma, resulting in large variances in quality of health and life expectancy.” Further, the resolution directed the City to “analyze proposed policies using a health and equity lens.” This HIA is one tool the City is using to develop the Picture Pac Ave Subarea Plan through a Health and Equity in All Policies lens.

HIA Project Team developed a list of 42 detailed recommendations. These recommendations have distinct categories, represented by an illustrative icon:

Align with Existing Plans

Focus on Healthy Environmental Design

Connect with the Community to Promote Health

Enhance and Sustain Equitable Engagement

Coordinate Investments

Adjust to Other Policies or Programs

From this list, the Project Team selected 15 recommendations that included those most representative of each category. Each Advisory Group and HIA Project Team member ranked them into a prioritized list. We listed the remaining recommendations by category, not by priority. Each recommendation includes an *italicized* note about which agency/agencies would be responsible for implementing it. We updated some recommendations after the prioritization process occurred to make them more detailed and actionable. We noted them with an asterisk.

Prioritized Recommendations

1. Minimize injury risk for people who walk, bike, and roll by implementing recommendations from Tacoma Vision Zero Action Plan focused on the Pacific Avenue Subarea, specifically:
    * Increase lighting at crossings and intersections.
    * Consider consistent speed limits between Neighborhood Business District speed control areas and school zones.
    * Install raised median with marked crosswalks at uncontrolled crossings.
    * Install advanced stop markings and signs at enhanced pedestrian crossings.
    * Install median treatment for pedestrian/bike safety at controlled crossings.
    * Evaluate and design for appropriate speed limits for all road users.
    * Reduce lane widths.

    City of Tacoma, Washington State Department of Transportation

2. Finalize and implement corridor design for Pacific Avenue and A Street "bike boulevard" that priorities safety, accessibility, and mobility instead of serving vehicles.
    City of Tacoma

3. Reduce risk of lost social connections by implementing the Anti-Displacement Strategy, particularly strategies that allow existing residents to remain in their neighborhoods as new business and residents move in over time:
    * Preservation Ordinance (ADS 2.1): This objective will help reduce the likelihood and impacts of displacement that will occur when landlords/property owners remodel their property to take advantage of the new density allowances.
    * Right of First Refusal Policy (ADS 2.2): This objective will help ensure both naturally occurring and formal affordable housing remains affordable if the property changes ownership.
    * Down payment homebuyer assistance (ADS 1.3): Expand education and funding for the program targeting current residents of color and tailoring it to their needs.
    * Housing Preservation Fund (ADS 2.4): Set up this fund as soon as possible to keep rents stable, make property improvements, and extend or attach affordability periods to units in densifying neighborhoods.
    * Improve the livability of existing owner-occupied homes (ADS 2.5): Continue and expand support for the City's contracts with community partners to provide home repair and weatherization services to low-income homeowners.

    City of Tacoma

4. Explicitly include preventive health infrastructure and services in the City's definition of "public benefit use" and extend the associated density bonuses for these types of uses to include all Centers (i.e., areas zoned for mixed use), not just Downtown. Similarly, formalize a definition of "community amenity space" that includes preventive health infrastructure and explore requirements for these amenities in residential/commercial projects on city-owned land. The City should consult the Health Department on the most appropriate definition of preventive health infrastructure and services.
    * Consider prohibiting non-compete covenants when new preventive health infrastructure and services locate in the Subarea.

    City of Tacoma, Health Department

5. Reduce barriers for people who walk, bike, and roll by ensuring a network that includes sidewalks, curb ramps, accessible pedestrian signals, and shared use paths that connect Pacific Avenue to the rest of the City, as recommended in the City of Tacoma's Transportation and Mobility Master Plan.
    City of Tacoma

6. Consider changing standard use of county-wide area median income (AMI) in affordable housing policy (e.g., Multi-Family Tax Exemption, Home in Tacoma Bonus Program) to allow affordability calculations to be based on localized geographies more constrained to the project area.
    City of Tacoma

7. Reduce exposure to roadway air pollution by ensuring sensitive uses. Ensure schools, daycares, housing, and other sensitive uses are not developed directly along the roadway, and when they are, require appropriate design mitigations (e.g., HVAC *equipped with a MERV 13 or equivalent filter, site layout (*e.g., locating playgrounds away from roadways).

* Consider prohibiting sensitive uses within 500 feet of Pacific Avenue if they do not utilize these design mitigations.

City of Tacoma, Developers

8. Work with a range of community partners to encourage providers of preventive health resources to locate along the corridor, particularly on publicly owned land.
   Health Department, City of Tacoma, Community Clinics and Other Providers

9. Consider changes to city policy/landscaping code to give the City authority to plant and maintain street trees, giving the Urban Forestry Department a more active role to help promote health by increasing residents' exposure to green space and reducing near-term negative impacts on air quality from increased exposure to vehicular traffic.
   City of Tacoma

10. Enhance requirements for tree planting and retention*, greenery, vegetated buffers, and minimizing use of heat-trapping materials (e.g., asphalt) throughout the Subarea, with priority given to green infrastructure designs that demonstrate co-benefits for air quality, noise buffering, and the bicycle/pedestrian experience.
    City of Tacoma

11. Work with affected community members to design a plan for resident engagement in place-making in the Subarea early and often. This builds on SAP engagement and sustains community involvement at the project-level. The City should model this through any development processes they lead and consider how to work with private developers to implement a similar level of engagement for their projects, especially in the design phase.
    City of Tacoma

12. Develop a coordinated approach to enhance social connections in the community through increasing awareness of and reducing barriers to active modes of transportation in the Subarea.
    City of Tacoma, Health Department, Transportation Advocates

13. Actively engage community members, the Health Department, and other health-oriented organizations in future transit service planning to ensure health-promoting destinations are accessible by transit, particularly publicly owned facilities.
    City of Tacoma, Health Department, Pierce Transit

14. Explore opportunities for Medicaid to expand non-emergency medical transportation benefits for funding trips to pharmacies, grocers, food pantries, and other health-promoting destinations.
    Health Department

15. Explore opportunities for mobile preventive health resource providers along Pacific Avenue as a way of increasing access to—and availability of—preventive health infrastructure and services.

    - Include exploration of opportunities for the Health Department to supplement permanent, stationary preventive health services and infrastructure along Pacific Avenue.

Health Department, City of Tacoma, Pierce County

Remaining Recommendations

Align with Existing Plans

This category emphasizes the importance of building on the substantial groundwork already laid by existing plans and strategies. The recommendations focus on enhancing safety for non-motorized users, preventing displacement, improving connectivity, and ensuring streets accommodate all users by implementing key elements from the Tacoma Vision Zero Action Plan, the Anti-Displacement Strategy, and the Mobility Master Plan.

Additionally, these recommendations call for aligning redevelopment efforts with the Urban Forest Management Plan, promoting trail connections from the Pierce County Regional Trails Plan, and encouraging the use of parallel bike routes to minimize traffic conflicts. By leveraging these established plans, the City and their partners can create a more cohesive and effective approach to development that advances community health.

- Ensure streets safely and comfortably accommodate users of all ages and abilities by implementing The City's Complete Streets Guidelines, particularly Tacoma Mixed-Use Centers Complete Streets Design Guidelines.
  City of Tacoma
- Enhance environmental and health benefits of trees and greenery by aligning corridor redevelopment with the strategies in Tacoma's Urban Forest Management Plan.
  City of Tacoma
- Encourage connections with existing and planned trail/path networks; for example those included in The Pierce County Regional Trails Plan, published as a component of their Parks, Recreation & Open Space Plan.
  City of Tacoma, Pierce County, Active Transportation Advocates
- Encourage bicycle use of parallel roadways/paths and design those routes to minimize car traffic (like the Fawcett Avenue bike boulevard).
  City of Tacoma

Focus on Healthy Environmental Design

This category emphasizes the importance of creating a social, natural, and built environment that promote healthy behaviors. The recommendations aim to prioritize safety, accessibility, and mobility through comprehensive street designs, integrating preventive health infrastructure, and reducing exposure to roadway pollution. They also suggest enhancing green spaces, implementing mobile health resources, and co-locating affordable housing with health services. These efforts collectively aim to create an environment that supports

physical and mental well-being, reducing barriers to and encouraging active and healthy lifestyles for current and future community members.

- Explore incentives for co-locating affordable housing with health services (consider the Mercy Park senior housing project, as an example).
  City of Tacoma, Tacoma Community Redevelopment Authority, Mission-driven Developers
- Explore opportunities and incentives for establishing a health clinic with multiple primary care providers along the corridor.
  City of Tacoma, Health Department
- Identify and remove or reconsider language in the Municipal Code that may restrict opportunities for preventive health infrastructure uses to locate in the Subarea, particularly in the mixed-use centers.
  City of Tacoma, Health Department
- Avoid high surveillance environments and racist profiling in the community when aiming to foster urban design solutions to promote personal safety (e.g., some elements of Crime Prevention through Environmental Design).
  City of Tacoma
- Implement consistent speed limits between Neighborhood Business District speed control areas and school zones to maintain a safe, low speed along Pacific Avenue to reduce injury risk for all road users (Consider the League of American Bicyclists' *Setting Speed Limits for Health and Safety*).
  WSDOT, City of Tacoma
- Consolidate and minimize access points along Pacific Avenue to reduce risk of car-pedestrian/cyclist collisions. This partly aligns with Vision Zero recommendations for Pacific Avenue.
  City of Tacoma
- Install wayfinding signage and promotional information to raise awareness of connections for and availability of other transportation modes, including transit, cycling, walking, and rolling.
  City of Tacoma, Health Department
- Actively involve community-based organizations (CBOs) focused on recreational trails to maximize connections between local and regional trail networks.
  City of Tacoma, CBOs
- Consider requirements for public health facilities to include bike parking and clear access points for non-driving patrons.
  City of Tacoma, Health Department, Healthcare Providers
- Upgrade transit stops along the corridor with safe crossing infrastructure, Americans with Disabilities Act–compliant ramps, shelters, and benches to enhance the transit experience, which may lead to increased ridership.
  City of Tacoma, Pierce Transit

Connect with the Community to Promote Health

This category underscores the importance of collaborating with the existing community to enhance overall health and well-being. These recommendations focus on engaging community partners and members to locate preventive health resources along the corridor, promote active transportation, ensure accessible transit to health-promoting destinations, expand healthcare career pathways for local youth, and foster social connections through creative place-making programs.

- Work with high schools to expand healthcare career pathways for local youth as a longer-term strategy to address the shortage of public health and medical practitioners in the area. An example is to explore Seattle Public Schools' Health and Medical Sciences Pathways program.
  Health Department, Public School Districts in Pierce County
- Explore implementing and/or reviving creative place-making programs to encourage social connections and community ownership of spaces in the Subarea. Consider the Tacoma Murals Project and Tacoma Art Museum and Spaceworks' Rapid Mural Response initiative as examples or collaboration opportunities.
  City of Tacoma, Community Development Organizations, Neighborhood Councils, Property Owners
- Develop messages to promote and emphasize the health benefits from increased walking and cycling, particularly the mental health benefits of exposure to green spaces.
  Health Department

Enhance and Sustain Equitable Engagement

This category highlights the necessity of collaborating with existing community members to ensure projects effectively serve their needs. The recommendations focus on engaging residents in place-making initiatives from the early stages to create welcoming and accessible destinations and incentivizing culturally congruent retail uses like grocery stores and pharmacies. These efforts aim to foster inclusive and meaningful participation, ensuring the community's voice is integral to the planning and development processes.

- Enhance health benefits for current residents by ensuring equitable design principles are incorporated into new developments—particularly in the project development processes—to create destinations community members want to use, feel welcome at, and could use active transportation and public transit to access.
  City of Tacoma, Health Department
- Identify opportunities to preserve existing—and incentivize new—retail uses, particularly grocery stores and pharmacies, that are culturally congruent with communities along the corridor.
  City of Tacoma, Health Department

Coordinate Investments $

This category emphasizes the critical need for coordination across local agencies and departments to maximize the impact of investments in infrastructure on community health. The recommendations highlight the importance of expanding non-emergency medical transportation benefits, ensuring adequate staffing for grant-supported projects, leveraging publicly owned land for preventive health infrastructure, investing in

active transportation and recreation opportunities for youth, transitioning transit fleets to cleaner fuels, and prioritizing funding for active transportation in future city budgets. These coordinated efforts aim to create a more integrated and supportive environment that promotes and sustains health and well-being for all residents.

- Identify collaborative opportunities to apply for, design, and implement grant-supported projects, especially recurring collaborative opportunities like CDC's Racial and Ethnic Approaches to Community Health program or U.S. DOT's Safe Streets and Roads for All grant program.
  City of Tacoma, Health Department
- Leverage and enhance the Health Department's existing programming by focusing on publicly owned land for new preventive health infrastructure.
  City of Tacoma, Health Department
- Consider specific investments that support active transportation and recreation for youth.
  City of Tacoma, Health Department, Youth-focused CBOs and Foundations
- Bolster investments towards the transition of transit fleet to cleaner fuel/electric buses to accelerate positive environmental and ridership effects.
  Pierce Transit
- Prioritize funding in future budgets for active transportation (curb ramps, missing link sidewalks, ADA accessible signals, bike connections etc.) over reinforcing an auto-centric perspective of travel along the corridor and throughout the City.
  City of Tacoma

Adjust Other Policies or Programs

Several recommendation ideas identified actions that did not quite align with other categories. These recommendations shifts focus deeper into other decision-making spaces beyond development and transportation plans to recommend changes that would support healthy conditions along Pacific Avenue in the long-term.

- Explore options for small businesses to provide health coverage to employees through resources like the Centers for Medicare & Medicaid Services' Small Business Health Options program (SHOP).
  City of Tacoma, Health Department
- Include 'workforce housing' as an integral component of housing affordability strategies beyond low-income, but not quite high income. This would ensure housing availability across price points and may attract people who would work at preventive health infrastructure facilities—affecting the availability dimension of access to these services in the context of this HIA.
  City of Tacoma, Washington State Housing Finance Commission, Tacoma Community Redevelopment Authority, Community Development Organizations

Monitoring and Evaluation

Monitoring and Evaluation planning constitute the final phase of HIAs. This section serves as a plan for ongoing monitoring, as well as process and impact evaluation of the Picture Pac Ave Subarea Plan HIA. The Health Department will seek funding and staffing opportunities to support ongoing monitoring and evaluation of this HIA to:

1. Track adoption, feasibility, and effectiveness of recommendations.
2. Assess the ability of this HIA to improve equity and community empowerment.
3. Monitor for trends in health disparities.
4. Conduct quality improvement on our internal process for conducting health impact assessments.

Monitoring

Monitoring includes the development of a strategy to sustain the relevance of HIA recommendations and relationships over time. It also includes a process to track the potential impacts on policy, health determinants and outcomes over time.

The Picture Pac Ave Subarea Plan HIA monitoring strategy includes an approach to sustain community engagement in the decision-making system and build upon successes and lessons learned through the process. Monitoring also creates an opportunity for the City and Health Department to demonstrate accountability to community members impacted by the Plan.

Indicators

We selected health indicators for monitoring based on identified health disparities for the community living within the Pac Ave HIA Study Area and on potential impact of the updated code. HIA recommendations, if adopted, align with other efforts happening in this community, and may collectively work to decrease health disparities.

The Health Department is in the process of building a data dashboard for many population and health indicators across the county. We will monitor a subset of these indicators annually for the Pac Ave HIA Study Area. This subset includes:

- Population demographics.
- People living with a disability.
- Households with limited English proficiency.
- Households below the poverty line.
- Unemployment rate.
- Residents' access to preventive healthcare services.
- Residents' use of preventive healthcare services.
- Households without a vehicle.
- Transportation barriers.
- Incidences of pedestrian–vehicle collisions.
- Incidences of pedestrian injury.
- Public transit ridership.
- Rates of employer–sponsored and public health insurance coverage.
- Cancer incidence.
- Asthma related ED visits.
- Birth outcomes.

Additionally, the Health Department will monitor environmental conditions in the project area. We selected environmental indicators based on feasibility of monitoring, as well as potential impact from updated code. These environmental indicators include:

- Air quality—Via annual monitoring reports from PSCAA and Ecology.
- Changes to tree canopy—Via City of Tacoma Equity Index.

Evaluation

Process Evaluation

The Georgia Health Policy Center found that this HIA at least partially achieved 97% of the relevant goals outlined in the *Minimum Elements and Practice Standards.* Completion of the monitoring and evaluation strategies will address some of the partial achievements.

During continued process evaluation, Advisory Group members and contributing agency feedback will be collected and incorporated into our internal process improvement strategies and may be shared with external HIA practitioners.

Impact Evaluation

Impact evaluation seeks to understand if, and how, the HIA affected the final draft of the Picture Pac Ave Subarea Plan, and the decision-making climate in general. Health Department staff will conduct an initial impact evaluation simultaneously with the process evaluation. This initial impact evaluation may be followed up on periodically, to capture ongoing or later stage impacts. Impact evaluation considerations include:

- How the City or other affected agencies considered HIA findings and recommendations in policy and planning efforts.
    1. To what extent do the decisions made or implemented in the final SAP align with information and recommendations provided in the HIA?
    2. To what extent were the findings of the HIA discussed during the City's decision-making process of what to include in the sub area plan?
    3. Are there specific pieces of content within the final SAP that directly reference the HIA?
- If Advisory Group members and impacted communities were given opportunities to develop skills or form new partnerships.
    1. What are the reflections of AG members after the process? Do they feel their input was incorporated and valued?
    2. How have community members and/or other stakeholders used the HIA products to guide their ongoing involvement in the PPA planning process?
    3. Are AG members or other community stakeholders aware of opportunities to stay engaged in SAP process and hold City accountable to recommendations?
- How awareness and consideration of health changed the decision-making climate.
    1. How did the HIA influence awareness and consideration of health change in the decision-making climate? Were more people talking about more aspects of health relative to the SAP?

2. Are community perspectives that would otherwise be absent from the planning process included in development and/or implementation of the SAP?

Outcome Evaluation

Outcome evaluation can track effects of the adoption of the Plan and adopted HIA recommendations over time on health determinants and disparities and other outcomes detailed in the assessment phase of the HIA. Health outcomes are difficult to quantify because they are affected by many factors including residents moving into and out of the Pac Ave HIA Study Area-thereby making it inappropriate to make comparisons of that community's health over time.

Outcome evaluation efforts will use the health and environmental indicators listed in the monitoring plan. The HIA used best available evidence to identify recommendations that could result in direct and indirect long-term and short-term impacts on health and specifically, health inequities in the Pac Ave HIA Study Area and surrounding communities. However, there is considerable difficulty in attributing specific indicator changes to this HIA and policy alone.

The Health Department may seek funding to collaborate with the City and conduct an outcome evaluation 2–3 years after the code revision process is complete.

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Appendix A – Health Data Methodology

The HIA team identified the HIA Study Area as the census tracts within City of Tacoma limits that intersect with Pacific Avenue south of Interstate-5 (I-5). We used census tract boundaries from the 2020 United States Census. When the data source had zip code level information rather than census tract, we substituted zip code for census tract and used a similar methodology; zip-codes within and adjacent to Pacific Avenue between I-5 and South 9^{6th} Street. Because zip codes boundaries are not in perfect alignment with census tract boundaries, slight variations exist in the defined study area.

The HIA team selected primary health outcomes associated with relevant natural, built, and social environmental exposures. We may have missed some potential, or emerging associations with health outcomes. We performed no primary data collection and did not perform any modeling of potential health outcomes therefore, there was no ability to adjust or control for other factors that could mask, amplify or modify the effects of environmental exposures on health outcomes.

Data sources include self-reported data and smaller samples that could be impacted by bias. The sampling schemes used in these data sources also produce estimates that impact our ability to identify rates with high precision. For data collected on sub-samples of the entire population such as data from self-reported surveys (BRFSS) and the American Community Survey, we calculated 95% confidence intervals around estimated means or proportions to determine the level of uncertainty around those estimates (data not shown). When comparing estimates, those with non-overlapping confidence intervals were identified as significantly different from each other.

We obtained emergency department data through the National Syndromic Surveillance Program (NSSP) and viewed through ESSENCE. This data platform allows for the near real-time surveillance of different conditions presented within emergency departments and/or hospitals. A visit-based system that necessitates that the denominator of the rates is the number of visits (a person can be counted twice if they have two distinct visits). Rates are presented as being per 10,000 emergency department visits or per 10,000 hospitalizations. This data encompasses all visits that took place in the population of Pierce County and are exact values, not estimates. As such, no measures of uncertainty such as standard errors or confidence intervals can be calculated.

NSSP ESSENCE is a living database, meaning it is constantly updated as patients arrive and are discharged from medical facilities. Visit counts may change as diagnoses are updated up to about three weeks after admission to a medical facility.

Mortality data was obtained through cause of death information on death certificates. Depending on the physician/health care provider, the cause of death information can list the main cause of death, underlying cause, and other supporting factors. Although most conditions are consistently diagnosed, there may be some discrepancy in underlying conditions/factors that led to death. This can lead to certain conditions being left off the death certificate (resulting in an undercount), or certain conditions mistakenly being recorded (resulting in an overestimate).

We pulled additional self-reported data from BRFSS from Washington State Department of Health data set. This survey is provided nationwide by telephone and collects data regarding health-related behaviors and chronic health conditions. Data was cleaned and compiled in R using the survey package. Data was reported in either proportion or per 10,000 people, depending on the units of measurement of each variable. Descriptive demographic data was procured from the 5-year American Community Survey using an API key provided by the U.S. Census Bureau. This annual survey collects self-reported characteristics of income, educational attainment, housing status, and other socio-economic pertinent data. Data was cleaned and compiled in R using the tidycensus package. This data was then totaled and reported in proportion format similarly against Pierce County total population.

Appendix B – All Health Data

	Pac Ave Study Area	Pierce County
	Prevalence (% of adults diagnosed)	
Asthma	15.7	10.9
Diabetes	13.3	11.8
Hypertension	31.4	34.1
Heart attack	5.0	4.1
Stroke	4.7	3.4
	Prevalence (% of adults who self-reported)	
Anxiety	11.7	7.1
Depression	49.1	49.4
	Rate per 10,000 ED Visits	
Asthma-related hospital ED visits‡	550.4	483.9
Respiratory illness ED visits	1,788.1	1,792.0
Coronary event ED visits	281.6	298.6
	Incidence Rate per 100,000 New Cases	
All cancer	453.4	458.0
Colorectal cancer	40.3	36.3
Lung cancer*	70.4	55.2
Brain cancer	6.3	6.9
Stomach cancer*	11.6	7.4
Thyroid cancer	9.3	12.8
	Rate per 100,000 Deaths	
Years of potential life lost before age 65*	7,306.8	4,770.0
Congenital anomaly mortality	9.3	6.8
Diabetes mortality*	43.3	25.5
Circulatory disease mortality*	258.7	206.0
Heart disease morality*	177.8	142.6
Lung cancer mortality	32.1	32.3
Colorectal cancer mortality	14.0	11.5
Brain cancer mortality	4.1	4.8
Stomach cancer mortality	4.3	2.7
Thyroid cancer mortality	0.8	0.5
All-cancer mortality*	163.3	143.3
	Prevalence (% of total births)	
Premature birth*	12.6	10.7
Low birth weight*	8.2	7.1

* Significant differences exist when comparing the Pac Ave HIA Study Area data to that of Pierce County ($p < 0.05$).

‡ Health outcomes that show higher rates of ED visits in the Pac Ave HIA Study Area compared to Pierce County.

Birth outcomes data retrieved from Washington State Department of Health, Center for Health Statistics, Birth Certificate Data, 1990–2022, Community Health Assessment Tool (CHAT), Nov. 2025. Years Analyzed: 2018–2022.

- Premature birth is defined as birth before 40 weeks of gestation.
- Low birth weight is defined as weight below 2,500 grams.

Cancer diagnosis data retrieved from Washington State Cancer Registry, 2018–2022, Community Health Assessment Tool (CHAT), Nov. 2025.

Emergency Department visit data retrieved from Rapid Health Information NetwOrk (RHINO), Jan. 2021–June 2025, Washington State Department of Health.

- Coronary Event includes: heart attack, myocardial infarction, cardiac arrest, cerebrovascular accident, cerebrovascular accident, stroke, ischemic stroke, transient ischemic attack, difficulty speaking or swallowing, dysarthria, dysphagia, numbness, slurred speech, sided weakness.
- Respiratory Illness includes: acute bronchitis, emphysema, chronic obstructive airway disease, chronic obstructive lung disease, chronic obstructive pulmonary disease, asthma, bronchial asthma, reactive airway disease, acute respiratory distress syndrome, difficulty breathing, chest tightness, dyspnea, shortness of breath and wheezing.

Mortality data retrieved from Washington State Department of Health, Center for Health Statistics, Death Certificate Data, 1990–2022, Community Health Assessment Tool, Nov. 2025. Years Included: 2020–2024.

Prevalence data retrieved from Behavioral Risk Factor Surveillance System 2011–2023 Combined File, Years Analyzed: 2019–2023.