

Canyon Road East Freight Corridor Economic Assessment

FINAL

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Pierce County

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EXECUTIVE SUMMARY

Baseline Economic Assessment

- The Frederickson MIC and the Sumner Pacific MIC have experienced the highest growth in employment of all industrial centers in the study area between 2006 and 2016.
- Employment in the industrial centers within the study area is concentrated mostly in the manufacturing and wholesale, transportation and utilities (WTU) industries.
- The U.S. military, state and county government and local schools lead the public sector employment in Pierce County, while MultiCare had the largest number of privately employed workers in 2017.
- Alongside military and medical, the maritime industry is also a key pillar of Pierce county's economy. The Port of Tacoma is a major center for bulk and heavy-lift cargoes, as well as automobiles and medium-duty trucks.
- Population in Pierce County is projected to grow at an average rate of 1.3% per year in the next ten years.
- Among the top places of residence for workers in the industrial centers that make up the study area are Tacoma, South Hill, Lakewood and Puyallup.
- According to the 2014 PSRC regional traffic model, most freight trips that use the Canyon Road East corridor originate in King County. Within the study area, most freight trips originate in the Frederickson MIC and in neighboring areas south of SR 512.
- According to CoStar data and building use classification, the large majority, more than 75%, of the industrial building square footage in the study area is warehousing/distribution space.
- Vacancy rates for industrial uses in the study area are below 10%.

Stakeholder Interviews

Corridor Improvements Benefits

There was unanimous agreement amongst interviewees that Canyon Road East freight corridor is essential to the economic wellbeing and future growth potential of the manufacturing industrial centers and communities within the study area. The following were mentioned as potential benefits of the proposed extended corridor:

Improve local and regional mobility

- Ensure a more integrated and robust transportation network by providing direct connections to I-5 and the SR 167 planned extension.
- Reduce congestion of local roads and highways by providing an improved north-south transportation route. As an alternative route the corridor can

draw traffic from the major routes in the area that are affected by congestion.

Provide more efficient freight connections and increase business competitiveness

- Provide increased road capacity to support growth and expansion of Port of Tacoma activities and businesses in the Frederickson MIC and other industrial centers in the study area.
- Increase efficiencies experienced by freight carriers resulting from travel time savings and improvements to accessibility and safety.

Support local and regional economic growth and development

- Expand the labor pool and access to new markets, increasing the area from which businesses can draw.
- Recruit, retain and expand industrial and commercial developments in the study area.
- Increase retail, hospitality and services offerings which are beneficial to people living in the area.

Economic Benefits Analysis

- The Canyon Road East freight corridor serves key industries and economic centers, connecting Frederickson MIC to Port of Tacoma, and offers an important north-south connection for freight movements. The corridor also serves as a commuter route for urban areas along the corridor and in the region.
- There was unanimous agreement amongst interviewees that Canyon Road East freight corridor is essential to the economic wellbeing and future growth potential of the manufacturing industrial centers and communities within the study area.
- Employment in the industrial centers within the study area is concentrated mostly in wholesale and manufacturing industries. These industries are reliant on transportation to get raw materials into plants or finished product out to customers. The Canyon Road East freight corridor project will improve reliability and efficiency of the regional transportation system, potentially leading to transportation cost savings to key industries.
- The Canyon Road East freight corridor proposed improvements will likely result in vehicle operating cost savings to users of private vehicles traveling to work, school, for business or other purposes. Assuming these cost savings translate into consumer spending, this spending will support around 180 direct jobs and \$25.3 million in direct output.
- There is significant capacity for additional employment in Frederickson MIC and Fife Industrial Area to accommodate potential growth and expansion driven by the Canyon Road East freight corridor improvements.

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INTRODUCTION

Background and Purpose

Over the years, Pierce County together with state and local agencies have made significant investments in road projects in central Pierce County to increase capacity and improve connectivity for more efficient movement of freight and goods and to support economic development. As part of these efforts, substantial improvements were made to two corridors south of State Route (SR) 512, in the Frederickson Manufacturing Industrial Center (MIC): 176th Street East Corridor and Canyon Road East Corridor.

Improvements to 176th Street East between B Street East and State Route 161 were completed in winter 2014, with minor work completed in 2015. Design work began in 1996, while construction began in 2003. The work spanned 6.4 miles, and cost \$71.2 million. Improvements along Canyon Road East from State Route 512 to 176th Street East began in the 1990s and were completed in 2012. The work spanned more than four miles, and cost \$66.7 million.

Pierce County is now focusing on improvements to the north of SR 512. The County is pursuing funding to build a new segment of roadway that will extend Canyon Road East from Pioneer Way to 70th Avenue East and further advance the National Highway System (NHS) roadway serving the Port of Tacoma MIC, the Fife Industrial Center and the Frederickson MIC.

The transportation system is critical for the economic competitiveness of the industrial sector in Pierce County. The success of the Canyon Road East freight corridor depends on a new freight connection that improves the existing freight route and completes a missing link within the corridor i.e. Canyon Road East to 70th Avenue East in Fife. The County's improvements have the potential to enhance opportunities for economic growth, increase capacity, relieve traffic congestion and reduce greenhouse gas emissions.

This document serves as the Economic Assessment (EA) of the improvements to Canyon Road East and will be complimented with a Benefit Cost Analysis (BCA) that identifies and measures the value of potential benefits and costs of the project. The purpose of the EA is to examine the economic impacts and opportunities arising from investing in a better connected and more efficient Canyon Road East freight corridor.

Study Approach

This study is focused on identifying the potential benefits of the Canyon Road East Corridor improvements by:

- Conducting a baseline economic assessment to develop a profile of the local economy using secondary data on industrial mix, employment levels, commuting and trade patterns, population, land use patterns and real estate market indicators.
- Conducting interviews with key local and regional stakeholders to understand the role of transportation and the Canyon Road East freight corridor in supporting economic activity.
- Analyzing potential economic gains to Canyon Road East freight corridor users, commuters and potential real estate development impacts.

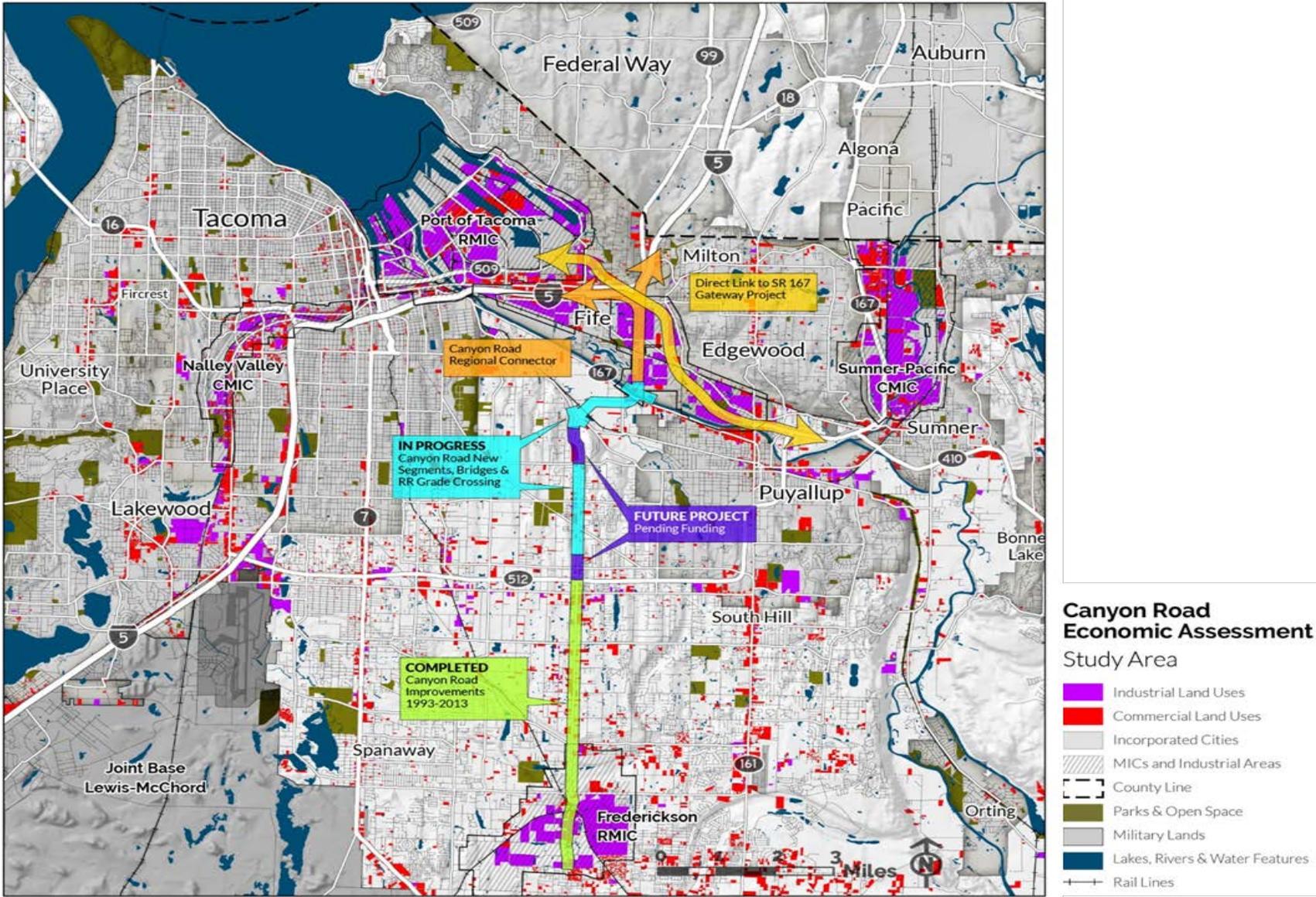
Study Area

The definition of the study area is an important consideration in conducting an economic assessment. A transportation investment may be considered to have different costs and benefits at different geographical levels as it might lead to both new business expansions and displacement of jobs and business from other regions. Therefore, working collaboratively with Pierce County, the first step of this study was to determine the geographic boundaries of a study area where the project is likely to have a direct or significant impact.

The study area for this project encompasses large and regionally significant industrial and military zones, including **Joint** Base Lewis-McChord (Exhibit 1):

- Port of Tacoma Regional MIC (RMIC)
- Frederickson RMIC
- Sumner Pacific Countywide MIC (CMIC)
- Nalley Valley CMIC
- Fife Industrial Area
- Joint Base Lewis-McChord

Exhibit 1. Canyon Road East Freight Corridor Study Area and Planned Improvements



Organization of the Report

The remainder of the report is organized as follows:

- The Baseline Economic Assessment section provides a profile of the study area around the corridor and examines the socioeconomic characteristics and trends.
- The Stakeholder Interviews section presents a summary of the findings from the interviews.
- The Economic Benefits Analysis section presents the economic analysis and findings for the benefits of the improved Canyon Road East freight corridor.

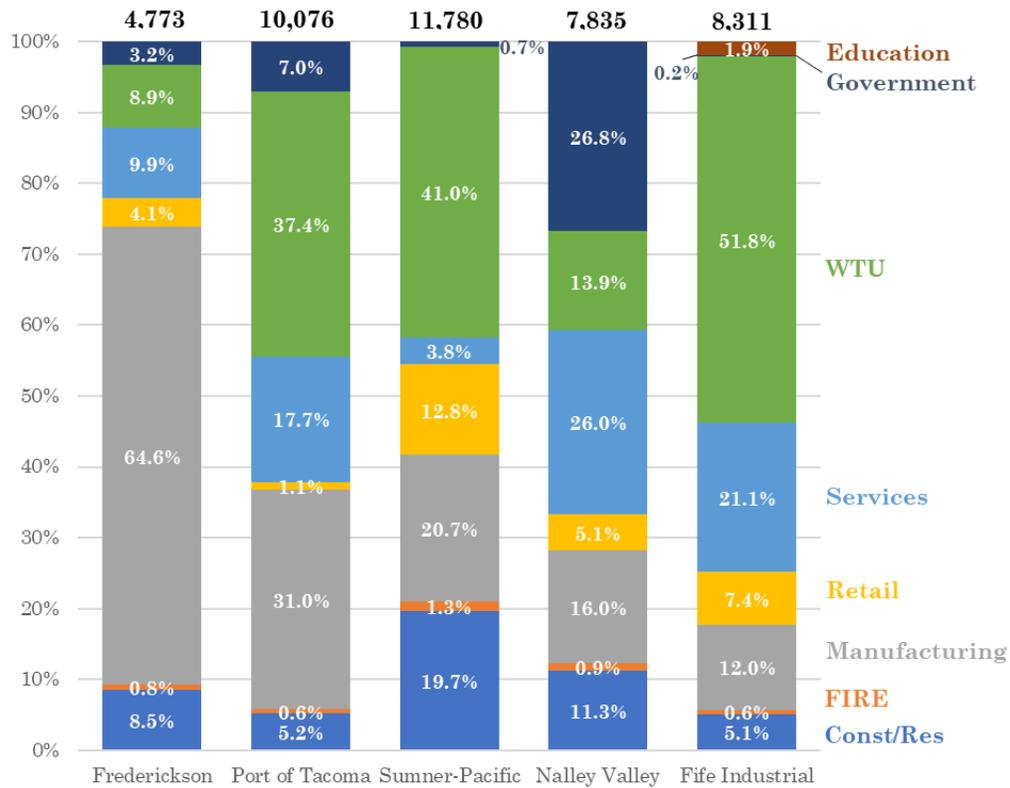
BASELINE ECONOMIC ASSESSMENT

This section of the report presents a profile of the region's economy and the role of transportation and Canyon Road East in supporting economic activity and competitiveness. The profile was derived using secondary data on industrial mix, employment levels, population, commuting and freight patterns and land use patterns.

Industry and Employment

The largest employment center in the study area is Sumner-Pacific with 11,780 jobs in 2016, followed by the Port of Tacoma with over 10,000 jobs (Exhibit 2). Most employment in the study area is concentrated in the manufacturing and wholesale, transportation and utilities industries (WTU).

Exhibit 2. Employment by Industry, 2016



Source: Puget Sound Regional Council (PSRC), 2018; Community Attributes, 2018.
 Note: WTU represents wholesale, transportation and utilities industry and FIRE represents financial, insurance and real estate industry.

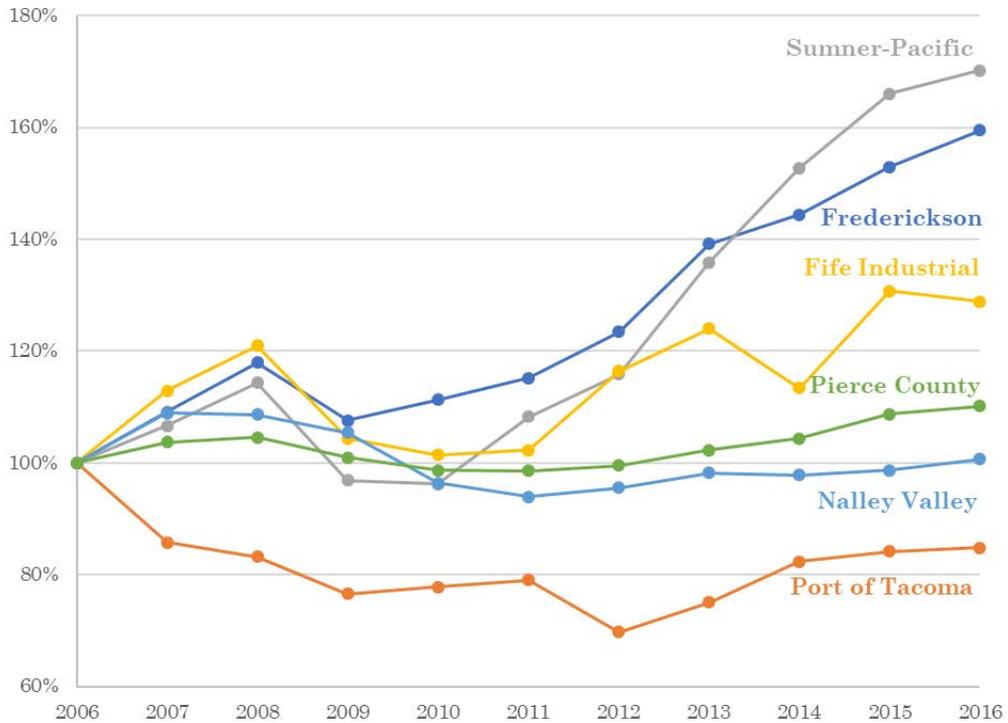
The Frederickson MIC has the highest concentration of manufacturing jobs, with over 3,000 jobs representing 65% of total employment in the MIC. Some of the largest employers in this center in terms of total number of jobs are the Boeing Company and Toray Composites. Roughly 27% of employment in the Nalley Valley center is concentrated in the government sector with another 26% in the services industry.

Employment Change

Employment in the industrial centers in the study area has followed different trends since 2006 (

Exhibit 3). Employment in Frederickson and Sumner Pacific MICs has increased by 4.8% and 5.5% respectively on average per year between 2006 and 2016. Total employment at Port of Tacoma MIC has experienced a period of decline from 2006 to 2012 but has been growing steadily since. In 2016, there were almost 10,100 jobs at the Port of Tacoma Industrial Center.

Exhibit 3. Total Employment Growth, 2006 - 2016



Source: Puget Sound Regional Council (PSRC), 2018; Community Attributes, 2018.

Fife Industrial Center employment has increased at a higher average annual rate than Pierce County employment – 2.6% compared to 1% for the county. Nalley Valley MIC employment has remained relatively constant between 2010 and 2016 and is currently just over the level of 2006 employment at roughly 7,800 jobs.

Employment Change by Industry

Employment in the services sector in Frederickson has increased from 75 jobs in 2006 to 472 jobs in 2016, or at an average annual rate of 20.2%. The two industrial centers that have experienced a growth in manufacturing jobs between 2006 and 2016 are Frederickson and Sumner-Pacific.

Exhibit 4. Average Annual Change in Employment by Industry, 2006 - 2016

	Frederickson	Port of Tacoma	Sumner-Pacific	Nalley Valley	Fife Industrial	Pierce County
Const/Res	2.5%	3.0%	0.1%	0.4%	0.3%	-1.0%
FIRE	-	-7.5%	9.5%	1.0%	-14.0%	-1.1%
Manufacturing	3.6%	-3.3%	6.9%	-2.1%	-3.6%	-1.4%
Retail	-	-2.5%	77.4%	2.8%	3.7%	1.8%
Services	20.2%	8.3%	2.7%	2.9%	4.6%	1.9%
WTU	1.0%	-0.2%	5.8%	-1.8%	5.0%	2.0%
Government	-	-10.9%	15.3%	-0.4%	-10.6%	0.4%
Education	-	-	-	-	1.2%	0.3%

Source: Puget Sound Regional Council (PSRC), 2018; Community Attributes, 2018.

Note: *This represents the average annual change in employment between 2011 and 2016. Due to suppression issues, employment data was not available for these industries in Sumner-Pacific from 2006 to 2010.

Sumner-Pacific industrial center has seen job growth across most sectors between 2006 and 2016. Retail sector employment increased by more than 77% on average per year between 2011 and 2016, to 1,510 jobs in 2016. Amazon, which is classified as an online retailer, has opened two distribution facilities in Sumner during this period. Other retailers in the area that have distribution centers are REI and Brooks Sports. The traffic impacts and dependencies of these retailers are industrial in nature as distribution centers focus on processing and moving goods on to wholesalers, other retailers or consumers.

Industry Concentration

The location quotient (LQ) is an economic base analysis tool employed to estimate industry concentration in the study region relative to Washington state. An LQ of 1 means that the study area and the state are equally specialized in that industry. An LQ greater than 1 means that the study area has a higher concentration in that industry than the state. The industrial centers that make up the study area have significantly higher concentrations of manufacturing jobs and wholesale trade, transportation and utilities jobs than Washington state as a whole.

Frederickson MIC has the highest manufacturing LQ with a significant manufacturing cluster. A wide range of goods are currently produced in Frederickson, including aircraft components, carbon composites, construction materials, packaged foods, musical instruments and others. Nalley Valley has a higher concentration of government and constructions and resources jobs than Washington.

Exhibit 5. Location Quotients (Washington State), 2016

	Frederickson	Port of Tacoma	Sumner-Pacific	Nalley Valley	Fife Industrial
Const/Res	0.97	0.59	2.25	1.29	0.59
FIRE	0.18	0.13	0.30	0.21	0.14
Manufacturing	7.25	3.47	2.32	1.80	1.35
Retail	0.36	0.10	1.13	0.45	0.65
Services	0.23	0.42	0.09	0.61	0.49
WTU	1.25	5.26	5.76	1.95	7.27
Government	0.33	0.72	0.07	2.76	0.02
Education	0.00	0.00	0.00	0.00	0.26

Source: Puget Sound Regional Council (PSRC), 2018; Community Attributes, 2018.

Major Employers

The Economic Development Board for Tacoma-Pierce County publishes a Major Employers list – companies with 100 or more full-time equivalent employees (FTEs). In 2017, the list included 248 major employers representing 166,348 jobs. The U.S. military, state and county government and local schools lead the public-sector employment in Pierce County, while MultiCare had the largest number of privately employed workers in 2017.

Exhibit 6. Major Employers in Pierce County, 2017

Industry	Organization	FTE
Military	Joint Base Lewis-McChord	60,100
Health Care	Multicare Health System	7,439
Government	State Of Washington	6,838
Health Care	Chi Franciscan Health	6,528
Education	Tacoma Public Schools	3,541
Government	Pierce County Government	3,058
Education	Bethel School District	2,465
Government	City Of Tacoma	2,251
Insurance	State Farm Insurance Companies	2,150
Education	Puyallup School District	2,124
Gaming	Emerald Queen Casino	2,082

Source: Economic Development Board for Tacoma-Pierce County, 2018; Community Attributes, 2018.

Two of the top three major employers in manufacturing (Boeing and Toray) are located in Frederickson MIC while Milgard Manufacturing is headquartered in Tacoma with a manufacturing facility in the Fife industrial area. Amazon

Distribution Centers is the largest employer in the WTU industry in Pierce County with 1,400 FTEs in 2017.

Exhibit 7. Major Employers in Pierce County by Industry, 2017

Industry	Organization	FTE
Const/Res	Northwest Cascade	310
Const/Res	Absher Construction	203
Const/Res	Tucci & Sons	200
FIRE	State Farm Insurance Companies	2,150
FIRE	Columbia Bank	620
FIRE	Regence	500
Manufacturing	Boeing	1,575
Manufacturing	Milgard Manufacturing	1,000
Manufacturing	Toray Composite Materials America	560
Retail	Safeway	1,848
Retail	Walmart	1,192
Retail	Fred Meyer	772
Services	Multicare Health System	7,439
Services	Chi Franciscan Health	6,528
Services	Emerald Queen Casino	2,082
WTU	Amazon Distribution Centers	1,400
WTU	Tacoma Public Utilities	1,350
WTU	Pierce Transit	976
Government	Joint Base Lewis-Mechord	60,100
Government	State Of Washington	6,838
Government	Pierce County Government	3,058
Education	Tacoma Public Schools	3,541
Education	Bethel School District	2,465
Education	Puyallup School District	2,124

Source: Economic Development Board for Tacoma-Pierce County, 2018; Community Attributes, 2018.

Demographics

Pierce County population in 2017 was estimated to be 859,400. The County has added over 64,000 residents since 2010. Population in Pierce County has followed a similar trend to King County and the state population, with smaller growth peaks than Snohomish County across time.

Population in Pierce County is projected to grow at an average rate of 1.3% per year in the next ten years.

Journey to Work

LEHD (Longitudinal Employer-Household Dynamics) data from the US Census Bureau shows where workers live that are employed in census blocks intersecting one or more of the five Study Area industrial zones, including:

- Port of Tacoma Regional MIC (RMIC)
- Frederickson RMIC
- Sumner Pacific Countywide MIC (CMIC)
- Nalley Valley CMIC
- Fife Industrial Areas

A total of 35,428 employees work these blocks and live outside them. Around 1,955 people live in these blocks but work elsewhere while 198 people live and work in the blocks.

Freight Patterns

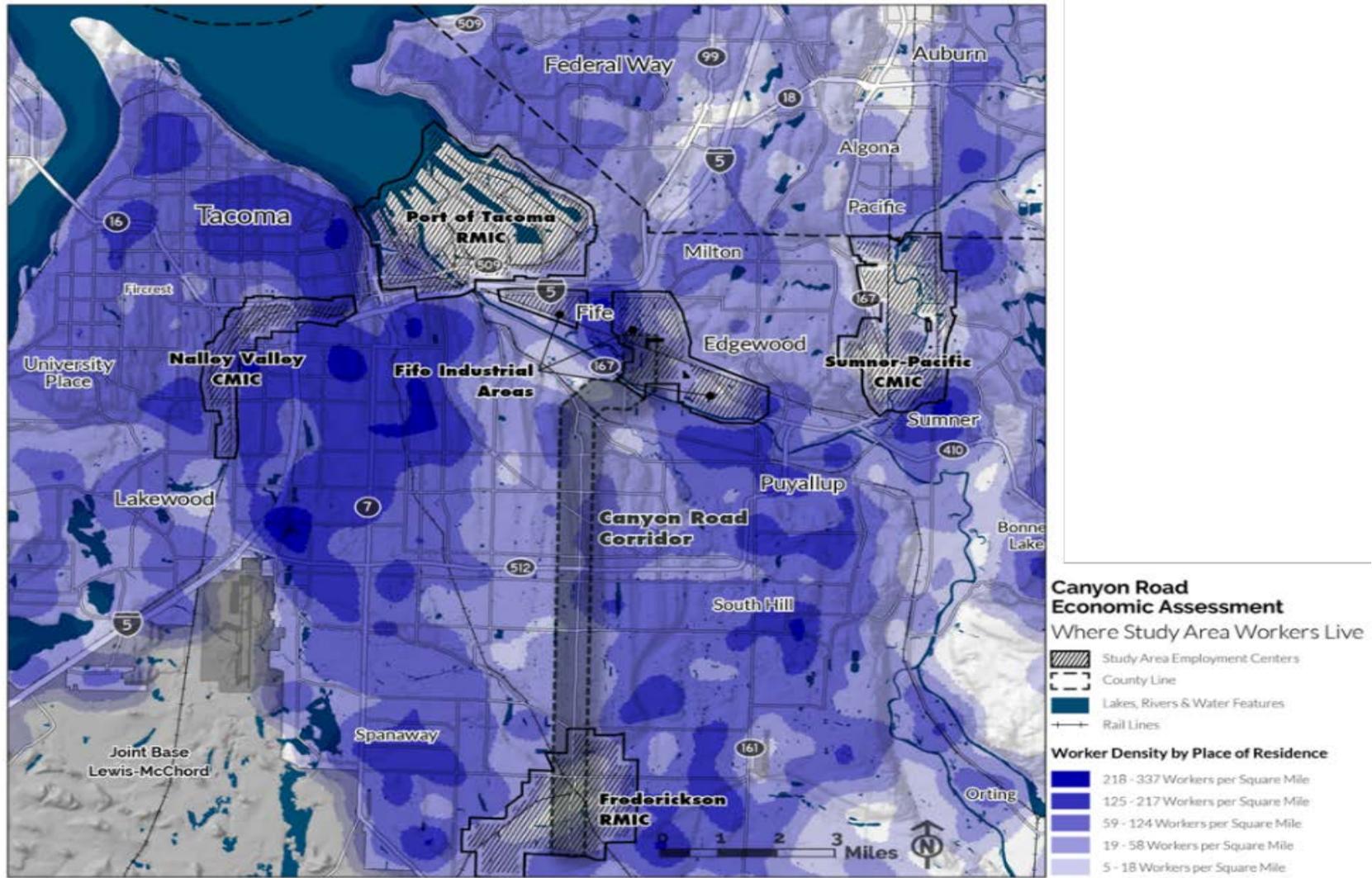
Washington Department of Transportation (WSDOT) classifies freight corridors by volume of freight transported using a system called freight and goods transportation system (FGTS). According to the FGTS, more than 10 million tons are moved per year on the Canyon Road section south of SR 512.

Overlaying these corridors with truck freight origin data from the PSRC regional traffic model suggests where freight traffic using the Canyon Road corridor is originating.

Fredrickson MIC and the areas around the MIC and south of SR 512 are the biggest users of the Corridor from the study area in terms of the number of freight trips by origin. This dynamic may change slightly with construction of the northern extension.

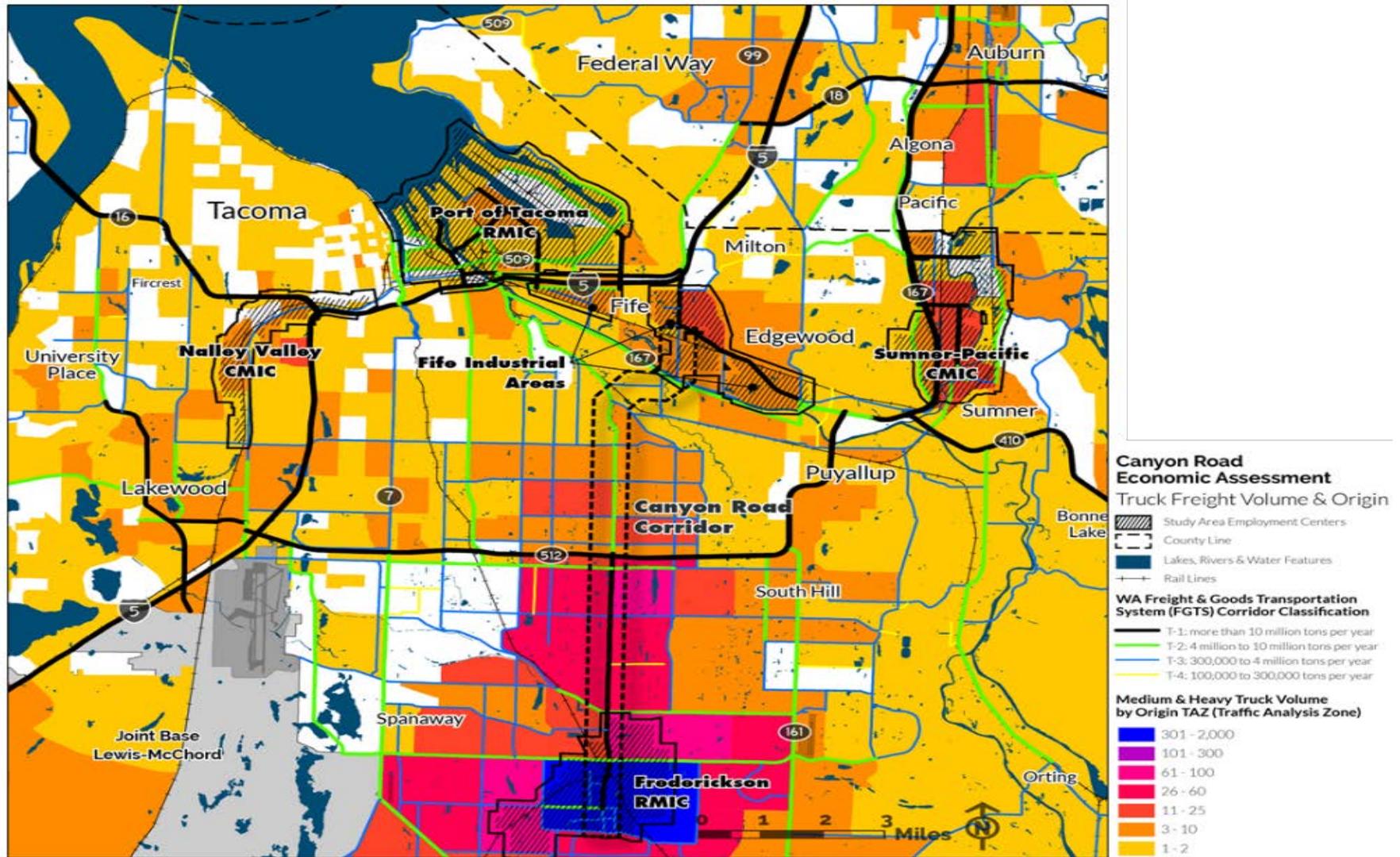
At the regional extent, significant freight origin nodes for Canyon Road traffic appear across King County to the north, including at SeaTac, the Renton Boeing plant, the Duwamish and Kent Valley MICs, the Redmond industrial area, and a distribution center near Preston on I-90.

Exhibit 8. Journey to Work for Study Area Workers, 2015



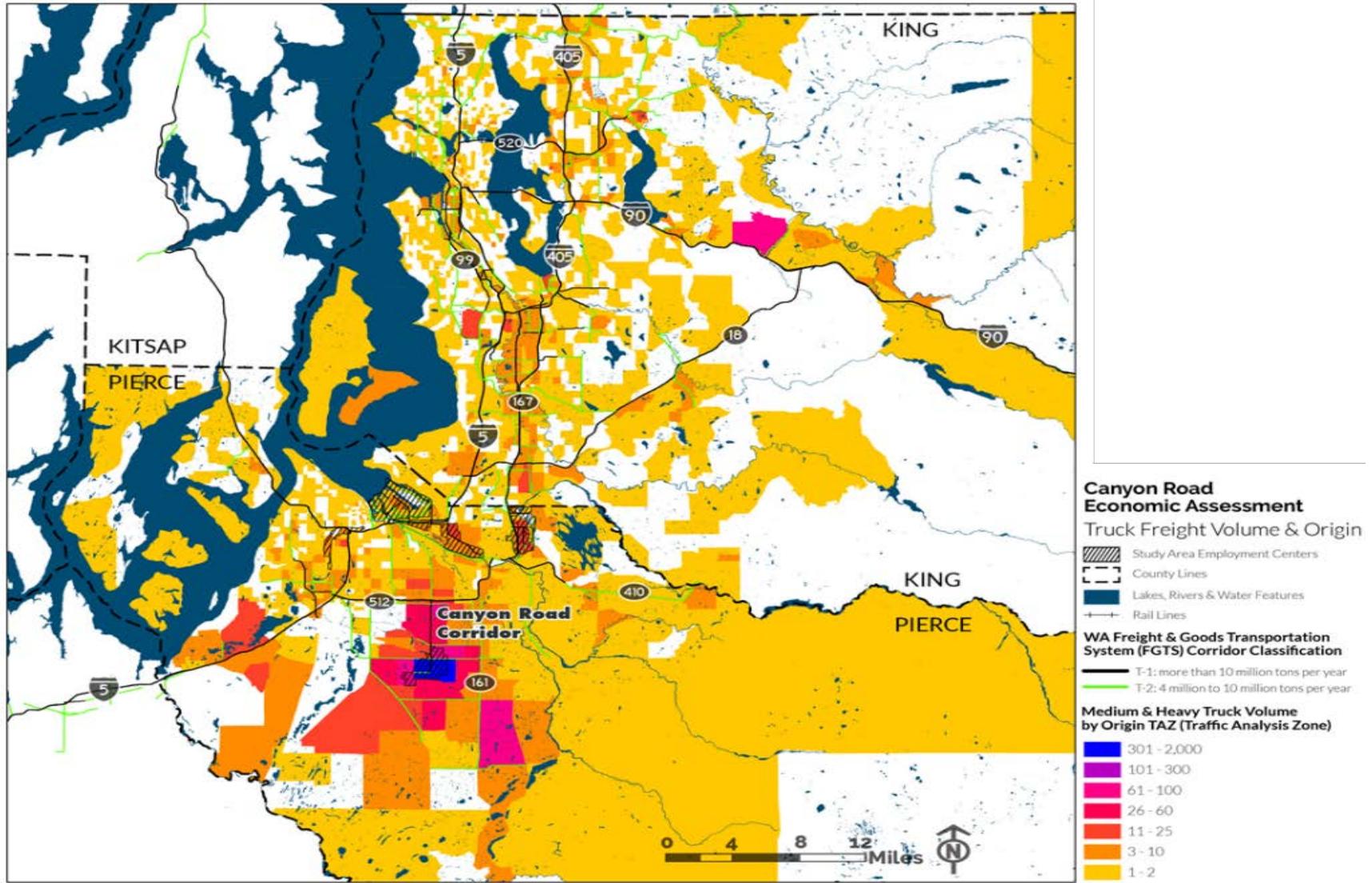
Source: LEHD, *On the Map*, 2018; Pierce County, 2018; *Community Attributes*, 2018.

Exhibit 9. FGTS Classification & Truck Freight Origins for Canyon Rd. Trips, 2014



Source: Washington State Department of Transportation, 2018; Puget Sound Regional Council, 2018; Community Attributes, 2018.

Exhibit 10. FGTS Classification & Truck Freight Origins for Canyon Rd. Trips, 2014



Source: Washington State Department of Transportation, 2018; Puget Sound Regional Council, 2018; Community Attributes, 2018.

Port of Tacoma

The Port of Tacoma is a major regional and statewide economic center. Economic activity at Port of Tacoma contributes to the economy by providing employment and income to individuals, tax revenue to local and state governments and revenue to businesses engaged in handling, shipping, and receiving cargo via the Port.

In 2013, Port of Tacoma maritime cargo and industrial lease activity generated 29,110 direct, induced and indirect jobs. Of these jobs, 16,142 were generated in Pierce County.

Exhibit 11. Port of Tacoma Economic Impact, 2013

	Marine Cargo	Industrial Tenants	Total
Total Jobs	24,725	4,385	29,110
Business Revenue (\$1,000)	\$2,472,679	\$560,867	\$3,033,546
Personal Income (\$1,000)	\$2,096,717	\$305,451	\$2,402,168
Local Purchases (\$1,000)	\$542,666	\$88,146	\$630,812
State and Local Taxes (\$1,000)	\$194,995	\$28,407	\$223,402

Source: Martin Associates, 2018; Community Attributes, 2018.

The ability of the Port to generate these economic benefits depends on several factors including the quality of infrastructure connecting the port to the region. Transit time and transportation costs are key factors in a shipper's decision to use a port-of-entry over another.

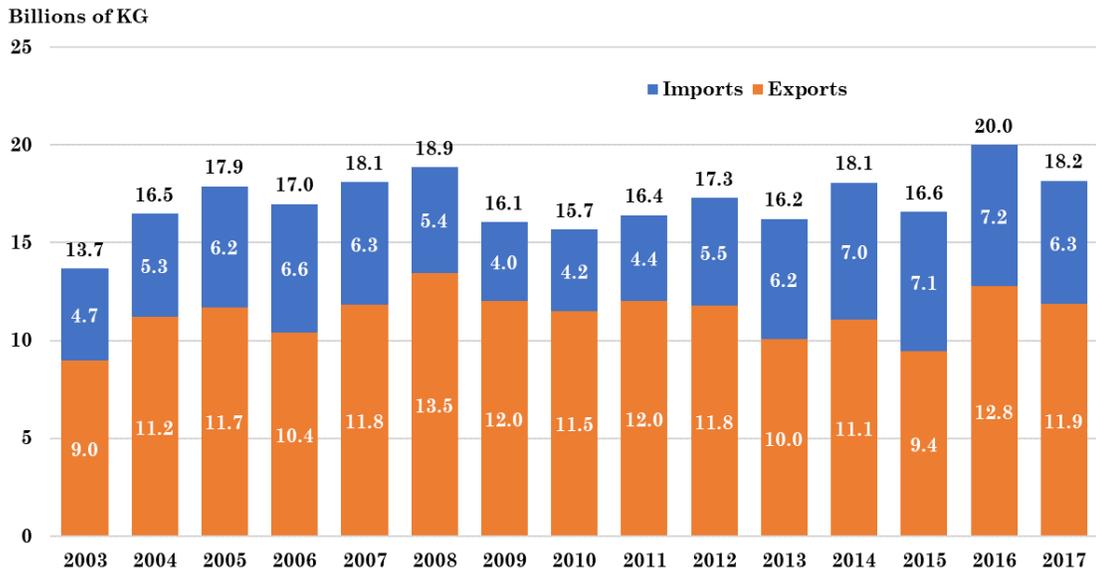
Imports and Exports

The Port of Tacoma is a gateway through the Pacific Northwest for exports and imports. Port of Tacoma's top trading partners include China/Hong Kong, Japan, South Korea, Taiwan and others.

In 2017, Port of Tacoma received 6.3 billion kilograms in imports, a decrease of 12.5% compared to the prior year and 11.9 billion kilograms in exports, 7% less than in 2016.

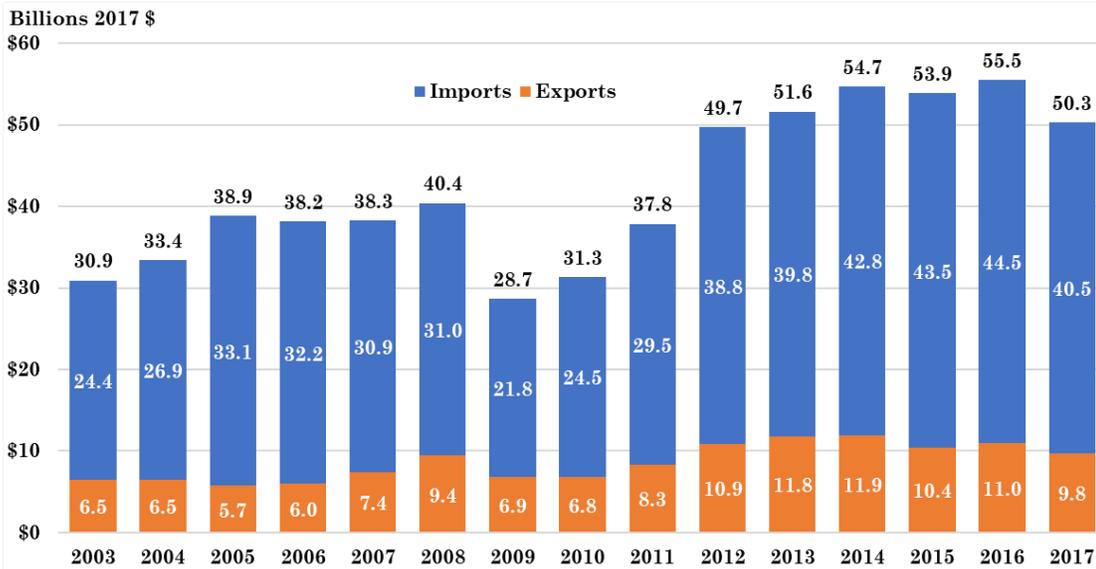
Weight is much greater for exports than for imports, as a lot of agricultural and forest products are exported through the Port of Tacoma, such as wheat, apples and logs. The dollar value of imports is considerably higher than the value of exports over time. This is due to the nature of the main commodities imported through Port of Tacoma which are high value but lower weight commodities like electronics or machinery and computers.

Exhibit 8. Imports and Exports by Weight, 2003-2017



Source: U.S. Census Bureau, 2018; Community Attributes, 2018.

Exhibit 9. Imports and Exports by Value (2017 \$), 2003-2017



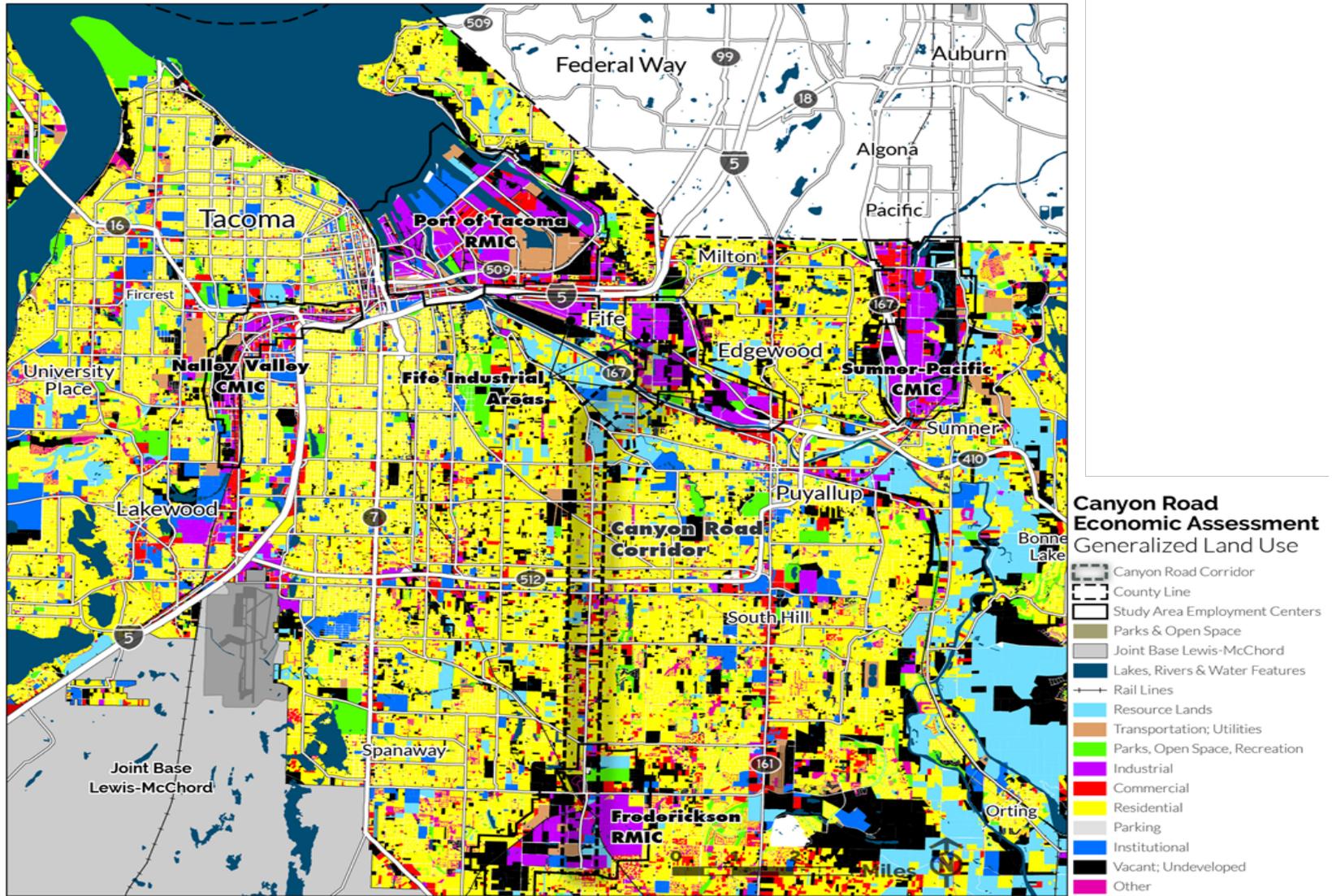
Source: U.S. Census Bureau, 2018; Community Attributes, 2018.

Real Estate Market

Land Use Patterns

The Canyon Road corridor improvements travel through largely unincorporated residential areas, connecting industrial land use concentrations to the north and south. There are miscellaneous retail uses along the corridor, with several significant concentrations south of Highway 512.

Exhibit 10. Canyon Road East Freight Corridor Study Area Generalized Land Use, 2017



Source: Pierce County Assessor, 2018; Community Attributes, 2018.

Exhibit in the Appendix illustrates the boundaries of the area from which real estate data was collected and analyzed.

Lease Rates

Lease rates have been rising consistently since 2016 in the study area. Lease rates for both manufacturing and warehousing/distribution space are significantly lower than regional averages (Exhibit 11).

Building Inventory

The large majority, more than 75%, of the industrial building square footage in the study area is warehousing/distribution space. The amount of warehousing/distribution space has increased significantly over the last four years (Exhibit 12).

Vacancy Rates

Vacancy rates for industrial uses in the study area are below 10%. Warehousing/distribution space has experienced the sharpest decline in vacancy rates over the last year. Vacancy rates for both manufacturing and warehousing/distribution space are similar to vacancy rates found regionally for industrial uses (

Exhibit 13 and

Exhibit 14).

Net Absorption

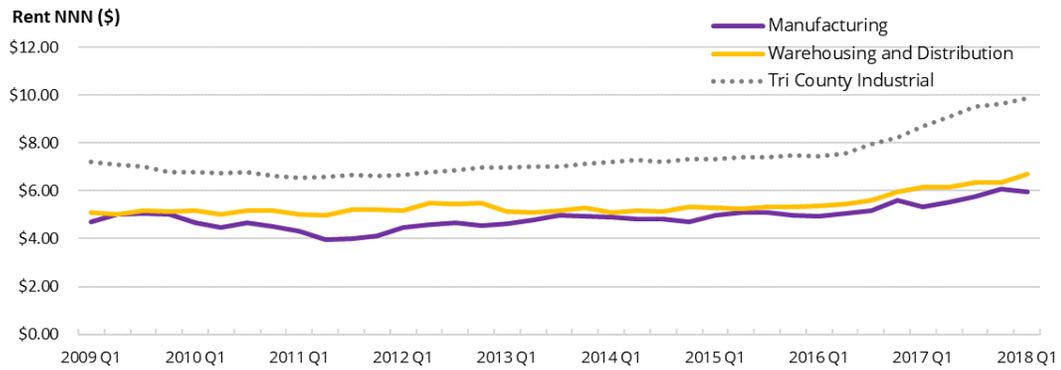
Net absorption is defined as the net change in occupied space over a given period, calculated by summing all the positive changes in occupancy and subtracting all the negative changes in occupancy.

Overall, warehousing and distribution space has consistently experienced positive net absorption since 2009, with more than 4.3 million square feet absorbed from Q1 2017 to Q1 2018 (**Exhibit 19**).

While the industrial centers in the study area have a high proportion of manufacturing employment with significant manufacturing clusters, manufacturing space experienced approximately 100,000 square feet in negative net absorption from Q1 2017 to Q1 2018.

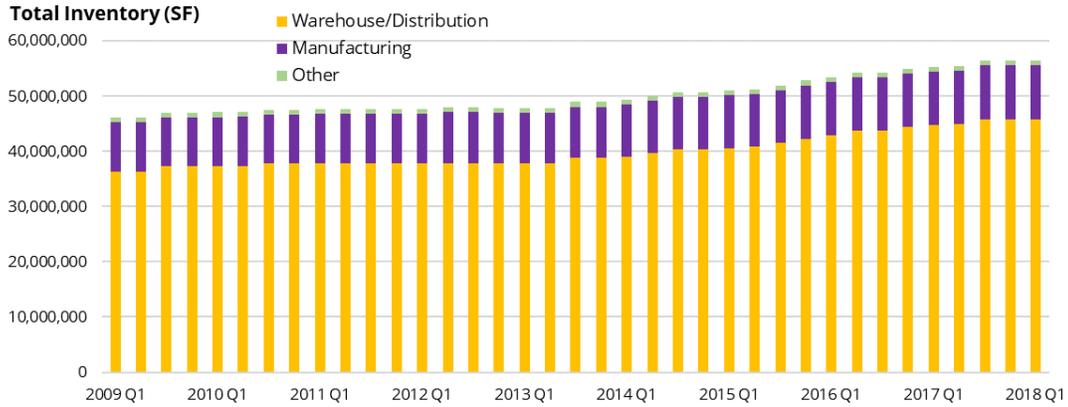
Overall, with low vacancy rates, both manufacturing and warehousing/distribution space availability is relatively tight.

Exhibit 11. Lease Rates, Canyon Road Vicinity, 2009-2018



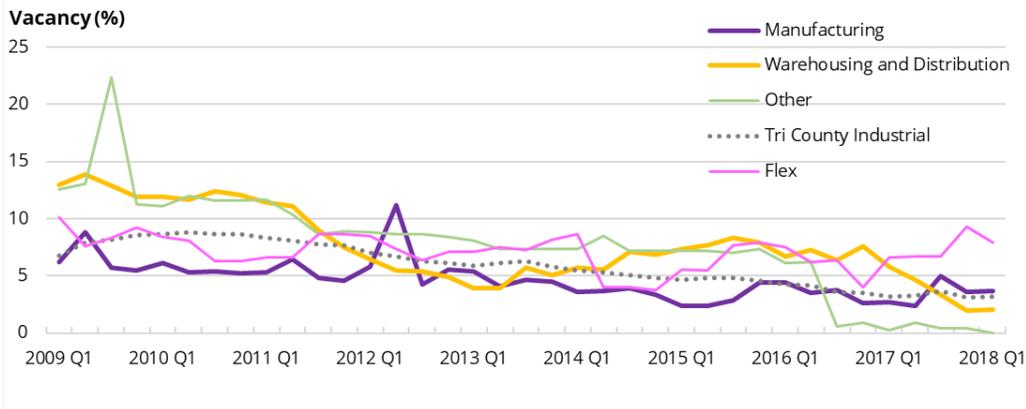
Source: CoStar, 2018; Community Attributes, 2018.

Exhibit 12. Industrial Building Inventory, Canyon Road Vicinity, 2009-2018



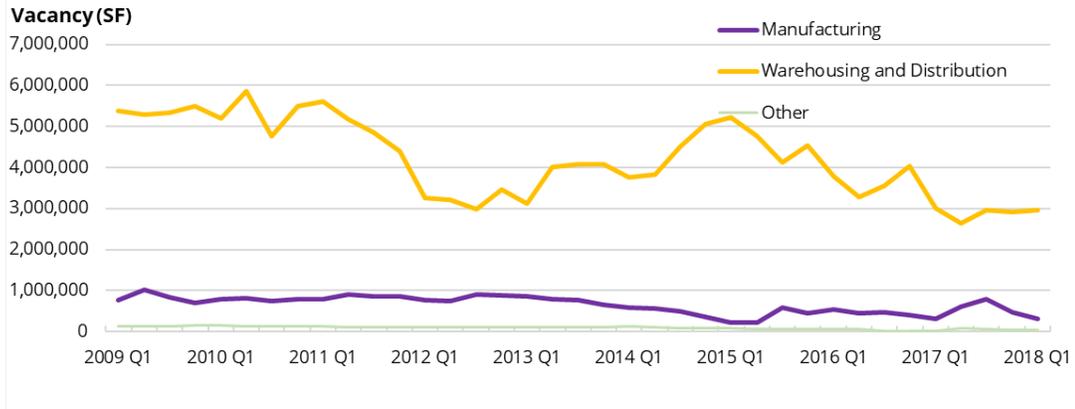
Source: CoStar, 2018; Community Attributes, 2018.

Exhibit 13. Vacancy Rates, Canyon Road Vicinity, 2009-2018



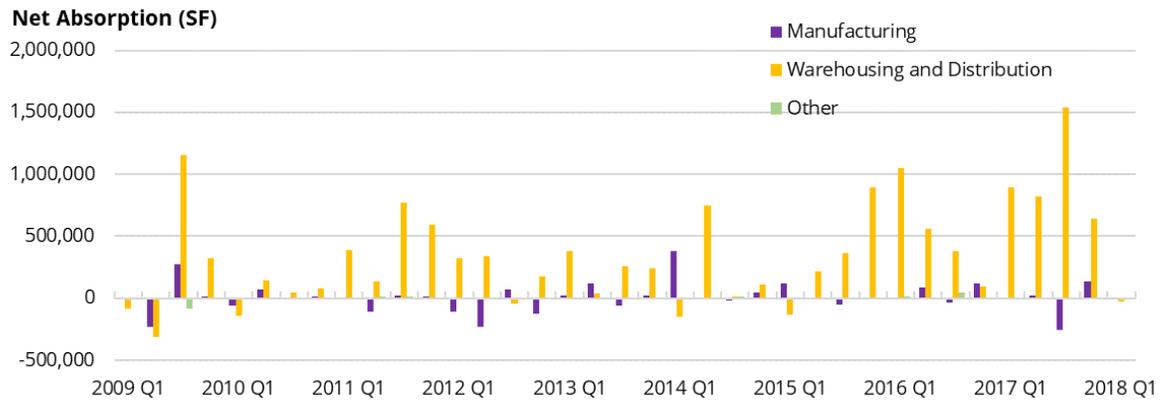
Source: CoStar, 2018; Community Attributes, 2018.

Exhibit 14. Vacant Square Footage, Canyon Road Vicinity, 2009-2018



Source: CoStar, 2018; Community Attributes, 2018.

Exhibit 19. Net Absorption, Canyon Road Vicinity, 2009-2018



Source: CoStar, 2018; Community Attributes, 2018.

Note: Building uses are based on CoStar definitions.

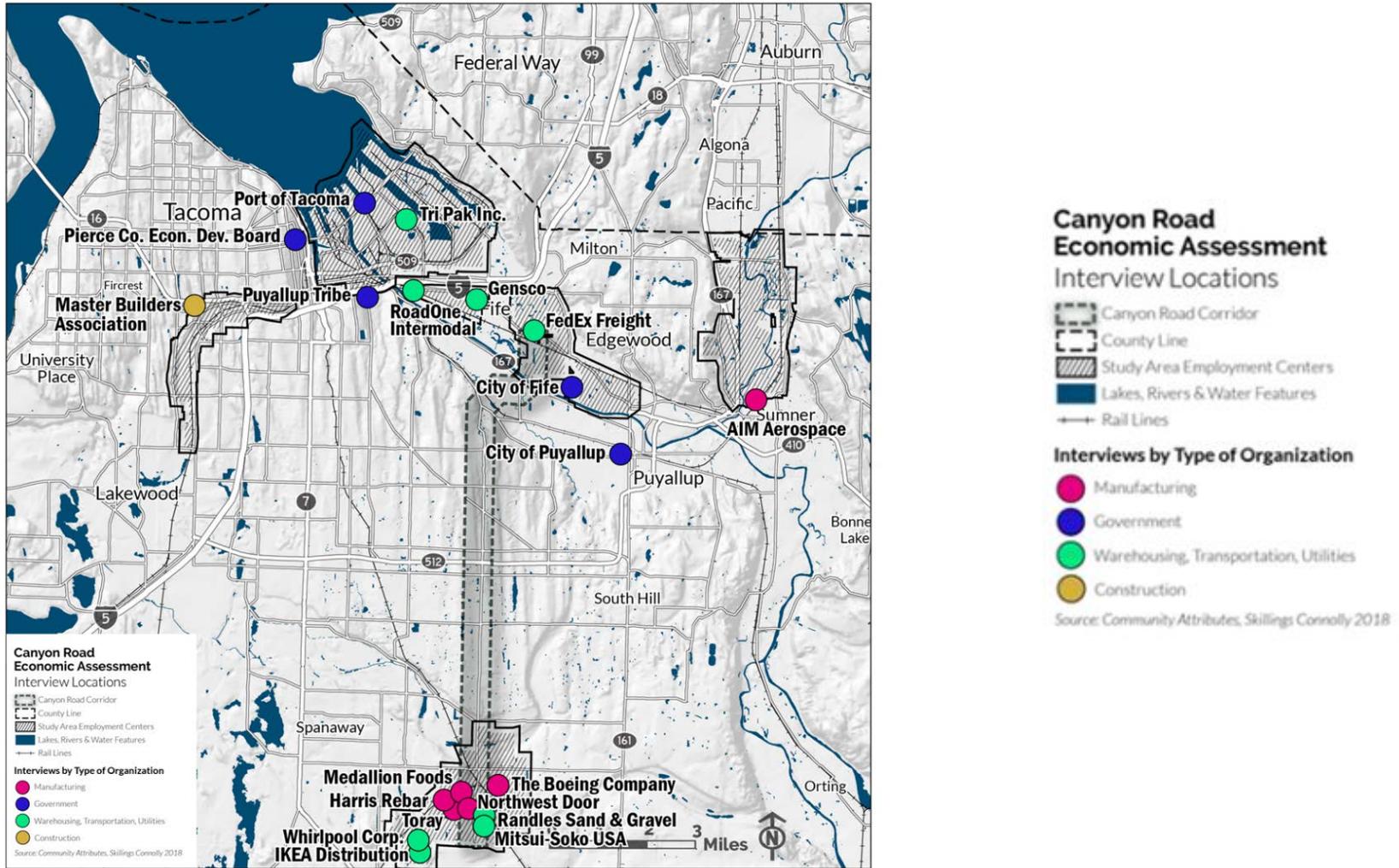
STAKEHOLDER INTERVIEWS

In preparing the economic assessment of the Canyon Road East Freight Corridor, the study team contacted more than 40 organizations within the project study area by email or phone between April and May 2018, to determine the relative role of the Canyon Road East freight corridor to these organizations and gain insight into how proposed improvements may impact their communities and the local and regional economy.

In total, 21 interviews were conducted with public officials, economic developers, and business owners/operators from different industries in the industrial centers of the study area. The responses, by industry type, include:

- Wholesale, Transportation and Utilities – 9 responses
- Manufacturing – 7 responses
- Government – 5 responses
- Construction – 1 response

Exhibit 20. Interviewee Locations



Source: Community Attributes, 2018.

The geographic location of these respondents is shown in **Exhibit** , with a good distribution of respondents across the key industrial centers in the study area such as Frederickson Manufacturing and Industrial Center (MIC), Port of Tacoma MIC and the Fife Industrial Center.

Freight Use

Users of the Canyon Road East freight corridor include businesses in the Frederickson Manufacturing Industrial Center (MIC), Port of Tacoma MIC and other key industrial centers in the area. Several organizations interviewed mentioned the corridor's main purpose is to serve the industrial needs of Frederickson MIC and provide a connection to the Port of Tacoma. Other interviewees pointed out that the role of Canyon Road East for businesses and industries, and the economic wellbeing of the area, is evidenced by the concentration of companies and jobs along the corridor and in close vicinity to the corridor.

The common industrial sectors in the study area are manufacturing, wholesale and distribution, transportation and construction. Businesses like the Boeing Company, Toray, IKEA or Tri Pak rely on the transportation network for their freight needs, to get raw materials for production or access markets to deliver products to their customers.

For example, a less than load (LTL) carrier that moves palletized freight located in Fife transports between 50 and 100 loads per day from their facility. Their drivers make between 10 and 30 stops per day at different customers in the area to pick up freight for delivery, therefore traffic flow significantly impacts every day activity for the company. They currently use the Canyon Road East corridor to deliver and pick up freight from customers down south.

Other businesses interviewed in Frederickson MIC indicated they use the corridor to access major roads and highways in the area such as I-5 or SR 167, to receive inputs for production or finished goods for distribution through the Port of Tacoma, to access customers in Puyallup and further north in Auburn or Kent. It was also mentioned that the Canyon Road East corridor is used by their employees commuting to and from work, traveling for business or recreation purposes. The corridor serves residential communities in the area, such as the fast-growing residential areas in South Hill and Parkland-Spanaway region.

Canyon Road East Current Conditions

When asked about the benefits of their current location, businesses in Frederickson mentioned the availability of land to accommodate future growth, proximity to customers and/or suppliers, proximity to the Port of Tacoma and easy access to I-5 and east and west routes.

Interview participants were also asked to identify transportation bottlenecks/choke points and other issues that currently impact efficient movement along the Canyon Road East Freight corridor.

- One business located in Fife mentioned that while the corridor is less congested than other roads in the area like Meridian Avenue East, it is difficult to access from their current location.
- Another organization acknowledged the significant investments made by the county to the section of the corridor south of SR-512. However, they suggested that similar improvements are needed for the north section which currently is not commuter or truck friendly and lacks the capacity to serve demand efficiently.
- Two organizations raised concerns around the competition for other uses along the corridor such as retail and commercial, which can generate additional traffic. It was suggested that the capacity of the corridor should be maintained for future industrial job growth.
- One organization indicated that the road is currently too narrow in areas. In addition, there is a sharp curve at Pioneer Way, making it difficult for trailers to navigate safely.
- One organization is currently running 160 trips per day out of Fredrickson, and while they are appreciative of existing improvements they are concerned about continued congestion during certain hours. In an effort to manage this they have found alternative routes to offset times throughout the day.
- A couple of interviewees mentioned how important the expansion was due to volume of freight moving through this corridor. At times there is a steady stream of freight trailers on the road making their way to I-5 and the Port of Tacoma. Several bottlenecks exist making estimated travel times difficult to plan.
- Other issues mentioned include high number of lights that are not synchronized, congestion which makes it difficult to access adjacent roads, lack of a bus and bike lane which makes it difficult to encourage commuting via other modes than by car and the need for more sidewalks.

Benefits of Planned Improvements

Completion of the corridor extension from its existing northern termini at Pioneer Way East, across the Puyallup Valley, over the Puyallup River and into the City of Fife was viewed as beneficial by most organizations interviewed.

- Several businesses suggested that improvements in connectivity and the reduction in travel time and transportation costs can

enhance their competitive position in the area and also improve the productivity of their carriers and suppliers.

- Several businesses located in Frederickson mentioned that the expansion and additional improvements to the Canyon Road East corridor will support their plans for growth in the future by providing more road capacity.
- Easier, quicker and safer access to Port of Tacoma was also seen as a plus by companies in Frederickson. One company indicated the corridor extension is likely to have a positive impact on their business as they are looking to grow their export sales and explore additional opportunities for exporting.
- Some businesses in Fife and Frederickson indicated that their use of Canyon Road East would increase as the corridor extension would provide a more accessible and reliable alternative to major roads and highways in the area that are affected by congestion.
- Two companies indicated that commute times for their employees would be beneficial since many of them utilize the corridor for their commute to work.
- Several companies indicated that improvements would lead to more productivity and reduced transportation costs.
- One of the distributors was hopeful that road improvements would open up the market to new couriers.

From a local and regional perspective, it was suggested that having a more complete and robust transportation network will increase network efficiency and help all existing industrial and economic centers in the area. Relieving traffic would incentivize more businesses to locate in the area, as industrial and commercial real estate developments want fast and efficient connections to the transportation network.

One interviewee mentioned that more businesses have located to the area within the last several years and associated this with positive improvements to road capacity on the southern portion of Canyon Road East. Several Frederickson businesses recognized the ‘agglomeration economies’ of being near their suppliers and/or clients. The proposed improvements to Canyon Road East can help recruit, retain and expand industrial and commercial developments.

Another important aspect of economic development impacts of Canyon Road East improvements is believed to be the attraction of new residents. New residents bring investments in housing, goods and services. New rooftops drive retail development, attracting new business openings. Some interview participants regard these developments as beneficial and it was mentioned that more hospitality and services are required for both people who work and live in the area. However, a couple of

organizations suggested that high concentrations of retail establishments require strategies to mitigate the negative impact on traffic.

Other issues

Some concerns were raised related to the Canyon Road East freight corridor projects:

- Traffic impacts to Chief Leschi property – it was suggested that the proposed project would require re-routing people who access the school. There would also be a need for signalization of access to Chief Leschi School.
- Cultural resource issues related to the construction of the project over the Puyallup river.
- Environmental impact of the project – several fisheries are located in the project area.
- With improvements, increased growth over time will happen, leading to more congestion.

ECONOMIC BENEFITS ANALYSIS

Role of Canyon Road East Freight Corridor

The Canyon Road East freight corridor runs from 200th St E to the south, through the Frederickson MIC, to Pioneer Way E to the north. The corridor plays an important role for several categories of users in the study area and the wider regional economy, as identified through the DRAFT Benefits Analysis of the study area and interviews with key stakeholders.

Corridor Users

Freight Users. Canyon Road East freight corridor serves strategic industries and economic centers in Pierce County. With the Port of Tacoma, a major deep-water port in the Puget Sound region, and key manufacturing industrial centers in the area, the corridor is heavily used for freight movement to get raw materials into plants and finished product out to customers.

Analysis of truck freight origin data from the PSRC regional traffic model has shown that Frederickson MIC and the areas along the corridor south of SR 512 are the biggest users of the Corridor from the study area in terms of the number of freight trips by origin.

Regionally, significant freight origin nodes for Canyon Road East freight traffic appear across King County to the north, including at SeaTac, the Renton Boeing plant, the Duwamish and Kent Valley MICs, the Redmond industrial area and a distribution center near Preston on I-90.

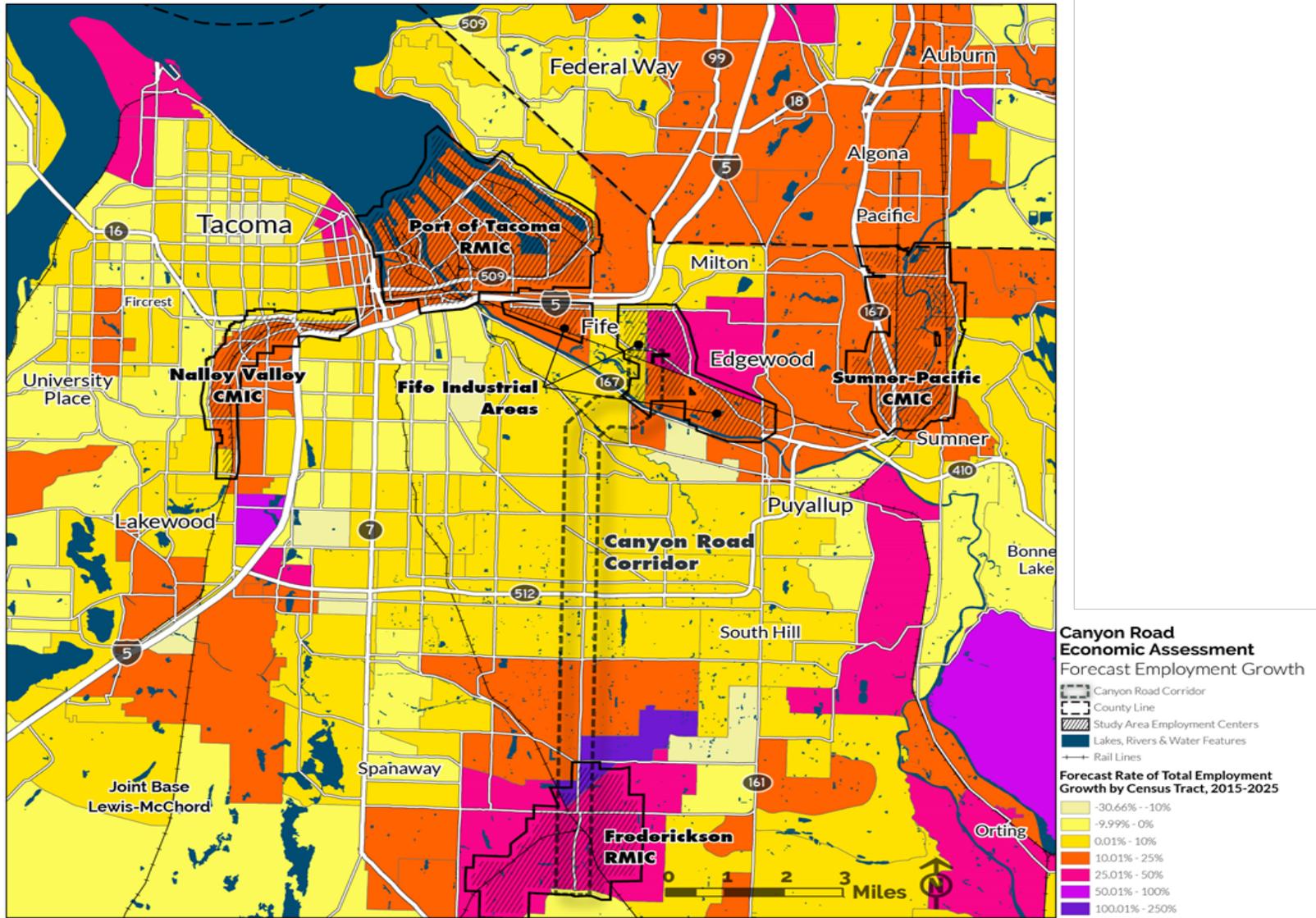
Commuters. Another aspect on which industry depends on Canyon Road East freight corridor is to get their employees to and from the employment centers. Analysis of U.S. Census Longitudinal Employer–Household Dynamics (LEHD) data for the industrial centers in the study area suggests that a significant share of people working in the industrial centers live in Tacoma, South Hill, Lakewood, Puyallup or Spanaway. Canyon Road East freight corridor serves as a local commute route for residential communities in these areas.

Support Employment Growth

Canyon Road East freight corridor is part of Pierce County's freight transportation network and connects all areas of industrial concentration in the county to markets in the Puget Sound region, other areas of Washington state and internationally through the Port of Tacoma.

PSRC's Vision 2040 plan recognizes industrial centers as important employment locations that serve both current and long-term regional economic objectives.

Exhibit 21. Forecast Employment Growth Rate by Census Tract, 2015-2025



Source: Puget Sound Regional Council, 2018; Community Attributes, 20018.

The vision calls for the provision of infrastructure and services in MICs necessary to serve intensive manufacturing and industrial activity. Employment in the study area is expected to grow significantly in the next 10 years. A complete, efficient and robust transportation network is required to support job growth.

Support Population Management

Rapid population and employment growth in Pierce County and the region over the last several decades has led to substantial increases in the number of people commuting to work. Land use patterns have created an imbalance between housing, jobs, shopping, schools and other activities locations which increased the daily distances travelled.

Future population growth is expected in Pierce County. According to PSRC's population projections, the county is projected to add over 100,000 people between 2015 and 2025, which represents a growth of approximately 1.2% on average per year. Planning for growth requires better mobility and a user-oriented transportation system that provides safety, and travel time and cost efficiencies.

Canyon Road East freight corridor plays an important role as a commuter route in the region and the extended corridor can improve the jobs-housing imbalance and allow people to live and shop closer to where they work.

Support Port of Tacoma Operations

The maritime industry is a traditional economic component of Pierce County's local economy. In 2015, the Port of Tacoma handled roughly 2.1 million Twenty-Foot Equivalent Units (TEUs) in container volume. Also, the Port of Tacoma is a major center for bulk and heavy-lift cargoes, as well as automobiles and medium-duty trucks. According to the Port's Strategic Plan, the container volume target for 2022 is set to reach 3 million TEUs.

The Port is highly dependent on intermodal transportation to move containerized freight. Port customers want to get their cargo to the final destination as seamlessly and efficiently as possible. The Canyon Road East freight corridor indirectly supports the containerized cargo industry in the region and future growth of Port of Tacoma operations. An extended and better integrated corridor can lower transit times and reduce transportation costs, two essential factors which impact a shipper's decision when selecting a port of entry.

Potential Economic Gains to Freight Users

As shown in the Baseline Economic Assessment of the study area, employment in the industrial centers is concentrated mostly in the manufacturing and wholesale,

transportation and utilities (WTU) industries. Areas like the Frederickson MIC, Port of Tacoma MIC or Fife Industrial center are not only important local employment centers but also support the regional economy through supply chain linkages.

A measure of the breadth of the supply chain is the backward linkage (or multiplier effect) in the input-output structure of the economy. A mapping of relationships in the Washington state economy shows that manufacturing has one of the highest job multipliers, after utilities (i.e. for every manufacturing job, a total of 1.9 other jobs are created).

Given the importance to the Pierce County economy of the manufacturing, wholesale and transportation industry clusters, it is evident the area depends on a robust freight transportation network. The Canyon Road East freight corridor proposed improvements can support the daily functions of every business in these industry clusters through better access to markets, labor and suppliers.

Exhibit 22. Employment and Output Multipliers by Industry (Washington State, 2007)

Sector	Jobs Multiplier	Output Multiplier
Wholesale and retail trade	1.67	1.77
Natural resources and mining	1.86	1.99
Manufacturing	2.91	1.60
Construction	2.59	1.97
Utilities	4.03	1.85
Services	1.96	2.04
Transportation	2.34	2.03

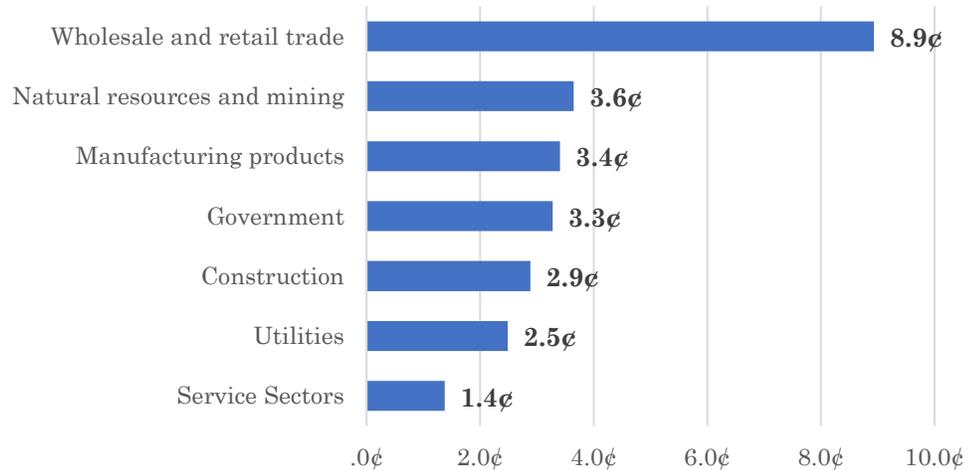
Source: Office of Financial Management (OFM), 2018; Community Attributes, 2018.

Note: The jobs multiplier indicates the total number of jobs generated in all sectors of the economy per direct job change in the industry. The output multiplier represents the total output generated in all sectors of the economy per dollar of direct output change in the industry.

Reliance on Transportation

Logistics is a critical element in the business model of any company. The degree of importance varies with the particular sector, but in all cases, logistics is a major factor in doing business. Businesses in the study area rely on Canyon Road East freight corridor as one of their key routes to reach suppliers, customers, or other transportation corridors.

Exhibit 15. Amount of Transportation Required to Produce a Dollar of Output



Source: *Transportation Satellite Accounts, 2018*; U.S. Department of Transportation, 2018; *Community Attributes, 2018*.

The Transportation Satellite Accounts (TSA) developed jointly by the Bureau of Transportation Statistics (BTS) of the U.S. Department of Transportation and the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce provide a means to determine the amount of transportation used by an industry and identify what industries rely the most on transportation.

The wholesale and retail trade sector, which is a top employer in the study area, requires more transportation services per dollar of output than any other sector (**Exhibit 15**). The Canyon Road East freight corridor proposed improvements can improve reliability and efficiency of the freight transportation network, resulting in transportation cost savings to industries like wholesale and retail which rely heavily on truck transportation services.

These cost savings can have several benefits to transportation reliant industries as listed in Exhibit 16, including increases in industry output if the savings are passed on to customers.

Exhibit 16. Benefits of Transportation Cost Savings to Industry

Industry Option	Use Option	Direct Impact
Keep as profit	Proprietor's Income	HH re-spending
	Corporate Profits	No impact (leakage)
Pass on to Customers	Increase market share	Increase output if demand is elastic
	Maintain market share	Industry re-spending HH re-spending
Reinvest in industry	New/better capital	Increase output if demand is elastic
	More labor	
	Other/more inputs	

Source: *Transportation Satellite Accounts, 2018*; *U.S. Department of Transportation, 2018*; *Community Attributes, 2018*.

Commuter Economic Surplus

The Canyon Road East freight corridor proposed improvements are expected to reduce effective distances between origins and destinations by reducing congestion and providing more direct connections, thereby lowering travel times. This will likely result in vehicle operating cost savings to users of private vehicles traveling to work, school, for business or other purposes.

It was estimated that total operational cost savings (undiscounted) to users of private vehicles over the course of the 50-year design life of the project are roughly \$13 million.

**Exhibit 17. Direct Impacts of Operational Cost Savings to Users of Private Vehicles
(Million \$)**

Sector	Operational Cost Savings (undiscounted)	Operational Cost Savings (7% Discount Rate)	Operational Cost Savings (3% Discount Rate)
Wholesale and retail trade	\$2.6	\$0.3	\$0.9
Natural resources and mining	\$0.1	\$0.0	\$0.0
Manufacturing	\$0.7	\$0.1	\$0.3
Construction	\$0.2	\$0.0	\$0.1
Utilities	\$0.5	\$0.1	\$0.2
Services	\$8.4	\$1.0	\$3.0
Transportation	\$0.5	\$0.1	\$0.2
Total	\$13.0	\$1.6	\$4.6
Direct Jobs	180	20	60
Direct Output	\$25.3	\$3.0	\$8.9

Source: Office of Financial Management (OFM), 2018; DKS, 2018; Community Attributes, 2018.

Note: Direct impacts are calculated based on estimates of operational cost savings provided by DKS Associates from the cost benefit analysis and might be subject to change as assumptions for the analysis are reviewed.

Assuming these cost savings translate into consumer spending, the distribution of personal consumption expenditures by sector was calculated using the Washington State Input-Output table. This additional spending will support around 180 direct jobs and \$25.3 million in direct output.

Potential Real Estate Development Impacts

Approach

A key component of the Canyon Road East freight corridor is its potential impact on locate real estate development conditions. The area’s capacity for growth and ability to attract private investment in industrial building/facilities is predicated on region wide infrastructure and access. The following analysis provides an assessment of capacity in both the Frederickson RMIC and Fife Industrial area. The two areas were selected based on their direct connection to the improved corridor and potential future buildout.

Buildable Land Supply Context & Methodology

The estimates of development and employment capacity use a methodology based on that in the Pierce and King County Buildable Lands Reports:

- Determination of physical developability or redevelopability is based on a calculated ratio of improvement value (buildings) per square feet of parcel land area.

- Inventory is categorized by resulting ratio:
 - **Vacant:** <\$.001 Improvement Value / Square Foot (land)
 - **Potentially Redevelopable, Tier A:** \$.001-\$2.50 Improvement Value / Square Foot (land)
 - **Potentially Redevelopable, Tier B:** \$2.50-\$5.00 Improvement Value / Square Foot (land)
- Certain land uses are excluded from inventory, including: Built Schools, Fire Stations, Libraries, C/U Open Space, Parks, Cemeteries, Utilities.
- Deductions are made for future ROW and public-use development (5% of gross parcel area); and for “market factor” (15% of gross parcel area). Market factor is an assumption that not 100% of available land will be developed due to a number of anomalous factors.
- Note that critical areas such as wetlands and streams are not included in the analysis.

Modeled Employment Capacity

For this study, a conservative 1,000 sf / employee figure was utilized based upon the nearest calculated figures available (for Sumner-Pacific MIC). This assumption is similar to values utilized by the Puget Sound Regional Council as well as King and Pierce Counties when analyzing buildable lands in the region. Please refer to the Appendix for more details.

Developable Land Capacity Anchoring the Canyon Road East Freight Corridor

In the large industrial employment centers anchoring both ends of the Canyon Road East freight corridor – Fife Industrial Area to the north and the Frederickson Regional MIC in the south, large amounts of land remain available for future development – especially in Frederickson.

Of 2,344 total acres, 1,304 acres or **56 percent** of total parcel area in Frederickson are potentially vacant or physically redevelopable.

Exhibit 18 and **Exhibit 19** provide an overview of vacant and developable lands in the Fife Industrial Area and Frederickson RMIC. Estimated capacity is divided into three tiers as described in the methodology section: Vacant, Underutilized Tier A, Underutilized Tier B.

Exhibit 18. Close-Up of Land Capacity in Fife Industrial Areas

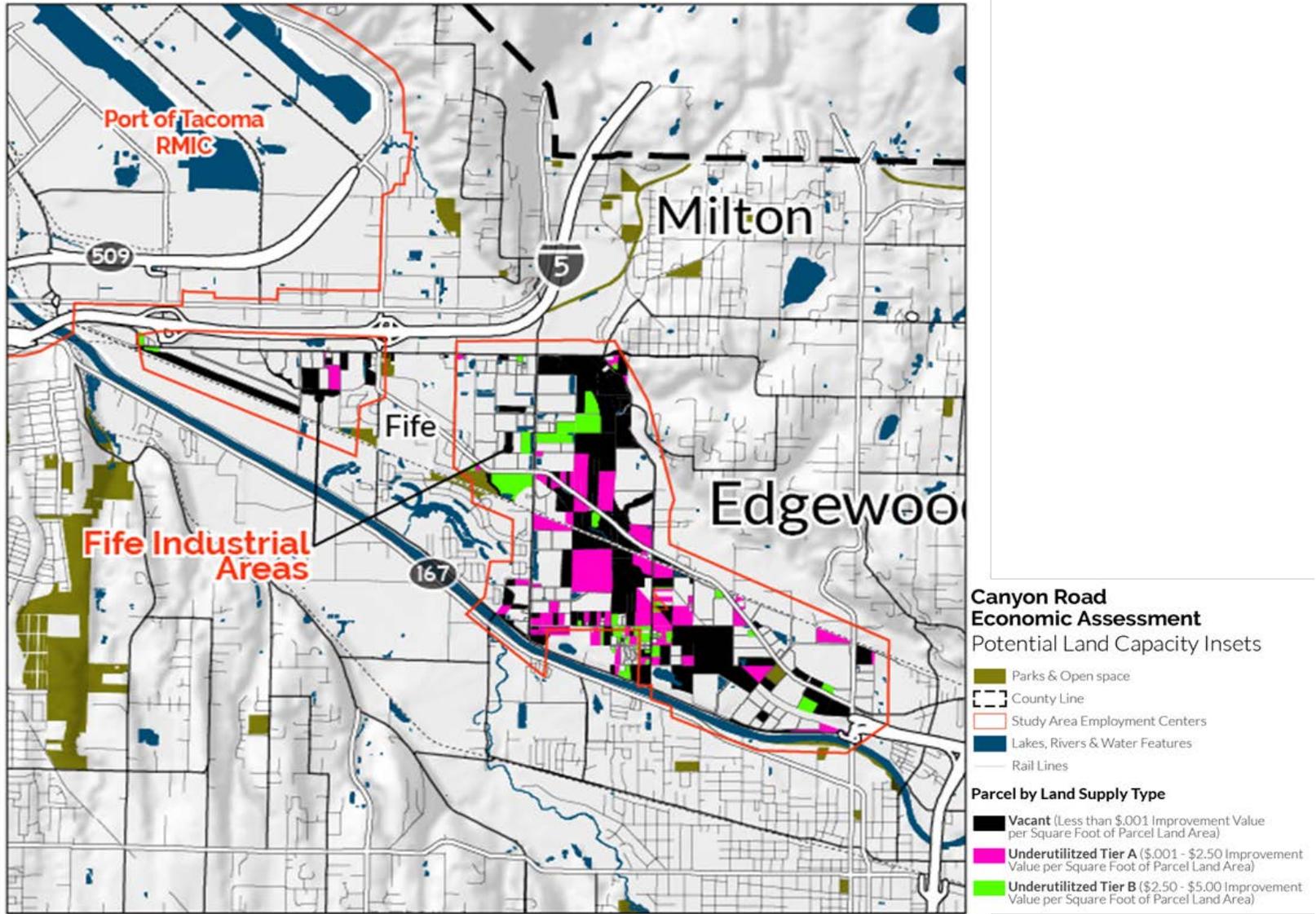
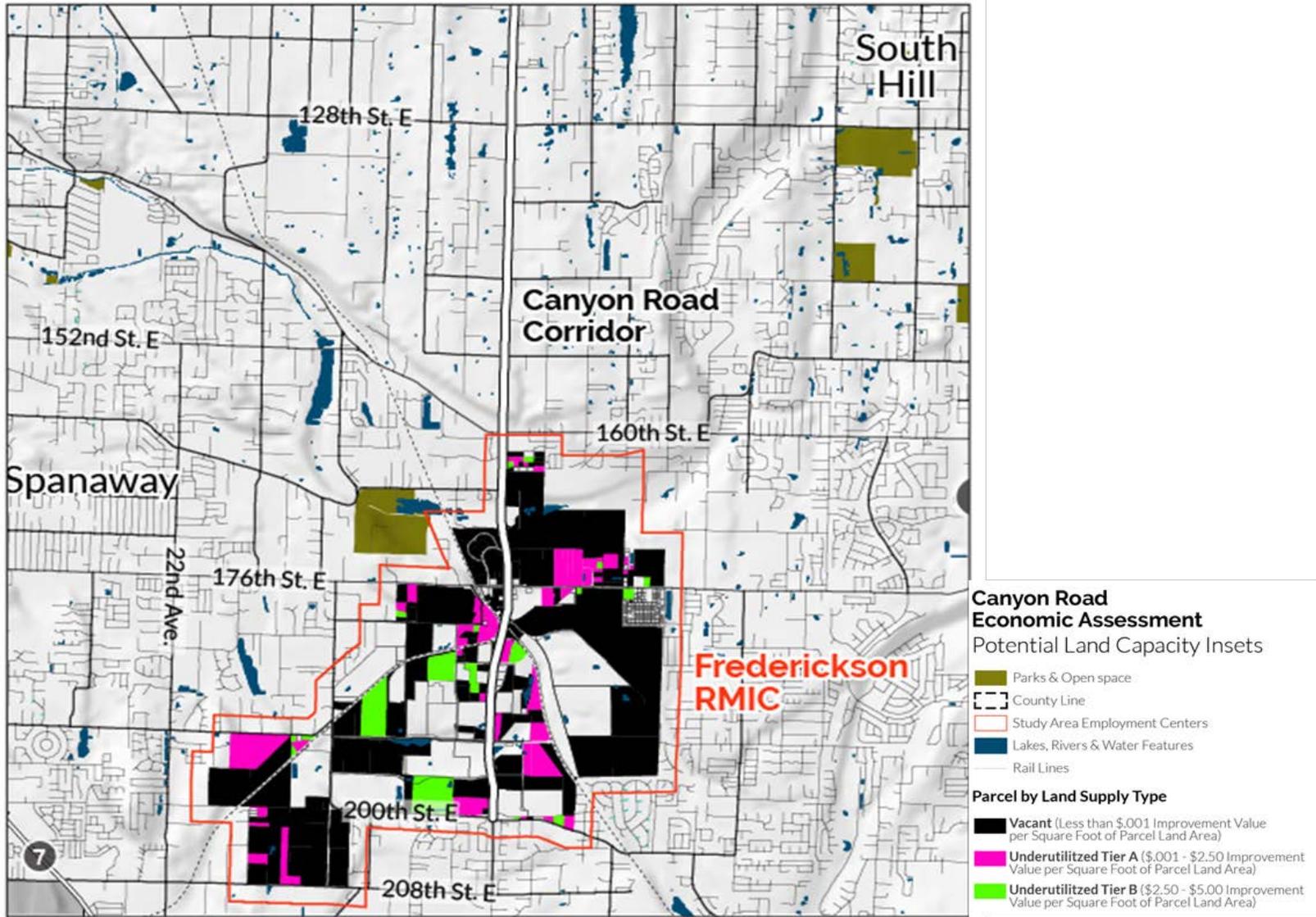


Exhibit 19. Close-Up of Land Capacity in Frederickson Regional MIC



Source: Pierce County Assessor, 2018; Community Attributes, 2018.

Exhibit 20 to **Exhibit 21** on the following page illustrate the estimated employment capacity within the Fife Industrial Area and Frederickson RMIC.

Significant Capacity for Additional Employment in Frederickson & Fife

Based on locally-tested assumptions around Floor-Area Ratio (FAR) and space utilization, Frederickson alone could have sufficient capacity for up to 22,000 additional jobs on its 1,304 acres of vacant and potentially underutilized land. Together, the Fife and Frederickson industrial areas represent a significant portion of the region's industrial employment capacity.

The completion of the Canyon Road East freight corridor and the associated improved connectivity can enhance the area's competitive position and could potentially attract new businesses to the area and also encourage growth and expansion of current businesses. Our analysis has shown that there is significant capacity for additional growth and development in both the Frederickson MIC and the Fife Industrial Area - the two industrial centers in the study area which are likely to benefit the most from the proposed improvements.

Exhibit 20. Modeled Employment Capacity: Vacant Land

	Assumed		Assumed		
	Net Vacant Supply (sf)	Floor-Area Ratio (FAR)	Floor Area Capacity (sf)	Square Feet / Employee	Estimated Job Capacity
Fife Industrial Areas	18,888,313	0.5	9,444,156	1000	9,444
Frederickson MIC	44,796,756	0.4	17,918,702	1000	17,919
	63,685,068		27,362,859		27,363

Exhibit 28. Employment Capacity: Tier A Underutilized Land

	Total Net Underutilized Supply (sf)	Assumed Floor-Area Ratio (FAR)	Assumed Floor Area Capacity (sf)	Assumed Square Feet / Employee	Gross Job Capacity	Displaced Employees Deduction*			Estimated Net Job Capacity
						Existing Floor Area	Assumed Square Feet / Employee	Displaced Employee Deduction	
Fife Industrial Areas	8,426,246	0.5	4,213,123	1000	4,213	360,540	1000	361	3,900
Frederickson MIC	7,968,692	0.4	3,187,477	1000	3,187	225,670	1000	226	3,000
	16,394,939		7,400,600		7,401	586,210		586	6800*

Exhibit 21. Employment Capacity: Tier B Underutilized Land

	Total Net Underutilized Supply (sf)	Assumed Floor-Area Ratio (FAR)	Assumed Floor Area Capacity (sf)	Assumed Square Feet / Employee	Gross Job Capacity	Displaced Employees Deduction*			Estimated Net Job Capacity
						Existing Floor Area	Assumed Square Feet / Employee	Displaced Employee Deduction	
Fife Industrial Areas	3,619,313	0.5	1,809,657	1000	1,810	359,218	1000	359	1,500
Frederickson MIC	4,030,868	0.4	1,612,347	1000	1,612	455,101	1000	455	1,200
	7,650,181		3,422,004		3,422	814,319		814	2600*

ENVIRONMENTAL REVIEW

The natural environment provides a host of economic benefits to any given area, especially those located in dense urban settings. Economic value can be placed on the functions provided by the natural environment, ranging from flood relief (e.g. wetlands) to recreational (e.g. tourism). While modification of natural resources within the Canyon Road corridor is proposed, associated impacts will be evaluated as part of a NEPA Environmental Assessment. As part of NEPA requirements and other local and federal permitting requirements, any anticipated impacts to the natural environment will be mitigated for to ensure that there is no significant adverse impact to natural resource functions or to the economic benefit provided by those resources.

CONCLUSION

The baseline economic assessment has helped identify benefits along Canyon Road within the Fredrickson and Port of Tacoma areas by defining current and future growth within the industrial and residential sectors. Forecasted population growth for this region is projected to be 1.3% annually for the next ten years. Tacoma, South Hill, Lakewood and Puyallup are among the top-rated places for residential growth, meaning, the Canyon Road corridor between the Port of Tacoma and Fredrickson will continue to experience higher rates of demand for daily commuters, public transportation and commercial and industrial needs. Fredrickson consists mainly of warehousing and distribution with a vacancy rate below 10%. Truck freight is a dominant mode of transportation, relying on Canyon Road to access the Port of Tacoma as well as King County and other destinations around the state. Throughout the Canyon Road corridor, exists a high rate of unused land. Future growth plans have outlined the expansion of all industrial, commercial and residential areas. Any and all improvements to Canyon Road will help shape and guide the future for many of these projects, leading to an overall safety and economic benefit to the region.

In addition to the research which helped define the baseline benefits for improvements to Canyon Road, stakeholder interviews were performed to help establish a better understanding of current use and projected growth for industries operating within the region. Stakeholders were selected based on criteria associated with those most likely to be impacted by improvements to

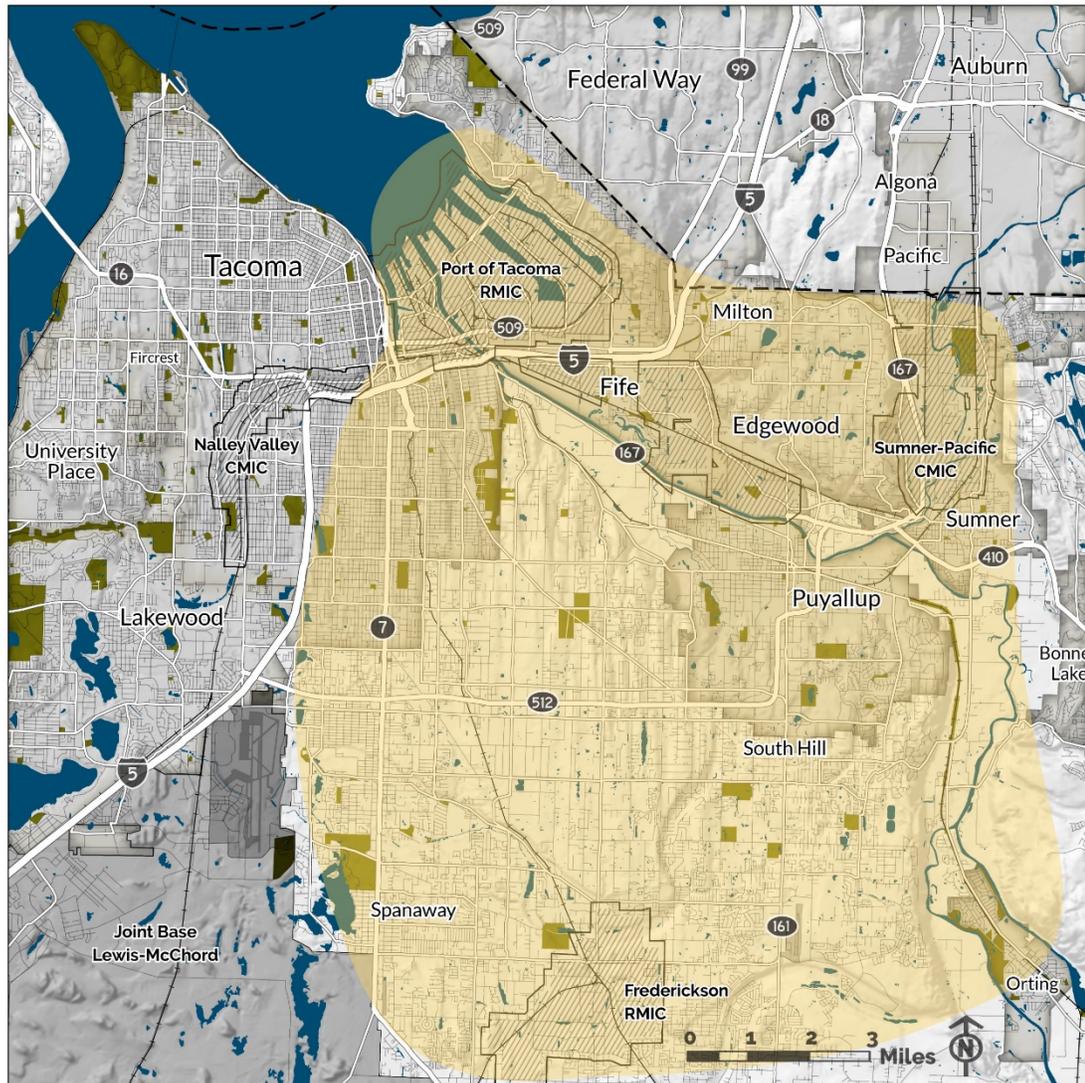
Canyon Road. Companies in the warehousing and distribution sector, public sector and transportation sector were identified and interviewed. There was unanimous agreement among interviewees that Canyon Road East freight corridor is essential to the economic wellbeing and future growth potential of the manufacturing industrial centers and communities within the study area. Reduced congestion of local roads and highways by providing an improved north-south transportation route was identified as a benefit to future improvement plans. As an alternative route, the corridor can draw traffic from other major routes in the area to help relieve congestion. Increased road capacity to support growth and expansion of Port of Tacoma activities and businesses in the Frederickson MIC and other industrial centers in the study area will benefit greatly by improved safety, better traffic flow and shorter commute times. Increased efficiencies experienced by freight carriers resulting from travel time savings and improvements to accessibility and safety will allow business in the region to maximize their efficiencies and allow for additional growth. Future development for the region forecasts growth in retail, hospitality and services, benefiting people living in the area. The Canyon Road East freight corridor project will improve reliability and efficiency of the regional transportation system, potentially leading to transportation cost savings to key industries. Improvements will likely result in vehicle operating cost savings to users of private vehicles traveling for work, school, or other purposes, relating to savings that will translate into consumer spending, this spending is forecasted to support around 180 direct jobs and \$25.3 million in direct output. There is significant capacity for additional employment in Frederickson MIC and Fife Industrial Area to accommodate potential growth and expansion driven by the Canyon Road East freight corridor improvements.

Canyon Road corridor improvements will help shape the future on a multitude of levels, leading to the betterment of this region for the people that reside, work and pass through. Improved safety, transportation flows and capacity of the Canyon Road corridor will set the foundation for many proposed projects outlined through the various agencies, private businesses and residential sectors that all make up each growth management plan defined for this region.

APPENDIX

Real Estate Indicators Study Area

Exhibit 30. Real Estate Indicators General Study Area



Source: *Community Attributes, 2018.*

Modeled Employment Capacity

For this study, employment capacity is modeled by first multiplying estimated developable and redevelopable land acreages by a Floor Area Ratio (FAR) figure, resulting in an estimate of building area utilization. This figure is then multiplied by potential space utilization per employee, resulting in an estimated employment capacity.

Industrial FARs and space utilization figures per employee vary widely by industry, region, and even by individual industrial areas. In studies of industrial areas across the four-county central Puget Sound region – including for the Arlington-Marysville MIC, the Ballard-Interbay MIC, the Duwamish MIC, and the Sumner-Pacific MIC – CAI has analyzed employment capacity and space utilization.

It was found that WTU industries typically average around 1,000 sf per employee, while manufacturing industries utilize 800-900 sf per employee (with greater variation than WTU) on average. Construction / resource industries typically take up much greater space per employee, and industries housed in flex facilities or with larger commercial / office components are typically denser.

For this study, a conservative 1,000 sf / employee figure was utilized based upon the nearest calculated figures available (for Sumner-Pacific MIC). This assumption is similar to values utilized by the Puget Sound Regional Council as well as King and Pierce Counties when analyzing buildable lands in the region.

Exhibit 31. Sumner-Pacific Employment Capacity at Existing FAR & Space per Employee, 2015-2040

Subarea	Developable Land Capacity	FAR (Existing)	Square Feet / Empl. (Existing)
1 - Pacific	86	0.13	1,079
2 - Northeast Sumner	208	0.08	1,237
3 - Central Valley	174	0.80	1,202
4 - South MIC	21	0.32	993
Total	489		

Source: Sumner-Pacific MIC Market Study, Community Attributes, 2017.