

Economic Impacts of the Proposed SODO Arena

Impacts on South Seattle Industrial Areas and Regional Considerations

April 2016

Prepared for:



Prepared by:





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CAI is a Seattle-based consulting firm with more than 10 years of experience in helping clients make informed decisions through economic, demographic and planning data. The CAI team has extensive experience with data-driven, regional industrial land studies, as well as economic and market studies for industrial lands. Past projects include:

- Puget Sound Regional Council: Industrial Lands Analysis
- City of Seattle: Local Production Study
- City of Seattle: Economic Analysis of Proposed Coal Train Operations
- City of Seattle: North SODO Station Area Job Strategy, Land Use & Transportation Study
- City of Seattle: Basic Industries Economic Impact Analysis
- City of Seattle: Industrial Lands Surveys and Needs Assessment
- Port of Olympia: New Market Industrial Campus Real Estate Development Plan
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President and CEO

Chris Mefford

Lead Analyst

Spencer Cohen, PhD

Analysts

Diana Haring

Michaela Jellicoe

Radhika Nair

Katy Nally

Sudarshan Sampath

Community Attributes Inc.
1411 Fourth Avenue, Suite 1401
Seattle, Washington 98101
www.communityattributes.com

EXECUTIVE SUMMARY

Summary of Findings

- Businesses and government agencies located in SODO study area employed an estimated 42,700 covered workers in 2014.
- More than half the sales generated by private sector businesses in the study area came from manufacturing, and warehousing, transportation and utilities.
- The Port of Seattle facilitated the movement of \$18.4 billion in containerized maritime imports and exports through its terminals in SODO in 2014.
- Marine cargo activities at the Port of Seattle supported 8,900 direct jobs in 2013.
- The FEIS estimates an average wage of \$50,600 per year for jobs brought in by the proposed arena; currently, the average wage in SODO is \$70,400.
- Stakeholders are concerned the proposed arena will lead to additional non-industrial uses to follow and displace current industrial land uses in SODO.
- Traffic congestion associated with the proposed arena is expected to affect trucking operations that use port terminals to export shipments.
- Multiple events held on the same day in SODO are estimated to occur every 5 to 6 days on average if the proposed arena is constructed.
- Shipments to and from Eastern Washington and areas north of Seattle along the I-5 corridor are expected to be the most disrupted by anticipated traffic congestion.
- The intersection of First Avenue South and South Atlantic Street is part of a route commonly used by trucks for state-based trips and would bear heavy traffic impacts from the proposed arena.
- Trucks moved an estimated \$356 million in marine cargo (imports and exports) across the South Atlantic Street/First Avenue South intersection in 2014.
- Between 35 and 40 events per year are anticipated to switch from being held at Key Arena to the proposed arena, resulting in event-related revenue displacement of \$3.2 million to \$3.7 million from Key Arena.

Background and Purpose

The Port of Seattle requested an analysis of the potential economic impacts associated with the new arena proposed for Seattle's south industrial area (referred to in this report as SODO). The proposed facility would be designed to accommodate NBA and NHL games, along with concerts and other major year-round events such

as major trade shows. The Port of Seattle desired an analysis that characterized the impacts of the arena on business operations in the immediate area—including port and related operations and businesses—and the significance to the broader regional economy. In 2014 the ports of Seattle and Tacoma formed the Northwest Seaport Alliance to manage the marine cargo business of both ports.

SODO's Role in the Regional Economy

SODO is a nexus for regionally significant industrial activities. A challenge for SODO policymakers, businesses and land owners, is that developers and business operators tied to *all* land uses want to be in SODO, as demonstrated in numerous market studies for the City of Seattle in recent years (several by Community Attributes for Seattle's Office of Economic Development and the former Department of Planning and Development). Industrial business owners find expansion difficult due to very little industrial space (land or buildings) available. Industrial users see less expensive places in other cities in the region, and other regions in the U.S., as more affordable options. Non-industrial users are willing to pay more for land and space in SODO, and make operating an industrial business in SODO more expensive. SODO is home to large format retailers, as well as office, most notably the headquarters for Starbucks and the Seattle City School District.

A major concern among stakeholders is that commercial and other non-industrial uses they believe will accompany the new arena will displace current industrial uses in SODO. Interviewees are concerned the introduction of a new arena, coupled with the expected congestion will further erode the viability of remaining industrial activities in the region.

An estimated 42,700 covered workers were employed at businesses and government agencies in SODO in 2014 (U.S. Census Tract 93). Many of these jobs were in businesses and activities considered to be basic (activities that provide goods and services to customers outside the region, and therefore attract revenue from outside sources). Factoring indirect and induced impacts, these activities support an estimated 100,000 jobs across the countywide economy in 2014.

The Final Environmental Impact Study (FEIS) on the proposed arena released May 7, 2015 uses a much smaller geographic area for analysis, and arrived at estimates of total employment of 14,719 workers (a different data source was also used).

SODO private sector businesses generated an estimated \$13.6 billion in sales in 2014.¹ More than half of sales came from manufacturing and warehousing,

¹ Estimate of business revenues attributable to SODO business activities by Community Attributes based on the ratio of business output per worker by industry.

transportation and utilities, based on employment representation in SODO and industry worker-to-revenue ratios statewide.

Industrial Lands High Market Demand and Decreasing Affordability

The Seattle close-in industrial market, which includes SODO, had a very low vacancy rate of 1.5% at the end of Q4 2015. The market was below the Puget Sound industrial real estate market vacancy rate of 3.9%, and far below the national average of 6.7% (Colliers International, 2016). The limited supply of industrial property in Seattle results in rising rents and higher building sale prices, even for other industrial uses. These market conditions have raised concerns among industrial business owners about the affordability of Seattle's industrial space. Affordability is a concern for both business retention, as it affects businesses' bottom line and limits their ability to expand, and a hurdle for attracting new businesses.

Marine Cargo Activities

Marine cargo activities are critical to Washington's economy and SODO is the gateway to the Port of Seattle for exports. In 2014, the Port of Seattle facilitated the movement of \$18.4 billion in containerized maritime imports and exports through its terminals in SODO, though this amount is down from a peak of \$41.6 billion in 2010 (adjusted for inflation). Major port and freight logistics assets within SODO include terminals 30 and 46, the BNSF Seattle International Gateway railyard, several trans-loading operations, and a heavy-haul corridor purposed with movement of truck loads to and from local and regional locations and port terminals. In addition, the surrounding SODO area includes other port terminals and the Union Pacific Argo railyard.

Maritime jobs that support marine cargo handling include stevedoring (longshoremen and terminal operators), freight forwarders, fueling services, towing, and rail and truck operations. Based on work previously done by the Port of Seattle, marine cargo activities at the Port supported 8,900 direct jobs in 2013. Factoring in indirect and induced impacts, marine cargo activities at the Port of Seattle supported 23,400 jobs statewide in 2013 and \$1.8 billion in business revenues and \$581.1 million in local purchases.

The handling of discretionary cargo is another source of value-added activities serving shippers outside the region, supporting stevedoring and other port logistics jobs within the Puget Sound. Discretionary cargo is so named because shippers have the discretion to bring their cargo through almost any port when the final destination will be reached by intermodal transportation. Because of the nature of discretionary cargo as not from or destined to the Pacific Northwest, these cargo flows are subject to competition from other alternative ports across the West Coast, such as LA/Long

Beach, Vancouver, BC, and Prince Rupert, BC. Ocean carriers are concerned with the efficiency by which they can move cargo on and off their ships and minimize docking time. Similarly, shippers depend on reliable, predictable shipping times at the lowest possible cost. Further research is needed to understand the extent to which expected congestion in the vicinity of port operations may influence ocean carriers' port-related decisions.

Congestion Issues in SODO

The location of a new arena in SODO is expected to create significant new traffic congestion in the study area, according to previous traffic analysis performed for Port of Seattle (Heffron Transportation). This new congestion is expected to aggravate conditions for industrial users in the area. In addition to local circulation impacts, Port trucking operations are also expected to be disrupted—primarily shipments to and from destinations in Eastern Washington or areas north of Seattle along the I-5 corridor. The intersection between First Avenue South and South Atlantic Street is part of a route commonly used by trucks for these state-based trips, and would bear heavy traffic impacts from the arena. Companies affected by this anticipated congestion include Eastern Washington commodity shippers transporting apples and hay, and trans-loading operations in the region. According to interviewees, for shipments within a 500- to 750-mile radius of the Port of Seattle, freight via rail is typically not economically feasible, and truck shipments are said to be the best option.

Truck trips between terminals and the Seattle International Gateway railyard are thought to be the most affected by the proposed arena. Trips that cross over East Marginal Way are not expected to be heavily affected by added arena-induced congestion, though arena visitors traveling by car may use East Marginal Way as a route or for parking.

According to traffic studies performed for the Port of Seattle, trucking companies typically elect not to dispatch drivers after 2 p.m. on weekdays when Mariners games are scheduled. According to the Port's analysis, when Mariners night games take place, truck trips to and from port terminals typically drop by 9%, though this amount varies based on the number and size of ships berthing at port terminals.

Port terminals generally operate between 8 a.m. and 5 p.m. Most port terminal trucking traffic peaks between 8 and 9 a.m. and again between noon and 2 p.m. Afternoon truck trips peak earlier in the day to avoid commuter rush-hour traffic, and also allow some drivers to return to Eastern Washington within a standard work day. Similarly, the Seattle City School District dispatches its food deliveries from its headquarters in SODO early in the morning, and maintenance and repair workers in the early afternoon.

Port-related Activities and Trucking Operations Vulnerable to New Congestion

The two main port terminals most vulnerable to added congestion are terminals 30 and 46. Both rely on trucks to move containers between port facilities, local and regional destinations, and railyards (draying). Based on data from the Port of Seattle, interview feedback, and existing transportation reports, the trucking activities most exposed to added congestion are truck shipments that cross the South Atlantic Street/First Avenue South intersection. This intersection, with a level of service grade of “F,” is part of the heavy haul corridor. This section is part of the primary route for trucks moving between terminals 30 and 46, and traveling on Interstate 90, or north of downtown along Interstate 5.

Based on data on truck trips and federal data on containerized shipments, trucks moved an estimated \$356 million in marine cargo (imports and exports) across the South Atlantic Street/First Avenue South intersection in 2014. These truck trips represent an estimated 2.8% of all twenty-foot equivalent containerized shipments through port facilities.

A large share of shipments that cross the South Atlantic Street/First Avenue South intersection are en route to trans-loading facilities within SODO and the surrounding region. These operations entail reconsolidating cargo, and exchanging cargo amongst 40-foot marine and 53-foot domestic containers. These shipments also transport containerized agriculture commodities, primarily from Eastern Washington. These producers often have no alternative mode for shipping their harvest to the port for export. Even modest disruptions in scheduled shipments due to congestion can affect the transportation of crops. This is especially a concern for exporters when fresher produce from other locations is more readily available for overseas markets.

Farmers and other commodity interests in Washington, which benefit from the lower exporting costs due to an excess of imported over exported containers, may be adversely impacted by expected congestion if imports decline.

Other Impacts Tied to Arena

CAI interviewed 13 stakeholders representing local businesses, port terminals, rail and trans-loading operations, and commodity commissions. Among interviewees, the most salient concern was the perceived lack of understanding among city and special interests of the importance of industrial lands and industrial activities within the SODO district. As pointed out by several interviewees, the loss of industrial lands is understood to be irreversible.

The Port of Seattle competes with other West Coast ports over discretionary cargo (cargo to and from domestic locations outside the region). With the reduction in

truck trips on weekdays when Mariners games are scheduled, some maritime interests are concerned the port may become a less desirable location for some ocean carriers. Expected traffic congestion associated with the proposed arena is anticipated to further erode SODO's functional role as an industrial and freight logistics base. Interviewees expressed concern that this could put Seattle at a disadvantage against other major West Coast container loading centers such as Prince Rupert and Vancouver in British Columbia, and LA-Long Beach.

Interviewees also raised concerns about safety issues related to arena operations. Some interviewees emphasized South Holgate Street as especially vulnerable to potential accidents between trains, pedestrians and cars. Similarly, others noted SODO's current configuration is not highly compatible with large numbers of pedestrians coming in or out of the arena, though there are potential mitigation strategies (and investments) that could address this.

Displacement of Revenues at Key Arena

As of 2015, the existing Key Arena facility has operated at a surplus. According to the FEIS, the proposed arena would have to hold 35-40 non-sporting events throughout the year to be financially viable. The FEIS suggests between 35 and 40 events currently held at Key Arena would eventually move to the new SODO arena, which would result in facility revenue losses of between \$3.2 million and \$3.7 million. The diversion of these activities would likely result in negative earnings for Key Arena.

Jobs from Arena Activities

The proposed arena will have a jobs impact from projected construction and operations. According to the FEIS, the construction phase will include direct spending of \$390 million, of which \$351.7 million will be spent within the City of Seattle. Total economic activity supported by the arena construction phase—including direct impacts as well as additional jobs, revenues, and labor income supported through business-to-business transactions and income expenditures—is estimated to total \$533.4 million in revenues for King County and 3,570 jobs.

Annual ongoing arena operations can be divided into two types of direct spending. The first is on-site spending, including tickets and arena vendors; and the second is off-site spending, such as visitor spending on hotels, nearby restaurants and retail. Both categories can be considered *direct*, as the spending originated from visitors to events at the proposed arena. According to the FEIS, on-site spending will support an estimated 1,005 jobs each year, including professional athletes, administrative jobs, and many vendor and retail positions. Of total wage disbursements, an estimated 35% will be retained and spent within King County. Professional athletes whose earnings typically constitute the largest share of wage disbursements from

arena operations often live out of state, thus the majority of their wages are not retained locally. Off-site impacts, according to the FEIS, will directly support an estimated 667 jobs across the county, the majority with vicinity of the arena.

The FEIS estimates the arena will have an estimated total economic impact of \$313.1 million, based on on-site and off-site direct activities and factoring in indirect and induced effects (multiplier effects). According to the FEIS, after considering substitution effects—the diverting of consumer spending from other leisure activities to arena events—and adverse effects of the arena on industrial activities and trucking within SODO, the estimated net impact of the arena sums to between \$230.5 million and \$285.8 million.

Previous work on Key Arena found the majority of jobs directly in support of arena activities were relatively low-paying and often part-time in nature (Beyers W. , 2006; Beyers B. , 2012). Based on FEIS analytics, each million dollars of direct spending tied to arena operations (on-site and off-site) directly supports 8 jobs within King County. According to data provided in the FEIS, the average wage compensation for direct jobs, including on-site and off-site activities, is an estimated \$50,600 per year (and a portion of these jobs would not include benefits). For on-site jobs only, the average compensation is an estimated \$38,200 per year. Currently, the average wage in SODO is \$70,400, not including benefits (which may raise compensation 15-20%).

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INTRODUCTION

Background and Purpose

Seattle's south industrial district (SODO) is a major industrial base for the region, a nexus for freight movement to and from the Port of Seattle, and is home to two stadiums. Presently, the Seattle City Council is reviewing a proposed 18,000- to 20,000-seat arena to be built in SODO. According to previous traffic analyses performed for the Seattle Department of Transportation, the new arena is expected to create significant new traffic congestion in SODO. Because SODO is a freight hub, import and export shipments routed through the study area are expected to be affected by this anticipated congestion. The Port of Seattle requested this study to examine the impacts of the proposed arena on business operations in the immediate area and the significance to the broader regional economy.

Methods

Analytics presented in this report leverage existing studies, reports, related documents on the proposed arena and its potential impacts, data sources on economic activities within SODO, and interviews with 13 stakeholders from local and regional businesses and organizations.

Organization of Report

The report is organized as follows:

- **Current conditions in the SODO area.** A detailed review of existing economic activities in SODO, including major employers, employment, land use patterns, infrastructure assets, port-related activities and traffic congestion.
- **Proposed arena project description.** A review of the proposed project, including details on the construction, planned usage and anticipated benefits, as well as impacts associated with the project and its future operations.
- **SODO arena considerations.** A review of key findings on the impacts associated with the proposed arena, drawing from existing reports, public documents, interviews and modeled estimates of traffic congestion. Analytics compare the present plans for a SODO arena with Key Arena as an alternative.
- **Summary and conclusions.** A review of key findings.

CURRENT CONDITIONS IN THE SODO AREA

This analysis begins with an assessment of current conditions in SODO, including economic activities, infrastructure assets, land use patterns and existing traffic congestion. This assessment examines SODO's assets that are vulnerable to degradation from congestion, and the extent to which the area is capable of handling anticipated traffic tied to the proposed arena.

Land Use

Overview of Seattle's Industrial Lands

Seattle's industrial activities historically developed around the city's key transportation corridors, such as its waterways, railroads and highways. Today, the majority of Seattle's industrial land is concentrated in two locations within the city. These two locations have been designated regionally and citywide as manufacturing/industrial centers, and are the Duwamish Manufacturing/Industrial Center (M/IC) and the Ballard Interbay Northend Manufacturing/Industrial Center (BINMIC). Seattle's Comprehensive Plan includes several policies related to industrial lands. For example, policies in the Land Use Element such as LUG 24 and 27 advocate for the preservation and protection of industrial land and for the prohibition of incompatible uses.²

In terms of acreage, transportation-related land uses are the most common use on industrial zoned land in Seattle, largely concentrated along the shoreline including Port of Seattle cargo terminal operations and three major railyards. Warehouses and manufacturing/processing uses are the most common land uses after transportation (City of Seattle Department of Planning and Development, 2008).³

The SODO area lies south of downtown Seattle and is one of four sub-districts or neighborhoods that are part of the Duwamish Manufacturing and Industrial Center. SODO is the northern end of an industrial corridor that extends from the Duwamish M/IC south to the Kent Valley. As defined by the Seattle Department of Planning and Development, SODO is bound by the Duwamish River on the west, Spokane Street Viaduct on the south, I-5 on the east and the Pioneer Square and Chinatown/International District neighborhoods on the north. Safeco Field is on the northern edge of the SODO neighborhood. Due to data availability (discussed

² LUG24: "Preserve industrial land for industrial uses and protect viable marine and rail-related industries from competing with non-industrial uses for scarce industrial land. Give special attention to preserving industrial land adjacent to rail or water-dependent transportation facilities."

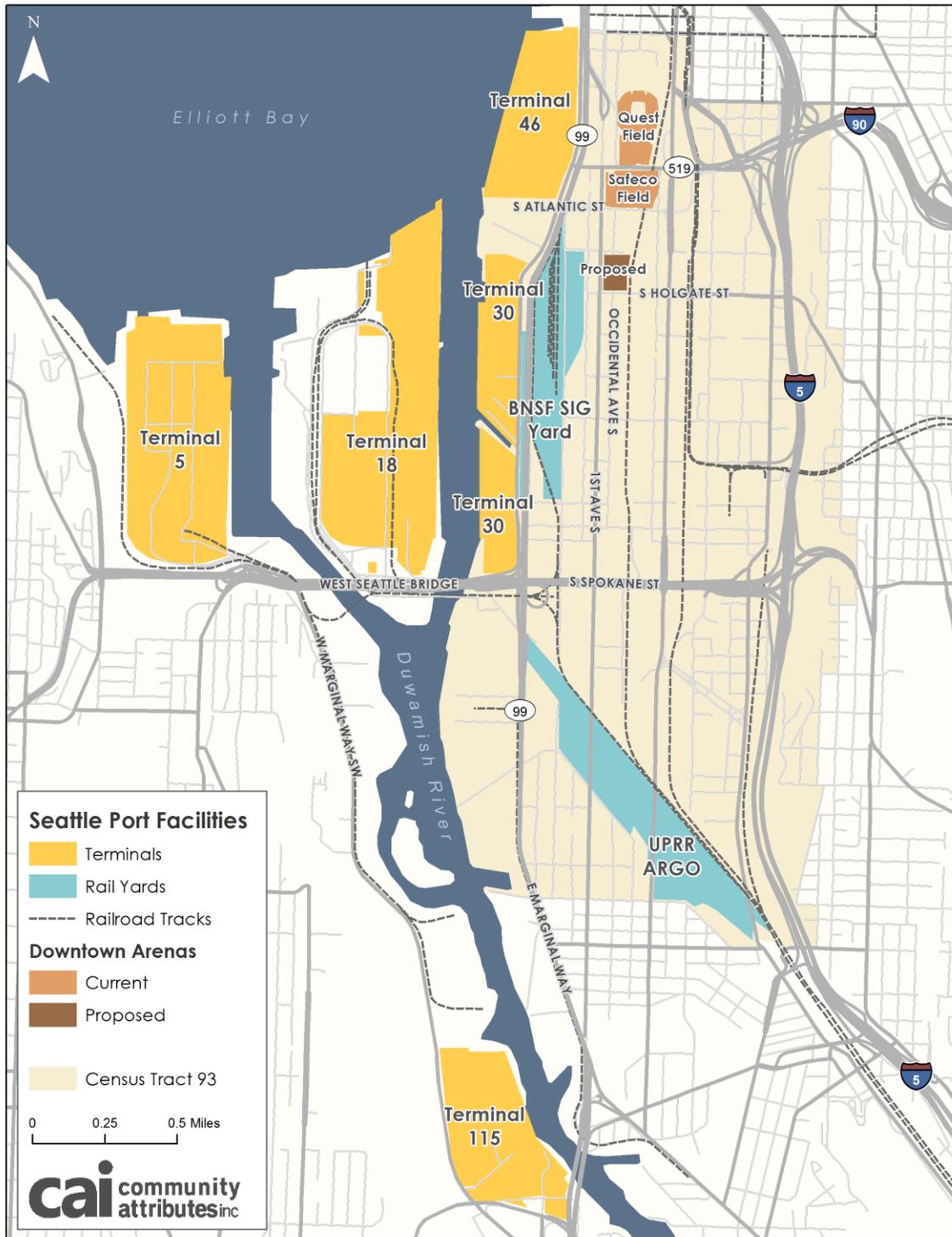
LUG27: "Restrict or prohibit uses that may negatively affect the availability of land for industrial activity, or that conflict with the character and function of industrial areas."

³ Beginning in 2015, the Seattle Department of Planning and Development was reorganized into the Seattle Department of Construction & Inspections. DPD's City Planning division is now the Office of Planning & Community Development.

further on page 8), census tract 93 was used as an approximate—though larger—boundary for reporting economic data on the area.

SODO has a mix of commercial, spectator sport, retail, and industrial uses. This mix of uses and their needs constitute a complex land use context. The following section summarizes the land use policy context and issues in SODO as background for evaluating the impact of the proposed arena. **Exhibit 1** below details the SODO area, including key industrial assets.

Exhibit 1. SODO District Map with Rail and Terminal Assets



Land Use Policy Context in Seattle

Seattle Comprehensive Plan policies and land use code regulations limit non-industrial uses on industrial-zoned land, and seek to minimize traffic and conflicts with vehicles and pedestrians.

The site of the proposed arena is located in the Duwamish M/IC, and is zoned Industrial-Commercial (IC). An additional set of regulations also apply because the site is within the Stadium Transition Area Overlay District (STAOD).⁴ Spectator sports facilities and complementary uses are permitted outright within this regulatory framework.

SODO Land Use

SODO covers approximately 800 acres with nearly 60% in public or railway ownership. These include lands owned by the Port of Seattle, BNSF, stadiums, King County, the Seattle School District, Metro and Sound Transit. Major land uses in the area occur at the Port's piers, rail switching yards for BNSF and Amtrak, King County Metro's maintenance and storage facilities, the Seattle School District headquarters, and Starbucks's headquarters. In addition, SODO is also the location for several wholesale and retail outlets and offices.

The composition of land uses in SODO includes a mix of industrial and non-industrial uses. The Industrial Commercial (IC) zoning allows for some non-industrial uses, and thus SODO includes some single-use office buildings and retail establishments. In addition, the zoning does not limit the size for non-industrial uses that are accessory to an unrestricted principal use.

Land Use Context and Considerations in SODO

SODO, as part of the Duwamish M/IC, is an integral part of the region-wide and citywide industrial ecosystem. Specifically, it supports the regional economy in two ways:

- **Fosters export production to grow the economy.** Production of many export products requires industrial zoned land found in SODO. Export products such as refrigerated apples, machinery parts, and other containerized goods originating in Washington rely on close proximity to port terminals.

⁴ STAOD was established in 2000 as an overlay zone in the Seattle Municipal Code (SMC Chapter 23.74). The overlay district applies additional zoning standards beyond the base zoning for the area to achieve certain goals for the district. The purpose of the zoning overlay was to improve the pedestrian environment and connections to downtown, discourage encroachment into industrial areas, and to permit a mix of uses that supports the pedestrian-oriented character of the area.

- **Supports local distribution networks.** Industrial land supports the local economy through warehousing, local distribution nodes and a range of industrial uses that require a place for activities that generate noise, odors and related industrial impacts (as regulated).

SODO industrial zoned land comparative advantages. For industrial uses, SODO's access to water, rail, port facilities, I-90, I-5, and its proximity to regional distribution networks and labor markets are invaluable assets within the region.

The proximity of marine terminals to rail facilities is a characteristic of SODO. The ability to switch cargo between the two modes in a fast and efficient way is a key factor for logistics and distribution companies. Many of the activities necessary for the efficient movement of marine cargo, such as rail yards, warehouses, and trans-loading facilities, require industrial zoned land in close proximity to port terminals.

Land Use Issues in SODO

High Market Demand and Decreasing Affordability

The Seattle close-in industrial market, which includes SODO, had a very low vacancy rate of 1.5% at the end of Q4 2015. The market was below the Puget Sound industrial real estate market vacancy rate of 3.9%, and far below the national average of 6.7% (Colliers International, 2016). The limited supply of industrial property in Seattle in general, and within the M/ICs in particular, results in rising rents and higher building sale prices, even for other industrial uses. These market conditions have raised concerns among industrial business owners about the affordability of Seattle's industrial space. Affordability is a concern for both business retention, as it affects businesses' bottom line and limits their ability to expand, and a hurdle for attracting new businesses (City of Seattle Department of Planning and Development, 2015; Seattle Planning Commission, 2007).

Non-Industrial Uses and Affordability

The southern boundary of the proposed arena site coincides with the boundary of the Stadium Transition Area Overlay District and is the furthest south that a non-industrial use is allowed in the Duwamish M/IC. One concern is that the proposed arena has the potential to increase land values as property owners anticipate further zoning changes and could make the M/IC less affordable for industrial businesses.

Non-Industrial Uses and Incompatibility

The introduction of non-industrial businesses on industrial lands is a concern amongst some industrial businesses because non-industrial businesses often complain about noise, light and traffic once they are in industrial areas (City of Seattle Department of Planning and Development, 2015).

Incompatibility concerns extend to transportation as well. Sports and entertainment events yield patron traffic, as well as the staging of large vehicles for major events. The potential impacts of these transportation demands on freight movements in the area is a concern to some local businesses (City of Seattle Department of Planning and Development, 2015).

Non-Industrial Uses and Perceptions of Uncertainty

Another significant land use concern is the perception that permitting large non-industrial uses can signal a lack of long-term certainty or stability for industrial users. This lack of certainty may discourage some industrial businesses and cause them to move elsewhere, or deter long-term investment (Seattle Planning Commission, 2007).

The Right Balance of Land Use Regulations

Opinions regarding the right balance of flexibility within land use regulations for SODO are varied. On the one hand, several property owners and stakeholders feel that existing land use regulations do not effectively protect or preserve industrial uses. On the other hand, others claim the area would benefit from more flexibility with regard to allowed commercial and retail uses. (City of Seattle Department of Planning and Development, 2015).

Economic Activity

Economic activity includes major employers and port and logistics operations. This assessment begins with summary data on businesses and operations in the area, including jobs, wages, and business revenues generated by major employers.

Jobs, Wages, Business Revenues

The SODO district is a major center for industrial activities in Seattle, and part of the larger Duwamish Manufacturing/Industrial Center. Industrial activities are diverse in nature, including those tied to port and cargo handling operations as well as manufacturing, government facilities (such as metro bus facilities), and warehousing.

For the purposes of quantifying the value of economic activities within SODO, census tract 93 is used to approximate these boundaries (**Exhibit 1**). In 2014 (latest available data), there were an estimated 42,700 jobs in SODO (**Exhibit 2**).⁵ The Final Environmental Impact Study (FEIS) for the proposed arena estimates total jobs in its study area to be 14,719.⁶ This total jobs count for the study differs for two

⁵ Jobs estimates in this report represent covered employment, i.e., workers covered by the unemployment insurance system. This estimate therefore excludes self-employed workers in SODO.

⁶ Jobs data used in the FEIS draw from Hoover's Business Analytics, whereas estimates reported in this study rely on aggregations of covered employment published by the Puget Sound Regional Council with permission from the Washington State Employment Security Department. Covered employment estimates come from the Quarterly Census of Employment Wages, a federal program of

reasons: (1) different geographic areas are represented, and (2) different sources of employment data are used. The boundaries applied in this study include all of census tract 93, compared with a narrower geographic definition of SODO in the FEIS. These differences account for approximately 25,000 jobs (88% of the difference). The jobs data utilized in this study come from the Puget Sound Regional Council, based on the Quarterly Census of Employment and Wages series, whereas the FEIS utilizes Hoover's Data Analytics. The differing employment sources account for approximately 3,400 jobs (12% of the difference).

CAI chose to use PSRC data over Hoover's because the PSRC data draws from the Quarterly Census of Employment and Wages (QCEW). This is a census-level data series that includes estimated employees by industry code. The lowest geography publicly available is at the census tract level. While Hoover's data has a more detailed geographic filter, the data is gathered from phone calls and other solicitation methods, and is less reliable for industry employment totals compared with QCEW data.

Many of these jobs are in basic industries, meaning they produce goods and services primarily for clients and customers outside the region, and therefore attract income, or "new money," into the region through sales (including international exports). The estimated average wage of jobs in SODO in 2014 was \$70,400, compared with the countywide average wage of \$70,600 and the statewide average wage of \$55,000.

This jobs estimate includes non-industrial employment in SODO as well, such as government and retail (the area is home to large amount of parcels zoned industrial-commercial). The services sector employed 16,800 workers in SODO in 2014, or approximately 39% of all covered jobs in the area.⁷

SODO private sector businesses generated an estimated \$13.6 billion in sales in 2014. More than half came from manufacturing and warehousing, transportation & utilities, based on employment representation in SODO and industry worker-to-revenue ratios statewide.

data tracking in support of the unemployment insurance system. Employers are required by law to report, in confidentiality, the number of workers employed on a part-time or full-time basis by quarter.

⁷ The "services" industry grouping includes professional, scientific & technical services, information, management of companies and enterprises, administrative and support services, waste management and remediation, healthcare and social assistance, private sector education jobs, arts and entertainment, accommodation and food services, and other non-classified services jobs.

Exhibit 2. Jobs and Wages by Industry Sector, 2014

Sector	Jobs in SoDo	Average Wage
Construction & Resources	3,200	\$63,800
FIRE	1,300	\$85,800
Manufacturing	3,100	\$85,900
Retail	3,000	\$48,300
Services	16,800	\$72,800
WTU	7,800	\$81,400
Government	6,800	\$64,500
Education	700	\$37,800
Total	42,700	\$70,400

Sources: Puget Sound Regional Council, 2015; Washington Employment Security Department, 2015; Community Attributes Inc., 2016.

Direct jobs within SODO support an estimated 100,000 jobs across the county. This includes 45,100 jobs through induced impacts, or jobs supported through SODO workers spending their income elsewhere in the region on household goods and services. An estimated 12,200 jobs across the county were supported through business-to-business transactions tied to SODO-based businesses and operations (Exhibit 3).

Exhibit 3. County-wide Employment Impacts of SODO Businesses and Operations, 2014

Impact	Jobs
Direct	42,700
Indirect	12,200
Induced	45,100
Total	100,000

Sources: Washington State Office of Financial Management, 2016; Community Attributes Inc., 2016.

Note: the Washington State Input-Output Model was modified to represent industry transactions within King County.

Marine Cargo Activities

Port-related activities are a large source of employment and economic activity in the region. An estimated 18.1 million tons of cargo typically pass through the Port of Seattle, of which the majority is containerized. Over half of containerized shipping comes from or is destined for international markets (Ports of Tacoma and Seattle, 2014).

The economic value of cargo operations to the State of Washington was estimated at \$138.1 billion in 2013. Port of Seattle marine cargo activities in 2013 supported an

estimated 8,900 direct jobs. This includes both port workers and other jobs directly tied to port marine cargo operations, such as tug boats and fueling services. Factoring in indirect and induced impacts, marine cargo supported 23,400 jobs statewide in 2013 and \$1.8 billion in business revenues and \$581.1 million in local purchases (Ports of Tacoma and Seattle, 2014).

Major Employers

Some of the largest employers in SODO are government entities. King County alone employs roughly 3,100 in the area, including many King County Metro employees based at maintenance facilities. Major King County offices include the Department of Natural Resources, Water Management divisions and King County Waste Management. Also located in SODO are large metro bus depots operated and serviced by King County Metro. Major employers in SODO include:

- **The Seattle City School District** maintains its main citywide operations in SODO between Lander and Holgate streets. Operations include early morning truck deliveries (approximately 300 per month) of more than 50,000 school meals, as well as afternoon maintenance dispatches and supply shipments to school facilities across the city. The operation includes approximately 800 employees, ranging from delivery workers, administrative staff, and teachers serving multiple schools.
- **Manufacturers** in the area include NuCor Steel, a steel manufacturer specializing in recycling scrap metal. The company's operations are not located directly in SODO, but just south of the West Seattle Bridge in West Seattle. The company utilizes arterials within SODO, particularly SR-99, and has several suppliers in the district, thus they too will be affected by increased congestion in SODO.
- **Federal sources of employment** in SODO are the Coast Guard and U.S. Army Core of Engineers. Other major private employers include Restaurant Unlimited Inc., the headquarters for Starbucks, and Charlie's Produce.⁸
- **Two stadiums** are currently located in SODO, CenturyLink Field and Safeco Field. CenturyLink employs roughly 1,000 workers, making it one of the largest private employers in SODO. These jobs tend to be seasonal or part-time in nature, and ebb and flow according to the schedules of the Seattle Seahawks, Mariners, Sounders, and other sporting and non-sporting events.
- **Starbucks Global Headquarters** occupies 2.2 million square feet along Utah Avenue South. An estimated 800 employees work out of this facility.

⁸ Also known as Triple B Corp.

Commuting Trends

The majority of jobs in SODO are held among residents who live in other parts of Seattle and King County; SODO is not a heavily populated area of the City of Seattle. In 2014, of the jobs located within SODO, approximately 0.4% were filled by local residents, the remainder held by individuals traveling from elsewhere in Seattle (30%), Kent (4%), Bellevue (3%), Renton (3%), and elsewhere in the Central Puget Sound region (U.S. Census Bureau, 2016).

Infrastructure

There are two major interstate highways and two connecting routes in SODO. Interstate 90, heading east-west, is the primary route for long-haul trucks moving products between Eastern Washington and port terminals 30 and 46.

According to research by the Port of Seattle for year 2014, there are roughly 28,200 weekday traffic trips on the north side of First Avenue South. The majority of traffic that utilizes this north side is passenger vehicles, at 92%, while the remaining 8% is from trucking. Of all truck trips that use the north side of First Avenue South, only 1% is directly tied to trucking to port terminals. As the Port of Seattle grows, projected truck traffic on First Avenue South is expected to grow to a total of 17% of total traffic, with passenger vehicle traffic shrinking to 83%, according to 2014 internal data provided by the Port of Seattle.

Occidental Avenue

Included in plans for the new arena is a proposal to merge two parcels currently bifurcated by Occidental Avenue. This would mean vacating this section of Occidental Avenue to allow for arena construction. While not designated as a heavy haul route, the Port of Seattle considers Occidental Ave a critical safety valve. According to the Port of Seattle, if this route is vacated, traffic will be diverted to the First Avenue South/South Atlantic Street intersection—an intersection with already high levels of congestion, even during non-event days. During morning and afternoon congestion, vehicles on 519 utilize Occidental Ave to access interstate ramps or local destinations (Port of Seattle, 2015, p. 25; Port of Seattle, 2012, p. 5).

Port and Freight Operations in SODO

Freight operations in SODO include marine terminals (stevedoring operations), surface transportation (truck and rail), and additional maritime services, such as towing, fueling (bunkering), and freight forwarding.

Port Assets in SODO

There are four major terminals located within SODO. Three of these are currently under operation, while one—Terminal 5—is undergoing facility upgrades to

accommodate post-Panamax ships (those able to transport more than 18,000 twenty-foot equivalent units).

Both terminals 18 (T-18, located on Harbor Island) and T-5, along the eastern shoreline of West Seattle, have on-deck intermodal rail capabilities. Some draying (moving cargo by truck from ships to a rail car and vice versa) also occurs between these terminals and the UP Argo Yard.

Terminals 30 and 46 have no on-dock rail. Terminal 30 (including space previously designated as Terminal 25) is operated by SSA Marine. Operations rely primarily on drayage of cargo to and from the BNSF Seattle International Gateway railyard, located directly opposite East Marginal Way. The major port assets are presented in Exhibits 1 and 4.

Exhibit 4. Summary of Port of Seattle Container Terminals

Terminal	Location/Major Access Route	#Ships Berths Acreage (Apron Length)	On-dock Rail	Ocean Carriers	Operator
T-5	West Seattle/Spokane Street	185 3 (2,900 feet)	Yes	<i>Undergoing upgrades. No current operations.</i>	
T-18	Harbor Island/Spokane Street	196 4 (4,400 feet)	Yes	ANL-US Lines, APL, CMA CGM, CSCL, Hamburg Sud, Hapag-Lloyd, Hyundai, Matson, MOL, NYK Line, OOCL, PIL, UASC, ZIM	SSA Marine
T-25/30	East Harbor/East Marginal Way	70 2 (2,700 feet)	No	ANL-US Lines, CSCL, Hamburg Sud, PIL, UASC	SSA Marine
T-46	Alaskan Way at Atlantic Street	82 2 (2,300 feet)	No	COSCO, CSCL, Evergreen Line, Hanjin, K Line, Maersk, MSC, Safmarine, Yang Ming	Total Terminal International, LLC

Source: Northwest Seaport Alliance, 2016.

Approximately 60-70% of this imported cargo is considered “discretionary,” meaning these containers, upon passing through Port of Seattle terminals, are destined for locations outside the region. Ocean carriers decide on the ports they ship through for discretionary cargo based on a set of factors, including costs and distance to final markets. The extent to which congestion and other types of disruption affect a shipper’s ability to move imports and exports to and from locations in the U.S. may affect the decision of port of entry.

The Northwest Seaport Alliance is a joint venture between the ports of Seattle and Tacoma to manage the marine cargo business of both ports. The Northwest Seaport Alliance competes with other West Coast ports to retain discretionary cargo, including Canada (Prince Rupert and the Port of Vancouver) and California (Oakland, LA-Long Beach). The West Coast competitors are making investments in port infrastructure to gain greater market share over discretionary cargo shipments. Congestion and other factors that weaken the Northwest Seaport Alliance’s ability to

retain and grow cargo flows could lead to some of this discretionary cargo moving to competitor ports, though further research is needed to fully assess this risk.

Trans-loading operations

Trans-loading refers to the reconsolidating of freight cargo between 40-foot to 53-foot domestic containers and the re-organizing of products from single-product containers to multiple-product loads for domestic delivery (Port of Seattle, 2016). Based on interviews and Port data, trans-loading operations are estimated to represent approximately 20% of all twenty-foot equivalent shipments, both imports and exports, through the Port of Seattle.

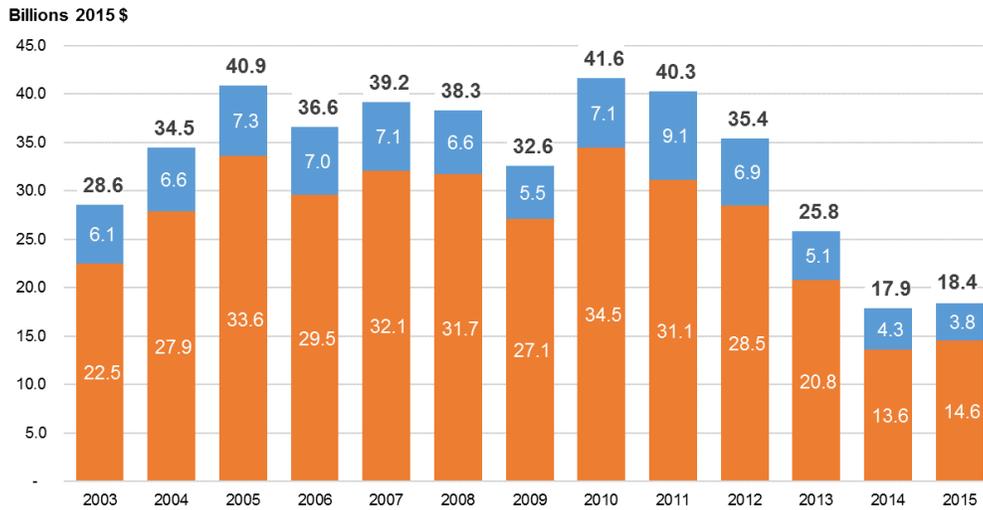
The largest trans-loading operation in SODO is MacMillan Piper, handling approximately one-third of all trans-loaded cargo. Other large trans-loading operations in the region include PCC Logistics, Seattle Bulk Shipping, and Seattle Transload.

An estimated 10% of all Port traffic is considered local traffic. This includes deliveries to local big-box retail outfits such as Home Depot, as well as local manufacturers and warehousing operations (Port of Seattle, 2014).

Trade through the Port of Seattle

In 2015, the Port of Seattle facilitated the movement of \$18.4 billion in maritime containerized cargo, of which \$14.6 billion was in the form of imports (**Exhibit 5**). Total trade by value is down by more than 50% since a peak of \$38.4 billion in 2010, in part due to competitors in Canada and elsewhere along the West Coast.

Exhibit 5. Value of Containerized Imports and Exports, Port of Seattle, 2003-2015 (billions 2015 \$)



Sources: U.S. Census Bureau, 2016; Community Attributes Inc., 2016; Federal Reserve Bank of St. Louis (for implicit price deflators).

Port terminals in SODO depend on rail and truck access. The two main terminals located within SODO are T-30, operated by SSA Marine, and T-46, operated by Total Terminals International, Inc. Both are container terminals with no on-dock rail service, and would be the terminals most affected by the proposed arena. Most cargo transferred by truck to and from the BSNF Seattle International Gateway (SIG) railyard (i.e., drayage between the port terminals and the BNSF rail yard) is not expected to be heavily affected by the proposed arena, because these truck movements would cross East Marginal Way but remain west of the proposed site.

Trucking Operations in SODO

The South Atlantic Street/First Avenue South intersection is the main crossing for trucks heading to and from port terminals from origins/destinations either north along I-5 or east along I-90. The intersection currently has an “F” level of service rating (Port of Seattle, 2012, p. 23) and was recently designated as part of the truck heavy haul corridor (City of Seattle Office of the Mayor, 2015).

In 2014, an estimated average of 321 weekday truck trips were made to and from terminals 30 and 46 that crossed over the South Atlantic Street/First Avenue South intersection.⁹ These truck trips carry imports and exports to and from locations within the immediate region, including commodity exports from shippers in Eastern Washington. According to interviewees, many of these regional exporters have few viable alternative shipping routes other than trucking goods through the Port of

⁹ See Appendix B for an explanation of calculations.

Seattle. These regional shippers therefore are potentially more adversely impacted by added congestion in SODO.

Eastern Washington Truck Shipments

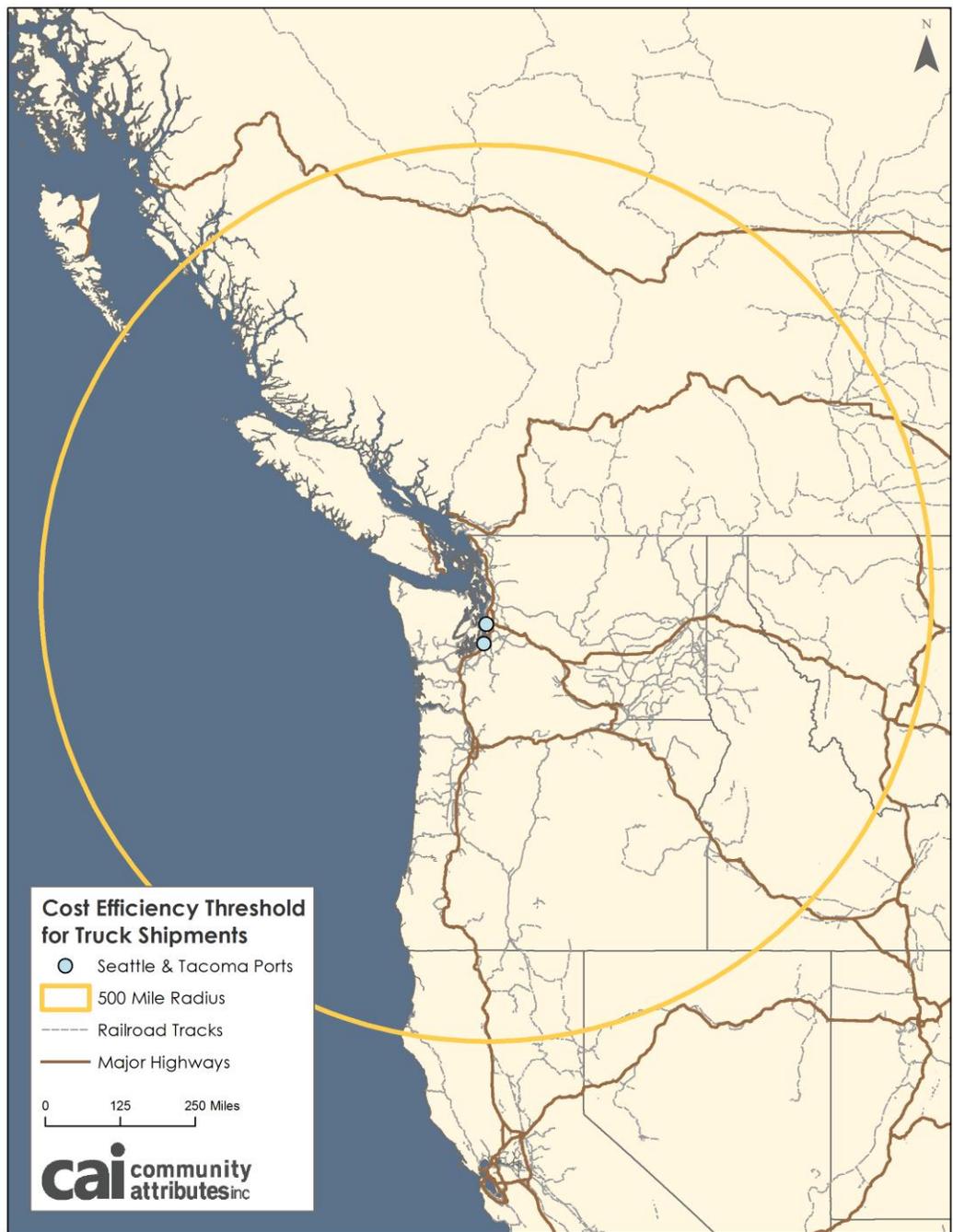
According to commodity shippers and Port staff, trucking offers the most economically viable shipping option for commodity growers between 500 to 750 miles from a seaport container facility (**Exhibit 6**). In many cases, commodity crops are not produced near rail access, limiting transportation options for growers.

Eastern Washington growers and shippers who utilize containers for outbound shipments include apples, pears, and hay producers. For example, in 2015 85% of Washington's containerized apple exports (by weight) were shipped to Asia, exiting through West Coast (and primarily Washington) ports. These containerized apple shipments were worth more than \$393 million to Washington producers and shippers (U.S. Census Bureau, 2016). Typically, approximately 30% of all Washington pears are exported, the majority through Washington ports. Commodity producers who rely on containers also ship their goods through the Port of Tacoma; the choice largely reflects the location of the ocean carrier.

Timing is a critical issue for many commodity producers. Apples, for example, are typically harvested between August and November. Apples ship all year round, but are less competitive once fresh apples from the Southern Hemisphere become available later in the year. Retailers overseas will normally prefer newer apples to stock their shelves. If delays do occur, as they did during the 2014-2015 West Coast port slowdowns, overseas retailers will have the option of purchasing apples from other parts of the world, affecting sales among Washington-based growers and shippers.

According to interviews with industry representatives, discretionary cargo imports through Northwest Seaport Alliance terminals play an important role in the export activities of growers, especially among those that utilize non-refrigerated containers. The excess of imports over exports results in a large number of empty containers, which in turn allow for cheaper outbound export shipping costs for Washington commodity producers. The regional exporter "dividend" of excess import over export containers is less important for other commodities, however. Apple shippers require refrigerated containers, which according to interviewees often need to be shipped (empty) from Asia locations such as South Korea.

**Exhibit 6. 500-Mile Radius within Which Trucks Are Used Over Rail
for Most Types of Shipments to Port of Seattle**



Source: Stakeholder interviewers; Community Attributes Inc., 2016.

Value of Truck Shipping by Terminal and Route

The value of shipments to and from port terminals and by route is not readily available. The findings presented below therefore represent a modeled approach to help illustrate the relative value of trucking operations across Port of Seattle terminals and major trucking routes. Appendix C presents full calculations for this section.

In 2015 an estimated \$12.7 billion in cargo shipments were transported by way of truck outside the terminals. Of this total, an estimated \$1.3 billion in cargo was delivered or originated locally, while \$1.4 billion came from or was destined for locations east of Seattle along I-90, including commodity producing regions east of the Cascades (**Exhibit 8**). The estimated value of cargo trucked across the South Atlantic Street/First Avenue South intersection, either heading to or from I-90, or locations along I-5 north of SODO, summed to \$2.3 billion in 2015.

Exhibit 8. Estimated Value Maritime Cargo through Port of Seattle by Truck Shipments and Route, 2015

Regional Roadways	Truck Distribution	Port Truck Value by Route (\$bils)
I-5 North	7%	\$0.9
I-90 E	11%	\$1.4
SIG	21%	\$2.7
Argo	6%	\$0.8
I-5 South	18%	\$2.3
E-Marginal Way	2%	\$0.3
SR-99	12%	\$1.5
SR-509	13%	\$1.6
Local	10%	\$1.3
<i>Subtotal, Truck Shipments</i>	<i>100%</i>	<i>\$12.7</i>
Remaining cargo, rail on-dock		\$5.7
Total, all marine cargo		\$18.4

Sources: Port of Seattle, 2016; U.S. Census Bureau, 2016; Port of Seattle, 2015; Community Attributes Inc., 2016.

Truck trips between terminals 30 and 46 and areas north along 1-5 and east along 1-90 due to their heavy use of South Atlantic Street, are considered to be vulnerable to significant growth in traffic congestion. Based on analytics presented in this report, an estimated \$356.0 million in annual cargo value was transported along these routes, and thus most vulnerable to delays from additional congestion in the area. Of this

total, \$242.4 million is either to or from T-46, with the remainder (\$113.6 million) from T-30.¹⁰

Existing Traffic Situation in SODO

Rail crossings and heavy haul roadways characterize several major segments of the SODO area. Holgate Street, running east-west, includes 17 pairs of rail tracks. During Mariners games, congestion can build up as passenger vehicles enter and leave the Stadium Place and Century Link parking garages north of the stadium.

Terminal truck traffic generally peaks from 8 to 9 a.m. and again from 1 to 2 p.m. in the afternoon. According to analysis by the Port of Seattle, trucks that enter a terminal generally leave the terminal within the hour. Roughly 45% of all terminal truck traffic occurs after 12 p.m. Approximately 13.3% of all terminal traffic occurs after 3 p.m., which is the time period most affected by stadium events (Port of Seattle, 2012).

Traffic in SODO increases substantially on event days. Between noon and 5 p.m. when terminal gates are typically closed, traffic in SODO can easily increase 20% to 30%. Increased traffic in the area will generally be experienced past 5 p.m. continuously through to 9 p.m. (which could potentially affect night gate operations). Mariners night games generally lead to a reduction of 9% (possibly 3%, depending on the size of the ships at dock) of total truck movements through terminal gates, while Mariners weekday games may lead to 20% fewer truck visits after 3 p.m., according to data from the Port of Seattle.

ARENA PROJECT DESCRIPTION

Location, Size, Footprint

The proposed arena is planned to include 700,000 square feet of built space with a capacity of 18,500 attendees for NBA games, 17,500 for NHL games and 19,000 for concerts. The proposed stadium location is bounded by First Ave South to the west, South Holgate Street to the south, South Massachusetts Street on the north, and the BNSF Railway right-of-way to the east.

The arena is estimated to cost \$490 million. Of this, the largest share will come from private investment, with the balance from city and county bonds that will be repaid through rent and tax revenue generated by the arena.

Anticipated benefits tied to a new arena include near-term benefits supported through construction activities, ongoing benefits accruing to the region and local

¹⁰ Calculations presented in Appendix C.

businesses through visitor spending and event revenues, and fiscal impacts to the city and county.

Construction Impacts

According to the Final Environmental Impact Study (FEIS) for the proposed arena, construction activities will cost \$390 million in direct spending, which includes materials, construction labor and equipment. Some of these expenses, such as fixtures, furnishings and equipment, are expected to be primarily purchased outside the region. Direct expenses retained within the county are expected to sum to \$354.2 million (City of Seattle Department of Planning and Development, 2015, p. xv).

Total positive economic impacts from construction include the above direct spending plus additional activities supported through business-to-business transactions (indirect effects) and further activities supported through worker spending of earned income tied to arena construction (induced). The FEIS projects this total impact to be \$533.4 million in business activity, supporting 3,570 jobs (ibid).

On-site Jobs and Multiplier Impacts

The completed arena is expected to generate and incur sizable revenues, such as through season tickets, corporate sponsorships, local media revenues, team revenues, concert revenues, and revenue from other events. These activities will require employment across a spectrum of occupations, ranging from concessionary services, front office and administrative work, and jobs among local retailers and restaurants catering to event visitors.

King County Jobs Impact

The arena is expected to support 1,005 direct jobs each year tied to on-site events and operations,¹¹ based on FEIS findings (City of Seattle Department of Planning and Development, 2015). Of all wage disbursements tied to these direct jobs, the FEIS estimates approximately 35% would be spent within King County. Disbursements to professional athletes would constitute 57% of total disbursements, of which 19% would be spent within the county (City of Seattle Department of Planning and Development, 2015, p. 43).

The FEIS estimates off-site activities, including lodging, retail, local travel, food and beverage and entertainment, would directly support another 667 jobs in the county. According to the FEIS, the proposed arena would support total business activities of \$313.1 million each year across King County (direct and multiplier effects), which includes ongoing arena operations and off-site activities. This estimate accounts for:

¹¹ Direct jobs estimated in the FEIS includes facility and team staffs, as well as players.

1) the extent to which professional athlete salaries are not spent within the local economy; 2) the share of workers supported by these activities who live outside the county and therefore spend earned income outside the county; and 3) visitors, staff, and performers off-site spending on local services.

On-site and Off-site Jobs

The FEIS further estimates the above business activity impacts would support up to 2,473 jobs in King County, including on-site and off-site activities. Accounting for substitution effects and the impacts of traffic delays for the Port of Seattle and SODO industrial businesses, the total net impact of the proposed SODO arena is between \$230.5 and \$285.8 million across King County (City of Seattle Department of Planning and Development, 2015).

Key Arena Jobs Comparison

As a comparison for jobs impacts, an analysis of Key Arena from 2006 shows that slightly less than half of the \$353.3 million in total economic impacts to the region were from *new money*, or net inflows of income from outside the region (Beyers W. , 2006). The 2006 study shows Key Arena directly supported an estimated 591 jobs annually, though only 35% (206) were full-time jobs. The analysis of Key Arena also found the majority of direct jobs were positions that paid near the minimum wage, primarily in temporary concessionary activities.

Neighborhood Impacts and Public Benefits

Some of the benefits tied to the arena are not quantifiable, yet are real and have an impact on local communities and residents. Conway (2012), for example, describes three kinds of benefits accruing to the region. As a public good, residents can enjoy the benefits of having a local team to root for, whether or not they physically attend a game or watch on television. Arenas also enhance urban amenities. Having a local sports team can increase the perceived livability and desirability of a region, which in turn can draw more high-income, high-skilled workers into the region. Lastly, arenas can help catalyze urban renewal, particularly in areas of urban blight.

Fiscal Impacts to Seattle

The 2015 FEIS estimates total tax revenue for the City of Seattle from the proposed arena at approximately \$7,786,000 and King County is expected to receive \$586,000 in additional tax revenue (City of Seattle, 2015, pp. Appendix F-7). Part of this revenue will be used to pay down \$200 million in public debt, split between the City and County, to help fund the construction of the new arena, contingent on securing both NBA and NHL teams.

SODO ARENA CONSIDERATIONS

Key Arena Events Displacement

A new arena would potentially cause a displacement of events that are typically held at Key Arena. Current sport tenants of the Key Arena include the Seattle Storm and Seattle University basketball teams. If the proposed arena is constructed, these games would likely relocate to SODO, thereby eroding the Key Arena's annual profitability.

In 1994-95, Key Arena received more than \$100 million in renovations that were aimed at maintaining and improving its ability to host major sports and entertainment events, including the Sonics. Nearly 10 years later, a \$200-million plan would have brought Key Arena to then-current NBA standards, helping the facility to generate revenues, and add other necessary improvements that tenants identified. However, these improvements were never made, and in 2008, following an unsuccessful effort to secure funding for renovations, the Sonics left Seattle for Oklahoma City (AECOM, 2015).

In recent years, the arena has hosted approximately 100 events per year and more than 550,000 attendees. In addition to its tenants, Key Arena hosts other major sports and entertainment events, concerts, graduations, private events, and in conjunction with the rest of the Seattle Center campus, events such as the Bumbershoot Festival and Folklife Festival (AECOM, 2015). Some of these events may migrate to the proposed arena in SODO, thereby potentially reducing the revenues and profits of Key Arena.

Revenues for Key Arena in 2014 totaled over \$7.4 million with expenses of approximately \$6.9 million. The largest sources of revenue came from event reimbursements and ticketing while the operating costs of events at Key Arena made up the bulk of yearly costs (AECOM, 2015). According to the FEIS, an estimated \$3.2 million to \$3.7 million revenues would be displaced from Key Arena to the proposed SODO arena. This equates to a shift of between 35 and 40 events a year relocating to the new arena, and profit losses.

Arena Usage and Schedule

A similar city with characteristics analogous to Seattle is Boston. The Boston market has major professional sports representation in football, soccer and baseball, but also has an NHL team (the Bruins) and an NBA team (the Celtics). Overlaying the regular season schedules of these two Boston sports teams with the current stadium events at CenturyLink and Safeco provides insight into the number of additional events that could reasonably be expected to occur over a year. Because only the regular season was studied, no considerations were made for potential playoff fixtures that would increase the number of stadium events in SODO.

Using this methodology, over a full year, the additional events occurring at a new arena would result in an estimated 250 major stadium events per year. This total translates into a major event in SODO every one to two days on average. There are currently 60 days with two or more events on the same day in SODO. Days with more than one event would therefore occur throughout the year, on average every five to six days. Weekdays represent the most likely times for events to potentially overlap with port operations.

There are currently 91 weekday events where both the CenturyLink and Safeco parking garages are full. With the addition of NBA and NHL games, using the schedules of the Boston Bruins and Celtics as approximations for when Seattle NHL and NBA events may occur, the total weekday games are expected to grow to 173 days a year (up from 91). There are an estimated 25 weekday games where there will be an overlap across scheduled stadium events, again assuming the schedules of the two Boston teams as representative of possible NHL and NBA schedules in Seattle.

Economic Benefits Directly Accruing to SODO

The proposed arena will support jobs in SODO, both through direct activities—including on-site (at arena) and off-site locations (at nearby restaurants and vendors)—as well as through spillover effects. The City of Seattle will accrue most of the construction and operation benefits associated with the new arena, but it is less clear to what extent SODO will observe these economic benefits.

Operations Impacts

According to the FEIS, off-site activities will include jobs at nearby restaurants, bars, souvenir shops, and other visitor spending-related vendors. Some of these activities will accrue to locations elsewhere in the city and county, including hotels in downtown Seattle and Bellevue. Estimated annual off-site direct jobs within Seattle supported by arena visitor spending is projected to total 565, with another 138 jobs supported through multiplier (indirect and induced) effects throughout the city (City of Seattle Department of Planning and Development, 2015, p. 48). It is expected that a large share of these jobs will occur within SODO, given the propensity of visitors to purchase food, beverages and souvenirs in close proximity to the event location. As such, given the existing employment trends the majority of these jobs are expected to be held by residents from other parts of the city and region, and not among SODO residents.

Local businesses in the surrounding vicinity may benefit from increased marketing opportunities during game days with large numbers of attendees. According to one interviewee, spillover parking into surrounding districts may increase the number of shop visitors, which may in turn lead to increased sales.

Impacts on Port Operations and Trucking

Increased traffic from the proposed arena on event days may create surface street congestion on trucking routes. The vast majority of truck arrivals occur between 8 a.m. and 4 p.m. Currently, this generally does not coincide with events at the nearby stadiums. However, with a more robust events schedule, truck arrivals at port terminals could compete for road space with pedestrians and passenger vehicles during events.

Truck idling costs are a potential cost induced through arena traffic congestion. According to the FEIS, delays in truck trips to the Port are estimated to reach 2,408 hours by 2030, translating into \$115,584 annually in estimated costs to trucking companies. Non-port truck delays caused by arena-induced congestion are estimated to be 199 per year, resulting in an estimated \$66,141 in costs borne by trucking companies. Both estimates of truck delay costs are based on an average of \$48 per hour in trucking costs delays (City of Seattle Department of Planning and Development, 2015).

Truck Trips to and from T-30 and T-46

Based on analytics performed in this study, the most vulnerable segment of existing port-related operations with the advent of a new arena will be truck trips traveling to and from T-30 and T-46 and crossing the intersection of First Avenue South and South Atlantic Street. As detailed above in the discussion of port trucking operations, a large number of truck trips either to and from I-90 or destinations north of downtown utilize this route as a primary corridor. During Mariners evening weekday games, trucking operations typically reduce truck dispatches to terminals 30 and 46 after 3 p.m. due to the high degree of congestion along this route and costs of truck idling (Port of Seattle, 2012).

Trucks moved an estimated \$356.0 million in containerized goods to and from terminals 30 and 46 in 2014. These goods represent products going to: 1) local trans-loading operations; 2) local and regional businesses; and/or 3) commodity shippers in Eastern Washington that rely on trucking as either the only option, or the economically viable option, for shipping exports to the port.

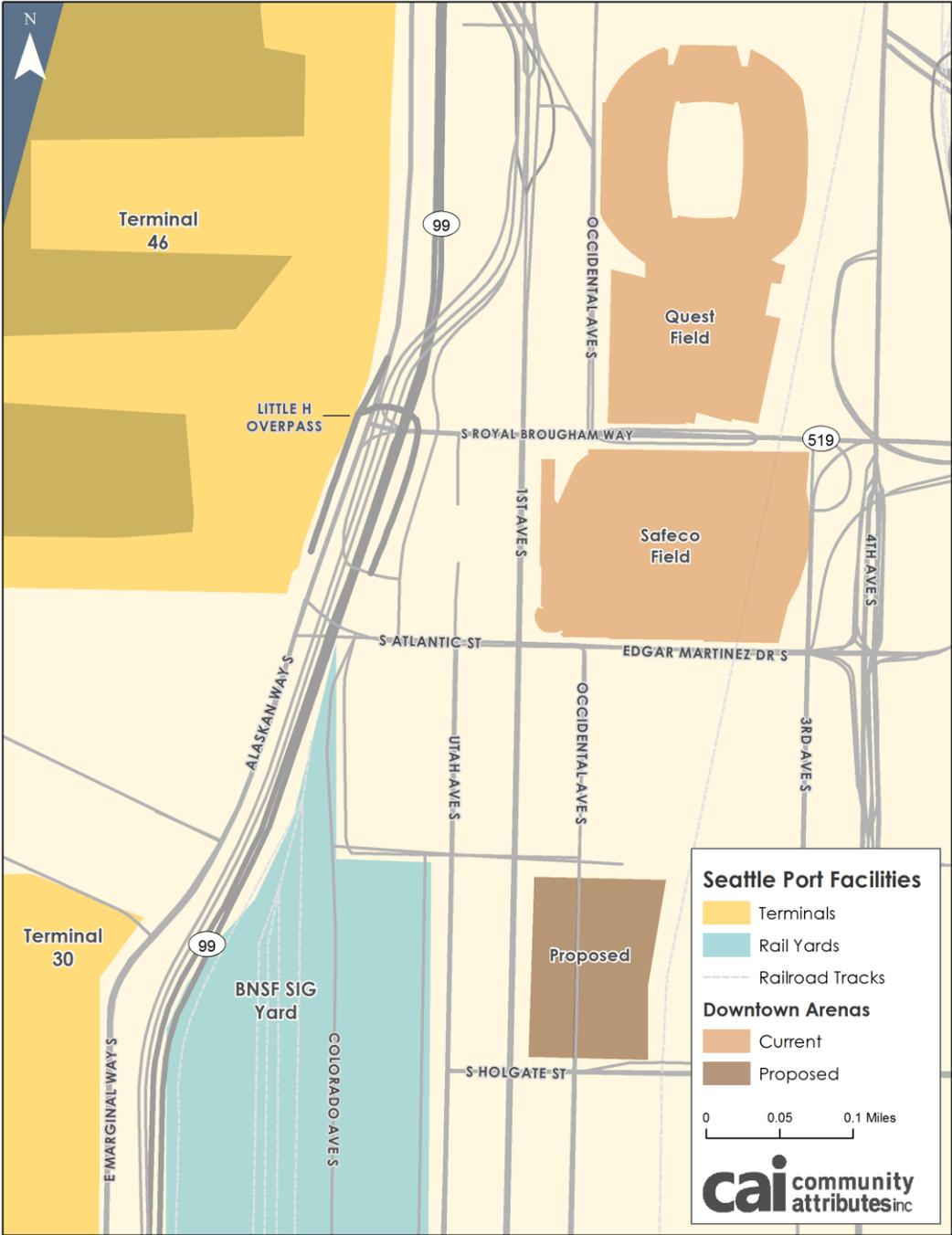
Draying Activities

Draying activities between these terminals and the BNSF SIG yard may be less affected. Truck trips to and from the BNSF SIG yard will enter through the north gate via the “Little h” overpass across East Marginal Way, and therefore do not utilize the First Avenue South/South Atlantic Street intersection (**Exhibit 9**).

However, there is some risk that increased congestion during weekday events may spillover into East Marginal Way, with disruptions to these truck trips. During major sporting events, interviewees reported spectators utilizing East Marginal Way for

access to SODO and parking options, and adversely affecting truck movements to and from terminal facilities to the BNSF SIG yard.

Exhibit 9. Infrastructure Supporting Drayage Between T-30 and T-46 and the BNSF SIG Yard



Source: Port of Seattle, 2015; Community Attributes Inc., 2016.

Vacating Occidental Avenue South

Port officials have expressed concerns about the vacating of Occidental Avenue South as a necessary step in the arena project. The street, while not designated as part of a heavy haul corridor, is described by Port officials as a critical safety valve needed to alleviate traffic during periods of high congestion. Between the two railyard facilities, there are only two north-south streets that connect SR 519 and Lander—Occidental and First Avenue South. Vacating Occidental would leave just First Ave South for north-south access. Port officials are concerned there is no alternative route to move truck traffic if there were an accident/incident on First Avenue South north of Holgate (Port of Seattle, 2013, p. 10).

Other local interviewees have similarly pointed out the role of Occidental Avenue South as a safety valve, as well as the movement of other, non-heavy haul trucks along this route. According to one interviewee, Occidental Avenue is used extensively by trucks and acts as an important staging area. During periods shortly before outbound vessel shipments, a long queue will develop along SR 519, backing up onto Holgate Avenue.

Rail Impacts

Interviews with Port and rail officials and local stakeholders suggest the primary concern among rail operators is safety. BNSF is the largest private land owner in SODO; in addition to its north-south tracks, BNSF owns and operates the SIG railyard, a 58-acre intermodal facility that handles an average of 14,000 import containers a month for eastbound destinations. The facility has stacking capacity of 1,800 units and is able to lift 300,000 containers annually (BNSF, 2015).

BNSF must move its trains and loaded cargo according to client delivery schedules, and is generally not impeded by vehicular traffic in the area. However, according to interviews with local businesses, there is concern about the ability to maintain safety in SODO, especially immediately before or after the conclusion of major sporting events at the proposed arena. BNSF and local stakeholders have observed numerous traffic and pedestrian violations related to rail crossings, including cars driving around barriers and individuals walking through temporarily stopped trains, which could resume at any moment. Officials and stakeholders are concerned the influx of more visitors to SODO will only intensify this issue, and lead to an increase in accidents with trains.

Impacts to Local Non-Port Businesses and Operations

Interviews with local businesses and operations suggested current congestion conditions are assumed to become further intensified with the advent of a new arena in SODO. According to interviewees, it is this assumed increase in congestion,

absent mitigation strategies and investments, that would pose the greatest risk to regular operations.

For example, the Seattle School District, according to interviewees, would experience additional disruptions in its ability to dispatch maintenance workers to each of the three facility zones across the city. Drivers dispatched in the afternoon during event days in SODO utilize alternative routes, such as East Marginal Way, with varying degrees of success returning without significant delays. The Seattle School District also expressed concerns over parking spillovers during sporting events, including tailgating activities—while these parking lots are closed for non-school district visits, the district reported frequent and numerous illegal parking during game days.

Port Competitiveness and Impacts on Commodity Exporters from Eastern Washington

If the projected congestion does in fact occur due to a new arena, the effects may adversely affect agricultural commodity producers from Eastern Washington. Because these producers are too close to the port to make rail shipments feasible, they must rely on trucking as the primary mode of shipping transportation.

Traffic problems can lead to trucks only making one trip rather than two per day. Products that require refrigeration are typically loaded as late in the day as possible and missing terminal cut off times means those products could be wasted (Port of Seattle, 2012).

Displacements

While the proposed arena will create new jobs tied to arena operations and off-site venues, this benefit could be offset by adverse impacts felt among local and regional businesses, Key Arena revenues, as well as other forms of leisure consumption. Two considerations are raised in this report with respect to displacements. First, the FEIS found the loss of a professional team did not result in leisure spending in other sectors of the economy, such as in retail. According to the FEIS,

Our analysis focused on changes in revenues for restaurants and drinking establishments based on tax payments. We evaluated the period prior to and after the Seattle Supersonics vacated the market at the end of the 2008 season. Our expectation was that these revenue streams would have grown after the Seattle Supersonics left the market under the notion of substitutability [...] Contrary to our expectation, spending on drinking and dining actually decreased in the year after they Sonics left the market. This is most relevant since related revenues decreased during only one year in the decade prior to 2008 and has increased each year thereafter (City of Seattle Department of Planning and Development, 2015, p. 52).

This observation of no increased leisure spending on alternative forms of entertainment does not provide sufficient evidence for the absence of substitution effects between sporting events and other forms of leisure and entertainment.¹²

A second displacement relates to the effects of congestion on current activities in SODO. The advent of another arena may further erode the functional role of SODO as a base for industrial activities. Many of the businesses and operations located in SODO are there primarily due to either: 1) the industrial uses permitted; and/or 2) proximity to port terminals, as in the case of many warehousing and trans-loading operations in the area. Local respondents expressed concerns that the introduction of large-scale non-industrial uses reflects a broader trend, further eroding the role of SODO as an industrial base.

Stakeholder Interviews

CAI interviewed 13 stakeholders representing local businesses, port terminals, rail and trans-loading operations, and commodity commissions. Among interviewees, the most salient concern was the perceived lack of understanding among city and special interests of the importance of industrial lands and industrial activities within SODO. As pointed out by several interviewees, the loss of industrial lands is understood to be irreversible. The Port of Seattle currently faces considerable competition for discretionary cargo (i.e., cargo shipments to and from regions outside the immediate area, often as far east as the Midwest). Traffic congestion from the propose arena is anticipated to further erode the functional role of the region as an industrial and freight logistics base, further disadvantaging Seattle against other major West Coast container loading centers, such as Prince Rupert and Vancouver in British Columbia, and LA-Long Beach.

Interviewees also raised concerns about safety issues related to arena operations. Some interviewees emphasized South Holgate Street as especially vulnerable to potential accidents between trains and both pedestrians and cars. Similarly, others pointed to the current configuration of SODO as not highly compatible with large numbers of pedestrians coming in or out of the arena during an event day, though there are potential mitigation strategies (and investments) that could address this.

¹² It is unclear from the FEIS to what extent other factors were controlled for in the analysis; the most notable factor shaping consumer spending during this period being the global recession, observed through changes in taxable retail sales and employment in the region. Between 2008 and 2009, taxable retail sales in Seattle declined across all sectors of the economy. For retail activities, sales declined 8.2%, while leisure and accommodation sales declined 2.7% (Washington State Department of Revenue, 2016). Overall covered employment within Seattle declined 4.8% year-over-year in 2009, after growing 3.9% between 2007 and 2008 (Puget Sound Regional Council, 2016).

SUMMARY AND CONCLUSIONS

The SODO area is a nexus for industrial activities. In 2014, the area was home to 42,700 covered workers, including many from “basic” industries that sell goods and services to customers outside the region.

The Port of Seattle has terminal assets in SODO, including two—T-30 and T-46—in close proximity to the proposed arena site. In 2014, Port of Seattle terminals in SODO facilitated the movement of \$18.4 billion in containerized maritime imports and exports. The Port’s cargo activities supported an estimated 8,900 direct jobs in 2013.

Traffic congestion associated with the proposed arena is expected to affect trucking operations that use port terminals to export shipments. The intersection of First Avenue South and South Atlantic Street is part of a route commonly used by trucks for state-based trips and is expected to bear heavy traffic impacts associated with the proposed arena. Truck trips to and from Terminals 30 and 46 that utilize this intersection are anticipated to be adversely affected by new congestion. This may more directly impact shipments to and from Eastern Washington or areas north of Seattle along the I-5 corridor.

Key Arena may also be affected by the introduction of a new arena. Between 35 and 40 events per year are anticipated to switch from being held at Key Arena to the proposed arena, causing \$3.2 million to \$3.7 million to be displaced from Key Arena.

A challenge for SODO policymakers, businesses and land owners, is that developers and business operators tied to *all* land uses want to be in SODO, as demonstrated in numerous market studies for the City of Seattle in recent years (several by Community Attributes for Seattle’s Office of Economic Development and the former Department of Planning and Development). Industrial business owners find expansion difficult due to very little industrial space (land or buildings) available. Industrial users see less expensive places in other cities in the region, and other region in the U.S., as more affordable options. Non-industrial users are willing to pay more for land and space in SODO, and make operating an industrial business in SODO more expensive. These market conditions have raised concerns among industrial business owners about the affordability of Seattle’s industrial space. Affordability affects businesses’ bottom line and limits their ability to expand, and a hurdle for attracting new businesses.

A major concern among stakeholders is that commercial and other non-industrial uses they believe will accompany the new arena will displace current industrial uses in SODO. Interviewees are concerned the introduction of a new arena, coupled with the expected congestion will further erode the viability of remaining industrial activities in the region.

Findings from this report are intended to help frame an understanding of the potential impacts to maritime and industrial businesses in SODO, as well as broader regional impacts. Future research is needed to understand the extent to which projected additional congestion associated with the proposed arena may adversely affect the long-term viability and competitiveness of SODO for industrial and port operations.

APPENDIX

Appendix A. Interviewees

The following individuals graciously contributed their expertise to the development of this report, directly through project interviews:

Exhibit A1. Interviewees

Individual	Affiliation
Rick Blackmore	Total Terminals International Inc.
Jon DeVaney	Washington State Tree Fruit Association
Jon Felix	Avalon Glass Works
Todd Fryhover	Washington Apple Commission
Dave Gering	Duwamish MIC
Johan Hellman	BNSF
Patrick Jablonski	NuCor Steel
Kathy Johnson	Seattle City School District
Ryan Nesbitt	DSG Logistics
John Odland	MacMillan-Piper
Geraldine Poor	Port of Seattle
Joe Ritzman	SSA Marine
Jordan Royer	Pacific Merchant Shipping Association

Appendix B. Port Truck Distributions by Route in SODO

Based on data from the Port of Seattle, an estimated 7,600 truck trips passed through Port of Seattle terminal gates each weekday, as of 2014 (year of estimates). Of this total, an estimated 2,220 truck trips were made to and from T-30 and T-46. Based on this data, 126 truck trips per day utilized I-90, a route that normally requires the use of South Atlantic Street. If all trucks from T-30 and T-46 that use I-5 to and from locations north of SODO are assumed to also use South Atlantic Street, then an estimated 321 truck trips occur each weekday along this route, or 14.5% of all truck trips from these terminals.

The distribution of truck movements by source and destination is presented in **Exhibit A2**. The four major arterials that facilitate shipping south from the Port of Seattle are SR-509, SR-99, E-Marginal Way and I-5. Trucks headed south account for 45% of all truck traffic from the Port of Seattle. East Marginal Way receives about 2% of truck traffic from Port terminals heading south. The majority of Port of Seattle southbound truck traffic goes through I-5 South (18%).

Exhibit A2. Distribution of Port of Seattle Terminal Truck Trips by Origin/Destination, 2014

	Terminals				
	T-5	T-18	T-30	T-46	T-115
Daily Truck Trips	2,500	1,940	760	1,460	970
<i>To/from (distribution)</i>					
BNSF SIG Yard	0.4%	32.0%	36.8%	47.3%	0.0%
UP Argo Yard	4.0%	6.7%	7.9%	13.0%	0.0%
I-5 North of SoDo	15.0%	4.0%	4.0%	4.0%	0.0%
I-90 E	20.0%	10.0%	5.0%	6.0%	0.0%
I-5 South of SoDo	29.0%	25.0%	14.0%	7.0%	0.0%
East Marginal Way	2.0%	1.0%	4.0%	1.0%	0.0%
SR-99	11.0%	10.0%	16.0%	6.0%	27.0%
SR 509	9.0%	2.0%	2.0%	7.0%	63.0%
Local businesses	10.0%	10.0%	10.0%	10.0%	10.0%

Note: distributions may not sum to 100% due to rounding. T-5 is reported for 2014, but is undergoing upgrades to accommodate post-Panamax ships and currently not operational. T-115 is primarily for domestic cargo to and from Alaska, but is reported in this table for completeness of data.

Source: Port of Seattle, 2015.

Appendix C. Estimating the Value of Cargo Moved by Truck across Terminals 30 and 46

Based on interviews and Port of Seattle data on truck trips, an estimated 60% of all marine cargo is loaded or unloaded from train cars, either on-dock (31%) or by trucks across East Marginal Way to either the BNSF SIG yard or Union Pacific ARGO yard (**Exhibit 7**). Of the remaining cargo, half (20% of all cargo TEUs) is shipped to and from trans-loading facilities in the region, and the other half is shipped to and from locations within the region but also north, (e.g., Burlington), south, and east of Seattle, the latter including hay shipments from Ellensburg and apple shipments from Yakima.

Exhibit 7. Share of Port of Seattle Cargo, by TEUs, by Mode of Shipment

Breakdown of Cargo into Port of Seattle	Distribution
A. On-dock rail	31%
B. Draying of cargo to and from the BNSF and UP rail yards	29%
C. Trucked to and fro local transloading facilities	20%
D. Other regional destinations (local, statewide, includes Eastern Washington)	20%
TEUs moved by truck to local and regional locations (B + C + D)	69%

Sources: Port of Seattle, 2016 and 2015; Community Attributes Inc., 2016.

Trucking is a critical mode for cargo movement in the region's freight mobility system, and it is vulnerable to additional congestion in the SODO district.

Findings in **Exhibit 7** suggest 69% of all cargo is moved at some point by truck between a port terminal and an outside location, either to one of the two railyards, a trans-loading facility, or other regional location (the remainder, 31%, is loaded on on-dock rail).

Using the percentage of truck trips presented in **Exhibit 8**, approximately 10% of all truck trips go to and from Terminal 30, and 19% to and from Terminal 46. An estimated 1% of all truck trips travel to and from T-30 and cross South Atlantic Street en route or from I-90 or locations north along I-5; for T-46, this value is 1.9%. Applying these percentages to truck-transported cargo shipments yields an estimated \$356.0 million in marine cargo value entering or leaving either terminal and traveling across the South Atlantic Street/First Ave South intersection in 2015 (**Exhibit 9**).

Exhibit A3. Estimated Share of Truck Trips to and from Terminals 30 and 46, and Value of Truck Shipments

Terminal	
T-30	
T-30 share of truck shipments	10.0%
Share of truck trips to and from T-30 over South Atlantic (North I-5 and I-90)	9.0%
Truck trips over South Atlantic as % all truck shipments (TEUs)	0.9%
Estimated value (\$mils)	\$113.6
T-46	
T-46 share of truck shipments	19.1%
Share of truck trips to and from T-46 over South Atlantic (North I-5 and I-90)	10.0%
Truck trips over South Atlantic as % all truck shipments (TEUs)	1.9%
Estimated value (\$mils)	\$242.4
Sum value of shipments that use South Atlantic Street from T-30 and T-46 (\$mils)	\$356.0

Sources: Port of Seattle, 2016; U.S. Census Bureau, 2016; Port of Seattle, 2015; Community Attributes Inc., 2016.

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