Pacific Avenue || SR 7 Corridor
HIGH CAPACITY TRANSIT
FEASIBILITY STUDY

Purpose & Need, Goals & Objectives, Evaluation Measures

INTRODUCTION

Pierce Transit is considering potential applications of high capacity transit (HCT) along the Pacific Avenue S/SR 7 Corridor. An HCT Feasibility Study for the Corridor began in February 2017, with the intent of selecting a Locally Preferred Alternative (LPA) for the Corridor by spring 2018. Should the LPA be determined to be a HCT mode, the project would proceed through environmental documentation and funding applications and, eventually, into design and construction.

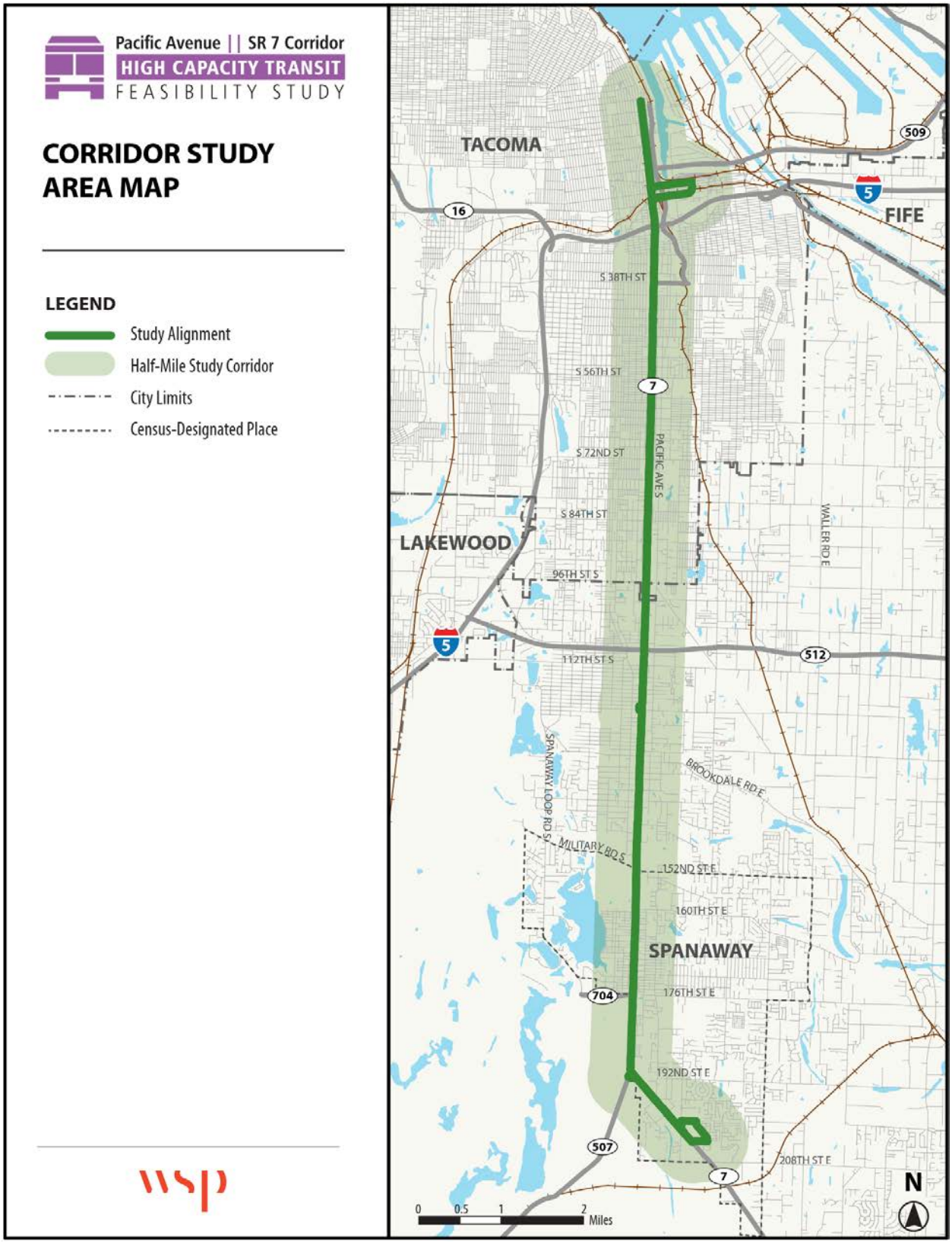
A Purpose and Need Statement is a critical element of the study since it documents what Pierce Transit intends to accomplish with the project (Purpose) and the problems with the current service that the project would address (Need). The Purpose and Need Statement is supported by goals that are linked to the project purpose (typically with one goal for each primary element of the Purpose Statement). In turn, each goal is supported by one or more evaluation measures that are used to evaluate specific alternatives. The evaluation measures should be non-duplicative, non-distracting (e.g., only measure things that inform the ultimate decision), and easy to understand by policymakers and the public.

PROJECT BACKGROUND

CORRIDOR DESCRIPTION

The Pacific Avenue S/SR7 HCT Study Corridor is a 14-mile segment of Pacific Avenue S/SR 7 between the Commerce Street Transfer Center in Downtown Tacoma and 204th Street E in Spanaway, entirely within Pierce County. The Corridor is currently served by Route 1, which is one of Pierce Transit's four trunk routes and the highest ridership route in the system, carrying almost 1.7 million passengers in 2016, which is nearly 20 percent of Pierce Transit's fixed route ridership. Pierce Transit's Destination 2040 Long Range Plan, Sound Transit's ST3 Plan, and Puget Sound Regional Council's (PSRC) Transportation 2040 Long Range Plan all identify this Corridor for potential HCT service.

Figure 1: Study Corridor and Alignment



PURPOSE STATEMENT

The purpose of the Pacific Avenue S/SR 7 HCT project is to establish a north/south HCT link in the heart of Pierce County and serving Pierce Transit's busiest transit corridor. The project will:

- Increase transit ridership through enhanced transit service
- Deliver cost-effective service that provides capacity to meet future demand
- Promote transportation equity in the corridor by ensuring that transit service is accessible to all populations
- Improve multi-modal access and connectivity
- Support a regional vision for the community as documented in land use and transportation plans
- Enhance safety and security for transit patrons and public health overall
- Support existing economic activity and be a catalyst for sustainable economic growth and corridor redevelopment
- Promote environmental stewardship and sustainability

NEEDS STATEMENT

The need for the project results from:

- **High Transit Demand.** In October 2016 there were over 5,500 average daily weekday boardings on the Pierce Transit Route 1 (2,800 northbound and 2,760 southbound). There are five northbound and four southbound stops that average more than 100 boardings per day and there are overloads or heavy passenger loads on some trips. Enhanced transit service would better accommodate this demand.

- **Decreasing Transit Travel Speeds.** Average bus speeds in the Study Corridor are relatively slow and have been decreasing. Current average bus speeds are as low as 6 MPH on some segments during congested time periods, and the difference in bus travel times through the corridor can vary by 6 or 7 minutes depending on direction and time of day, which reflects 48 percent to 62 percent travel time increase. Corridor improvements are needed to mitigate this decrease in bus speeds and improve transit speed through the Study Corridor.

- **Poor Service Reliability.** Transit service reliability is measured by on-time performance, both in the percentage of trips that are on-time (no more than 5 minutes late) and how many minutes on average that they are late. Service reliability is very important to riders, especially those who use transit to travel to work, school, appointments, or other trip purposes that are time-sensitive. Route 1 has reliability problems, primarily in the afternoon peak period and in the southbound direction. The 90th percentile performance shows what a rider could expect on 9 out of 10 weekday trips, a reasonable tolerance for schedule unreliability for regular travelers. The 90th percentile measure for October 2016 using automatic vehicle location (AVL) data for both AM peak and midday periods shows actual travel times for both directions running about 8 to 10 minutes late, and PM peak time in both directions about 15 minutes late (times are given for service between 14th/Pacific to the end of the line at SR 7/204th Street E). The variability

between travel times is particularly stark for the PM southbound direction where the average difference between the 25th and 90th percentiles is approximately 21 minutes (this is the largest difference of any time/direction). Improvements to transit travel time reliability are needed.

- **High Corridor Population and Population Density**. Population and population density along a transit corridor are important factors in determining the need for transit. Higher population and greater density of the population along a corridor typically results in a greater market for transit and justify higher levels of service and service quality. With nearly 55,000 people, the Study Corridor is home to 6.7 percent of Pierce County's population and is much more densely populated than the County as a whole, averaging nearly 3,800 people per square mile compared to 455 people per square mile for the overall County. In addition, population in the Study Corridor is projected to grow by nearly 25 percent between 2010 and 2040. This corresponds to an increase in average corridor density from roughly 3,800 people per square mile in 2015 to over 5,500 people per square mile on average in 2040—a density increase of over 40 percent. This exceeds the average for Pierce County, which is projected to have a 16 percent increase in population and a 35 percent increase in average persons per square mile.

- **Increased Employment.** Employment is an important factor in determining transit demand, and higher levels of employment within a transit corridor can justify higher levels of service and service quality. In 2010, jobs in the Study Corridor represented nearly 10 percent of the jobs in Pierce County. In 2025 and continuing into the future, the jobs in the Study Corridor will represent upwards of 11.4 to 11.9 percent of the county jobs. In total, the Study Corridor had nearly 31,500 jobs in 2010. In 2040, jobs in the Study Corridor are forecasted to increase to just over 59,000.

- **Transit Dependency.** Transit dependency, as indicated by both car availability and household income level, is a strong indicator of transit need within a corridor and high level of transit dependent population can justify higher levels of service and service quality. Approximately 11 percent of the households in the study do not have a motor vehicle, compared to 5.8 percent for Pierce County as a whole, indicating that this Study Corridor is disproportionately transit-dependent in comparison to the overall County. In addition, the 2015 median household income in the Study Corridor is over $12,000 less than the median household income in Pierce County. Further, nearly 6 percent of the residents within the Study Corridor are unemployed, compared to 4.5 percent countywide, and over 20 percent of residents within the Study Corridor are below the federal poverty level. Enhanced public transit is needed to better serve the transit-dependent population in this corridor.

- **Safety Concerns.** In the Study Corridor along the SR 7 and Pacific Avenue S study alignment there were 2,967 recorded crashes over a five year period between 2012 and 2016. This included 13 fatal crashes, five involving pedestrians and one involving a bicyclist. There were a total of 137 crashes during this period that involved a bicyclist or a pedestrian. Improved pedestrian and bicycle access to transit in the Study Corridor will make travel safer for pedestrians, bicyclists, and transit riders.

- **Growing Transit Communities Designation.** The Puget Sound Regional Council (PSRC) Metropolitan Planning Organization has established a Transit Oriented Development (TOD) Program called Growing Transit Communities (GTC) funded through the U.S. Department of Housing and Urban Development's Sustainable Communities Regional Planning Grant Program. The program focuses on capitalizing on transit investments by growing and strengthening TOD, recognizing that transit investments present once-in-a-lifetime opportunities to support and improve existing communities and meet regional goals through strategies to make great places for people to live and work. Transit communities included in the GTC work have either existing or planned light rail station locations or other major transit nodes such as Bus Rapid Transit (BRT) station locations. Within the Study Corridor, the following nodes are included in the GTC Strategy:
    - Theater District
    - Convention Center
    - Union Station
    - S. 25th Street Station
    - Tacoma Dome

- **Corridor Development Potential**.
  Transit improvements can support development efforts. The greater the potential for development in a corridor, the greater the justification for transit improvements to support the potential development. The following factors are indicative of the development potential along this corridor:
    - The real estate markets, over the long-term, have been good in downtown Tacoma and support for new development in the future is reasonable to expect, subject to the cyclical nature of real estate markets.
    - The I-5 to S. 38th Street segment offers proximity to downtown, access to I-5, and underutilized land. These factors suggest that the area has development potential, especially as prices rise downtown. A portion of this segment also benefits from Tacoma's Multifamily Property Tax Exemption (MPTE) Program designation.
    - A portion of the 68th Street to 80th Street segment is a designated as an MPTE area. For this reason, the 68th to 80th Street segment will likely attract attention from multi-family developers in the future.
    - By providing fast and reliable HCT service in the Pacific Avenue/SR 7 corridor, this project could enhance the development potential of these areas within the corridor as well.

GOALS AND EVALUATION MEASURES

1. **The project will increase transit ridership by reducing transit travel time, improving trip reliability, increasing service frequency, and enhancing transit's comfort, convenience and image.**

   Evaluation Measures:
   a. Average weekday boardings
   b. Corridor end-to-end transit travel time during weekday peak periods
   c. Weekday peak-hour on-time performance (no more than five minutes late)
   d. Service frequency during weekday peak and midday hours
   e. Percentage of stops with shelters and rider amenities
   f. Degree to which a new image is created for the transit service, as evidenced by service branding and marketing, and the attractiveness of stations and vehicles.

2. **The project will provide cost-effective transit service in the Study Corridor.**

   Evaluation Measures:
   a. Weekday average operating cost per boarding
   b. Total net additional annual operating cost for corridor service
   c. Weekday boardings per service hours (productivity)
   d. Farebox revenues

3. **The project will increase transit capacity to meet current and projected transit travel demand.**

   Evaluation Measure:
   a. Projected peak hour ridership divided by peak hour vehicle capacity

4. **The transit service will be accessible to all populations, including minorities, people with low-income levels, and those that are transit dependent.**

   Evaluation Measures:
   a. Transit service frequency serving census tracts with above average percentages (compared to the County as a whole) of minority populations, people with income below the federal poverty level, or households with no cars.
   b. Transit stations/stops within one half mile of people living in census tracts with above average percentages (compared to the County as a whole) of minority populations, people with income below the federal poverty level, or households with no cars.
   c. Minority, low-income and transit-dependent population living within one half mile of a HCT transit station/stop.

5. **The project will promote environmental stewardship and sustainability by reducing greenhouse gas emissions and supporting smart growth.**

   Evaluation Measures:
   a. Greenhouse Gas Emissions
   b. PM peak hour mode split (percentage of people travelling by mode)

c. Degree to which smart growth is supported by providing premium transit service, measured by service frequency, travel time, and reliability and establishing permanence of the transit service, measured by the level of investment in the transit infrastructure along the corridor.
d. Area of developable land adjacent to the corridor with the potential for transit-oriented infill development (TOD), including areas having no parking or minimal parking requirements,
e. Total average weekday emissions from transit vehicles

6. **The project will improve access to the Study Corridor transit service by pedestrians and bicyclists**

Evaluation Measures:

a. Average walking distance to stops
b. Percentage of the corridor with minimum 5-foot sidewalks
c. Percentage of corridor with striped bicycle lanes

7. **The project will provide improved connections with other local or regional travel modes**

Evaluation Measures:

a. Connections to other transit modes, including other Pierce Transit bus routes, Sound Transit Tacoma Link, planned Sound Transit Tacoma Link extension, Sound Transit Express routes, Sounder commuter rail, Intercity Transit Express routes, Greyhound, and Amtrak
b. Number of park and ride spaces with access to the transit service

8. **The project will have a high likelihood of funding through identified grant programs and funding sources.**

Evaluation Measures:

a. Total estimated project capital cost
b. Likelihood of funding through established Federal Transit Administration (FTA) programs
c. Ability to obtain the required local match

9. **Enhance safety and security for transit patrons and public health overall.**

Evaluation Measures:

a. Stops designed with Crime Prevention Through Environmental Design (CPTED) principles
b. Number of signalized pedestrian crossings
c. Percentage of stops with cameras and lighting
d. Percentage of stops within 200 feet of a signalized pedestrian crossing

10. **The project will support planned local and regional growth and corridor revitalization efforts.**

Evaluation Measures:

a. Frequency of service connecting the southern part of the corridor with downtown Tacoma

b. Peak hour travel times between the southern part of the corridor and downtown Tacoma
c. Degree to which the project supports accommodation of Puget Sound Regional Council Transportation 2040 regional growth allocation
d. Degree to which the project supports the City of Tacoma's development plans for the corridor
e. Degree to which the project supports development envisioned in the Pierce County Communities Plan (for the Parkland-Spanaway-Midland subarea)

11. The project will be consistent with adopted local and regional transportation plans.

Evaluation Measures:

a. Degree to which the project is consistent with Pierce Transit's Destination 2040 Long Range Plan
b. Degree to which the project is consistent with the Puget Sound Regional Council's Transportation 2040 Long Range Plan
c. Degree to which the project is consistent with Sound Transit's ST3 Plan
d. Degree to which the project is consistent with the City of Tacoma's Comprehensive Plan and Transportation Master Plan
e. Degree to which the project is consistent with the Pierce County Transportation Element (Chapter 12 of the Comprehensive Plan)
f. Degree to which the project is consistent with the Washington State Department of Transportation's (WSDOT) Statewide Public Transportation Plan

12. The project will minimize adverse impacts to other travel modes and adjacent property

Evaluation Measures:

a. Number of intersections that fall below acceptable level of service (LOS) standard
b. Impact of freight travel time
c. Number of properties with property impact
d. Number of properties with access impacts
e. Number of properties with off-site parking impacts
f. Number of business or residential displacements