

A Different Kind of Gentrification:  
Seattle and its Relationship with Industrial Land

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**Abstract**

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Industry in Seattle often talks about how they are facing their own kind of gentrification. Rising property values, encroaching pressure for different land uses, and choking transportation all loom as reasons for industrial businesses to relocate out of the city. This research explores this phenomenon of industrial gentrification through a case study of Seattle's most prominent industrial area: the SODO ("South Of Downtown") neighborhood. My primary research question asks what the perception and reality of the state of industrial land designation and industrial land use gentrification in Seattle is. Secondary research questions involve asking how industrial land designation and industrial land use can be defined in Seattle, what percentage of land is zoned industrial in the SODO neighborhood, and what percentage of the land use is considered industrial in the SODO neighborhood. Finally, subsequent effects on freight transportation and goods movement will be considered. By surveying actual industrial land use compared to

industrially-zoned land, one can conclude whether industry's complaints are accurate and whether attempts to protect industrial land uses are working. Literature details cases that encapsulate the industrial gentrification debate and Seattle has undertaken many studies of its industrial land. Methods involve a case study approach coupled with a field survey. The survey area chosen is the SODO neighborhood, which is part of the locally and regionally-designated Duwamish Manufacturing/Industrial Center. Industrial designation is defined as any of the four types of industrial zoning in the City of Seattle. Industrial land use is defined with the help of the Land Based Classification Standards' Function dimension, with the following subcategories considered industrial: manufacturing, warehouse, storage yard, marine terminal, railroad, and utility. Results show that over 99% of the study area is designated industrial. After classification of each parcel in the study area, 62% of the study area's parcels, or 85% of the land area, contain actual industrial land use. When land intensive uses such as marine terminals and railroads are removed from consideration, the percent of industrial land area is only 42%. The conclusion of this study shows that 1) the narrative of industrial gentrification in Seattle is not as universal as initially perceived, 2) being designated as industrial land by zoning is not a surefire way to achieve what some would consider actual industrial land use, 3) actions undertaken by the City in the 2000s—namely increasing the size limits on non-industrial land uses in industrial zoning—have been effective at keeping SODO industrial, and 4) the question of whether Seattle is losing industry and industrial land rests on how one defines and perceives those terms. While much of SODO's land area is still industrial, market forces and trends are drawing more non-traditional land uses to SODO, such as boutique manufacturing, breweries and distilleries, event venues, and commercial offices and retail stores. Examples are prominent and give the perception of industrial loss even if, technically, much of SODO is still designated industrial.

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## 1: Introduction

Seattle has long depended on just two main north-south arteries for highway travel through the city: Interstate 5 and State Route 99. Driving north one is gradually afforded a great view of the expansive Elliot Bay and the dense downtown skyline that rests at its shore. It could be easy, however, to miss the flat expanse of warehouses and train tracks that lie directly to the south of the skyscrapers; save for a few landmarks. Looking east while on 99, one can see the Starbucks logo atop a large brick building. This former Sears store and catalog fulfillment center is now an office building that houses the world headquarters of the coffee company.<sup>1</sup> After passing the building, two large stadiums loom on the right. CenturyLink Field and T-Mobile Park sit on land that used to be a massive railyard.<sup>2</sup> If driving on I-5, it is hard to miss a tall structure with an “R” logo on top—the former Rainier brewery now contains a mix of uses, including artist lofts, a motorcycle fabricating business, a winery, and music studios. Further on, what looks like a large parking garage actually contains car dealerships for Toyota and Honda, with the new vehicles stored on the ramp levels above the showroom floor and repair bays on the ground floor.

These places—a large office building, a refurbished former brewery, sports stadiums, and new auto dealerships—sit in a neighborhood of Seattle now called SODO, which is short for “South of Downtown.” Before the name “SODO” was adopted and came into widespread use, people simply referred to the area as “the Industrial District” given the many industrial and manufacturing activities that were located there. The changing of the neighborhood’s name has

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<sup>1</sup> Gonzalez, “Sears Closing Store, Ending a Century in Sodo Building.”

<sup>2</sup> Raley, *Tideflats to Tomorrow : The History of Seattle’s SoDo*, 84.

been coupled with the evolution of its land use from purely manufacturing and industrial to a broader mix of activities including office, retail, entertainment, and more.

In this city there is a narrative regarding gentrification of neighborhoods: long-time residents and small businesses being pushed out by higher prices and new development.<sup>3</sup> Whether taking place in debates over single-family housing,<sup>4</sup> Amazon's domineering presence,<sup>5</sup> or rapidly-changing ethnic neighborhoods such as the Chinatown-International District<sup>6</sup> or Central District,<sup>7</sup> the subject of gentrification is all-encompassing and deserves multiple research papers of its own.

At the same time, there is a related but less prominent narrative from industry in Seattle about how they are threatened by this gentrification as well – rising property values, encroaching pressure for different land uses, and choking transportation all loom as reasons for industrial

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<sup>3</sup> Jackson, "The Displacement Tax: An Update from Gentrification Ground Zero"; "Rising Rents & Gentrification Threaten Equitable Economic Growth in Rainier Valley"; Savage, "Doing Something Real About Gentrification and Displacement"; "A Toolkit for Equitable Development: Seattle"; Read, "Seattle Takes a Small Step against Gentrification."

<sup>4</sup> Rosenberg, "Rapidly Growing Seattle Constrains New Housing through Widespread Single-Family Zoning"; Black, "It's Official: Single-Family Zoning Is Making Our City's Neighborhoods More White - Slog - The Stranger"; Bicknell, "Is It Time to Ditch 1950's Era Single-Family Zoning?"

<sup>5</sup> Egan, "Opinion | How Amazon Took Seattle's Soul"; Del Valle, "Amazon HQ2: The Backlash against Amazon's Expansion, Explained"; Buhayar and Bass, "How Big Tech Swallowed Seattle - Bloomberg"; Sisson, "Amazon HQ2: What New York and Arlington Can Learn from Seattle"; McCartney, "Amazon in Seattle: Economic Godsend or Self-Centered Behemoth? - The Washington Post"; Jacobs, "Amazon's HQ2 Cities Should Brace Themselves after Seeing Seattle"; Constant, "I'm From Seattle. Here's What Amazon Will Do To New York City."

<sup>6</sup> Brothers, "Will Grandma Have a Place in the New Chinatown-International District?"; Schlosser, "Geek of the Week: 'Vanishing Seattle' Creator Cynthia Brothers on Why the City's Loss of 'Soul' Is about More than Nostalgia"; Chapman, "Two Sides to 14 Stories — Understanding the Controversy behind the SpringHill Hotel Development in the ID"; Chan, "Setting the Record Straight: Chinatown and ID Businesses Not Opposed to Plans for Hotel Development"; Stiles, "Taiwanese Firm Proposes Market-Rate Condo Tower in Seattle's Japantown"; Stiles, "Condo Market Continues to Thaw as Developer Plans Seattle Tower for Summer Construction"; Stiles, "Behind the Deal: Tomio Moriguchi Held out for Decades for the Right Project"; Stiles, "Tomio Moriguchi Partners with Developer on Mixed-Use Apartment Tower in Seattle's Japantown."

<sup>7</sup> Beason, "Central District, Other Seattle Legacy Communities Are at Risk — and We All Need to Help Save Them"; Beason, "Central District's Shrinking Black Community Wonders What's next"; "Process Begins for the End of the Central District's Midtown Center as We Know It"; Scruggs, "As Seattle Gentrifies, Blacks No Longer Feel Welcome - Reuters"; Cohen, "'Where Are the Black People?' Central District Residents Get Creative to Fight Displacement"; Ishisaka, "An Epic Battle against Gentrification"; Scruggs, "After Development Deal, Black Central District Residents Feel Ignored"; Kidhe, "The Power of Loyalty in the Central District."

businesses to relocate out of the city. Many people point to the changing SODO neighborhood as the poster child for this narrative, although there are other areas in Seattle undergoing similar transformations.

To pursue evidence of this latter narrative is a challenging endeavor. A narrative is defined as “a spoken or written account of connected events; a story.”<sup>8</sup> In this case, the story is often told in writing. Articles that document different events, actions, and news items, often involving complaints of industrial land being challenged from business owners, politicians, or advocates in the context of specific cases allow the narrative to play out. Over the years there have been several well-known and well-publicized news items and debates over specific issues that both contain and act as proxies for Seattle's larger debate about industrial land use.

### **Specific Cases**

Two longtime seafood companies based in Ballard, Keyport Foods and Ocean Beauty Seafoods, both announced in 2018 that they were moving out of the City from their current locations. Keyport Foods relocated to Edmonds, and Ocean Beauty Seafoods moved to Renton. For them, the reckoning came with, ironically, an increase in business. They considered remodeling their current building to accommodate it, but with big traffic challenges along their trucking routes, the company decided to pick a new location for their processing and distribution facility. As Ocean Beauty's Vice President for Marketing put it to KIRO 7 news:

“Our primary reason for moving is expansion. Both our distribution and smoked salmon operations have outgrown this location. We could remodel this building to accommodate, but that would leave us with the same poor trucking logistics. So we decided it made

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<sup>8</sup> Google, “Dictionary - Definition of ‘Narrative.’”

more sense to expand in an area where we have easier access to the freeways and airport.”<sup>9</sup>

In this case, the company moved because of transportation challenges, but interviews with local residents and business owners testified to how much Ballard itself has changed, bringing the traffic with it. Another transportation issue in Ballard serving as a proxy for a larger debate on the place of industry in Seattle is the Burke Gilman Trail’s “missing link.”

Due to begin construction in early 2019, the debate over the siting of the one missing piece in the 27-mile, Kenmore to Golden Gardens multi-use bike and pedestrian trail has raged for years among Ballard residents, businesses, cyclists, and greater Seattle. Various reporting and perspectives from the Seattle Times, the Seattle Bike Blog, Cascadia Bicycle Club, the King County Labor Council, the Ballard Cycle Track group, the North Seattle Industrial Association, and individual Shilshole businesses such as Ballard Oil, Salmon Bay Sand and Gravel, and Pacific Fishermen Shipyard all have made their voices heard over this issue. There have been several route alternatives to complete the multi-use bike and pedestrian trail through downtown Ballard, with the compromise routing along Shilshole Avenue framed by industrial businesses as the worst possible solution for them. The many industrial driveways that will cross the path prove a challenge, and debate over a good design to accommodate safe truck and bike operation continues.<sup>10</sup>

While the bike trail issue provokes passion from the cycling community, another recent issue engenders passion from a different community: basketball fans. Perhaps no issue encapsulates the debate over industrial land like the SODO arena proposal. Championed by

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<sup>9</sup> Sun, “Long-Time Ballard Company Ocean Beauty Relocates to Renton | KIRO-TV”; Sun, “Two Ballard Seafood Businesses Are Leaving Seattle | KIRO-TV.”

<sup>10</sup> City of Seattle Department of Transportation, “Burke-Gilman Trail Missing Link Project - Transportation | Seattle.Gov.”

developer and investor Chris Hansen, the arena is styled as a new home for both a returning-to-Seattle-NBA team and an NHL team. Located just south of the Mariners' T-Mobile Park, the location drew concerns from the Port of Seattle, which has several terminals nearby and is protective of the transportation routes through SODO connecting them to Interstate 5 and Highway 99, and labor unions, which represent the many industrial jobs present in the SODO area and throughout Seattle. The arena was effectively doomed in May 2016, when a 5-4 vote of the Seattle City Council, denied a request for a street vacation of Occidental Avenue, which runs through the proposed arena project site. The votes against the vacation were due to concerns not just from the Port, industry, and labor unions, but a reaction to sometimes-sexist criticism and insults from proponents of basketball coming back to Seattle (all the "no" votes on the Council were women).<sup>11</sup> The SODO arena debate is a well-known and well-publicized news item that is a microcosm of Seattle's larger debate about industrial land use.

### **Purpose, Research Questions, and Importance**

These cases have been presented as evidence of some variation of the following refrains: "industrial businesses are under attack in Seattle," "Seattle doesn't want to be a home for industry anymore," or "Seattle values offices, condos and bike lanes over industry and good-paying, blue collar jobs."<sup>12</sup> However, these generalized statements are in many cases reactions to specific events and debates like those detailed above. Is industry really under attack in Seattle? To answer that question, it must be asked whether the land on which industry is located is under threat. Is the constant march of development hindering, and in fact reducing, the amount of

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<sup>11</sup> Baker, "Seattle City Council Kills Sale of Street for Sodo Arena; Sonics Fans Despair."

<sup>12</sup> Baker; Anderson and Garrity, "Leary Way Is the Common-Sense Route for Burke-Gilman's Missing Link"; Persak, "The Arena's Forgotten Issue: Social Justice"; Fucoloro, "Missing Link Mega Study Exhausts the Debate + Why the Labor Council Still Opposes the Trail"; Roberts, "Rising Tide of Seattle Growth Swamps Century-Old Jensen Motor Boat Co."; Berger, "SoDo Arena: Mayoral Candidates Overlook the Exit Ramps"; Durall, "The Burke-Gilman Missing Link: Real vs. Alternative Facts"; Heffter, "Port Commissioners: Arena Threatens Jobs, Gambles with City Money."

industrial land use in Seattle? A proper study focusing on the perception and reality of industrial land loss in Seattle must be undertaken. Given the size and breadth of industrial land in Seattle, it will be helpful to focus on a specific area of the city, namely Seattle's longtime prominent industrial area: the SODO neighborhood. The purpose of my research is to explore this phenomenon of industrial gentrification through a case study of the SODO neighborhood and its current land use. By studying what is happening in SODO, one can come away with an impression and representation of the larger direction of industrial land in Seattle.

My primary research question is: "What is the perception and reality of the state of industrial land designation and industrial land use gentrification in Seattle?" To undertake this research using the SODO case study, I first need to ask how industrial land designation and industrial land use can be defined in Seattle, and where both are located. I then need to ask what percentage of land is zoned industrial in the SODO neighborhood, and what percentage of the land use is considered industrial in the SODO neighborhood. Finally, given the role of transportation in the previously detailed debates, I need to ask what the possible effects of evolving industrial land use are on freight transportation and goods movement in SODO.

Seattle has a long history as a center of industry, framed by its start as a center for timber harvesting, then expanding into a manufacturing center dominated by two sectors: aviation and maritime. William Boeing built its first airplane out of a dockside hangar on Lake Union in 1916, and three years later had established the headquarters of his Boeing Airplane Company along the Duwamish River in what is now SODO.<sup>13</sup> Today Boeing and the many ancillary industries serving its production needs still operate in Seattle. Seattle's luck of geography positioned the city on a naturally deep-water port, engendering a strong maritime industry centered on domestic

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<sup>13</sup> Williams, *Seattle Walks: Discovering History and Nature in the City*, 109.

and international shipping (made only stronger with the advent of containerization<sup>14</sup>), trade and exports, and commercial fishing, along with all the industries that serve those sectors. This is all to say that industry has been and continues to be a bedrock of Seattle as a city: historically, economically, and culturally. An investigation into Seattle's ever-evolving relationship with its industrial land can add to the already rich history of Seattle's industry while furthering concrete research into the narrative of industrial gentrification in the Emerald City.

## **2: Literature Review**

To answer my research questions, there are several categories of literature to survey. The first is literature that focuses on SODO itself as a neighborhood and area. Several works provide local context to the study by detailing the history of the SODO and Duwamish. The second is zoning and industrial land status in Seattle. While there is a lack of academic literature on industrial land use in Seattle specifically, the City of Seattle has conducted various planning studies and inventories of its industrial land over the years, and it is also the source of zoning and land use data. This work will go toward defining what "industrial" means and provide background for determining industrial designation versus actual industrial use in the study area. Finally, the third is transportation-related work focused on freight and goods movement, given that many debates over industry in Seattle center on transportation. There is much national and local literature on freight transportation that can be explored to provide that element of the research.

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<sup>14</sup> Levinson, *The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger*.

## History of SODO

Given the study's focus on the SODO neighborhood, it is important to provide background on and explore the history of the area. There are three books that provide the history of SODO. The first two, *Too High & Too Steep: Reshaping Seattle's Topography* and *Seattle Walks: Discovering History and Nature in the City* are by the same author: David B. Williams. They provide details on the beginnings of SODO; how it went from Duwamish River tideflats to filled-in land ready to accommodate burgeoning businesses over the course of several decades around the time Washington State achieved statehood in 1889.<sup>15</sup> The third book, *Tideflats to Tomorrow: The History of Seattle's SoDo* by Dan Raley, is cited on the SODO Business Improvement Area's "history" page of its website.<sup>16</sup> Throughout ten chapters, the book progresses chronologically through SODO's history all the way to contemporary times, and is the only comprehensive history of the SODO (or "SoDo" as Raley refers to it) neighborhood I could find.

The area where SODO currently is used to be marshy unstable tideflats, crisscrossed by railroad trestles that snaked from the south to serve the port that had formed along the shoreline. The regrades that took place near the tideflats during a period from 1895-1912, including Jackson St, Dearborn St, and Beacon Hill<sup>17</sup> provided the fill that created more solid, buildable land.<sup>18</sup> Businesses established themselves and rose and fell with the economy. During the Great

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<sup>15</sup> Williams, *Too High & Too Steep: Reshaping Seattle's Topography*; Raley, *Tideflats to Tomorrow : The History of Seattle's SoDo*, 2–8.

<sup>16</sup> SODO Business Improvement Area, "HISTORY - SODO."

<sup>17</sup> The unrealized southern waterway project championed by former Washington territory governor Eugene Semple would have created a canal to Lake Washington through Beacon Hill. While the northern canal project (the current Lake Washington Ship Canal) eventually won out, evidence of Semple's project still exists. The divot in Beacon Hill, just east of where Spokane Street ends in a maze of freeway on- and off-ramps, was created during the dredging effort. In the end, it provided a convenient place for WSDOT to build the I-5 Columbian Way exit and entrance ramps.

<sup>18</sup> Williams, *Seattle Walks: Discovering History and Nature in the City*, 82–84, 185; Raley, *Tideflats to Tomorrow : The History of Seattle's SoDo*, 5–7; Williams, *Too High & Too Steep: Reshaping Seattle's Topography*, 92–101.

Depression a large encampment, named “Hooverville” like many other such camps forming around the country, was home to many homeless and immigrant populations. The Port of Seattle has always been a large presence in the neighborhood, starting first as a five-member Harbor Commission that established all waterfront piers and docks as government-owned property in 1890,<sup>19</sup> before expanding greatly for the war effort during WWII, and then transitioning to international container shipping and leasing land to private terminal operators.<sup>20</sup>

Throughout the 1980s and 1990s businesses moved out of SODO for a variety of reasons, the most common one being lack of space for their expanding warehousing needs. Many relocated in suburbs like Kent, WA, where land was plentiful and cheap. As the neighborhood changed, there were efforts to give it a name other than the generic “Industrial District.” Eventually the name SODO was created, inspired by the similarly-changing New York City neighborhood Soho.<sup>21</sup> SODO was taken to mean “South of the Dome” for the Kingdome sports stadium built in 1976 at the south end of Pioneer Square and west of the International District.<sup>22</sup> The name would not gain widespread use and recognition, however, until the Mariners baseball team developed the marketing slogan “SODO MOJO” (linking the team, their new stadium’s neighborhood, and “mojo,” which means magic charm or power) to pair with their first season played in the newly-constructed Safeco Field (now T-Mobile Park).<sup>23</sup> From the late 1990s to the present there have been notable redevelopment proposals in SODO and lots of debate over what kind of land use should exist into the future.

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<sup>19</sup> Williams, *Too High & Too Steep: Reshaping Seattle’s Topography*, 92.

<sup>20</sup> Raley, *Tideflats to Tomorrow : The History of Seattle’s SoDo*, 4, 48–56.

<sup>21</sup> Raley, 72.

<sup>22</sup> Raley, 72; MacIntosh, “Kingdome: The Controversial Birth of a Seattle Icon (1959-1976) - HistoryLink.Org.”

<sup>23</sup> Raley, *Tideflats to Tomorrow : The History of Seattle’s SoDo*, 75–78.

An impressive number of businesses have their origins in SODO. Many are profiled by Raley and a selection are listed in Table 1.<sup>24</sup> Of the 17 highlighted, only eight are still performing their main business activity, such as manufacturing or warehousing, in SODO. Two still maintain an office or retail presence while having moved most of their operations elsewhere. Of the ones that have completely moved their operations, there are some that still own the land or buildings and lease them out to other businesses. All the businesses listed are still in business in some form; all the ones that have gone out of business or ceased to exist are not included.

Another source of SODO information is a UW architecture master's thesis done in 2015, called *Weaving Industries: Conservation of SoDo's Urban Fabric Through Creative Manufacturing*, has this as a point of departure: in SODO, the built environment and urban form that represents the area's rich industrial history tends to often get eliminated to make room for new development. It contends that the neighborhood's sense of identify and place is lost then too. The thesis proposes various ways to ensure the conservation of the built industries and weave them together with the existing sports district. The centerpiece of the proposal is a building reuse project: an artistic textile lab in an existing warehouse.<sup>25</sup> This thesis is useful not for its specific textile proposal, but for its background research and contention about SODO losing industrial land and spirit, which confirms the basis for my research.

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<sup>24</sup> Raley, 7–130.

<sup>25</sup> Anderson, "Weaving Industries: Conservation of SoDo's Urban Fabric Through Creative Manufacturing."

Table 1: Historic SODO Businesses, 1900-present

Business Name	Product	Still in SODO?	Notes
Alaska Distributors	Beer and soft-drink supplier	No	Move to Kent in 2006 for more warehouse space
Alaskan Copper and Brass Company	Pipe, valves, fittings	Partially	Moved warehouse business to Kent while keeping manufacturing and corporate offices in SODO
Ederer Crane	Cranes	No	Still exists partially in Washington State, but now does manufacturing of cranes in Georgia. Ederer Crane built the machinery that operates the retractable roof at T-Mobile Park.
Lee & Eastes Tank Lines	Bulk commodity transport	Yes	Dispatch offices and repair bays located in SODO
M. Bloch Company	Metal recycler and steel wholesaler	Yes	Nucor Steel is Bloch's primary customer
Markey Machinery	Marine winches for tugboats and ships	No	Combined office and plant operations in Georgetown
Millwork Supply	Mill-working wood products	Yes	
O.B. Williams Company	Mill-working wood products	Yes	Supplied all 3000 panels for the inside of Benaroya Hall.
Pacific Car and Foundry Company	Trucks, structural steel	No	Now just goes by PACCAR
Pacific Coast and Feather	Down feathers	Partially	Corporate offices still in SODO. Product cleaned at Marysville, WA plant, shipped to one of 12 plants nationally, including one in Kent, WA
Pacific Iron and Metal	Metal scrap and fabric processing and recycling	Yes	
Peat Belting	Rubber belts and conveyors	No	Merged with Industrial Belt and Rubber and moved to Auburn after 2001 Nisqually earthquake. Responsible for making all the belts and conveyors that were used during the multiple Seattle regrade projects
Puget Sound Pipe and Supply	Pipe, valves, fittings	Partially	Moved majority of warehouse and office space to Kent, maintains a location in SODO to serve customers
Stack Steel and Salvage	Steel fabricating	No	Company no longer in business, but still has the real estate
Star Machinery Company	Equipment rentals	Yes	Now focuses on equipment rentals, called Star Rentals
System Transfer and Storage	Trucking and warehousing	Yes	
Todd Pacific Shipyards	Shipbuilding and repair, drydocks	Yes	Now called Vigor Shipyards, occupying a significantly smaller portion of Harbor Island

## **Regional and Local Industrial Land Planning and Study Efforts**

As part of its regional planning efforts, the Puget Sound Regional Council (PSRC) maintains a general growth plan that is continually updated. Currently called VISION 2050 and looking 30 years ahead, the plan's growth management and transportation strategies center around regionally-designated growth centers, or "focal points for planned growth, economic development and transportation infrastructure investments."<sup>26</sup> See Figure 1 for a map of the region's centers.<sup>27</sup>

One type of center that can be designated is called a Manufacturing/Industrial Center (abbreviated as MIC or M/IC). These MICs are "intended to be locations of more intensive industrial activity that are typically characterized by large contiguous parcels served by the region's major transportation infrastructure, including roads, rail, and port facilities." In general, "non-supportive land uses in regional MICs, such as retail, non-related offices, or housing...[are discouraged]...in order to preserve the basic sector industries located in these centers."<sup>28</sup>

As such, PSRC has performed work focused on all of the defined MICs throughout King, Pierce, Snohomish, and Kitsap counties. However, it is largely up to the local jurisdictions to exercise development control over these areas. The City of Seattle, which has two MICs within its borders (Duwamish and Ballard/Interbay) has conducted different sets of work on industrial land over the years. Performed and released largely through the Office of Planning and Community Development (OPCD) and under its previous name, the Department of Planning and Development, the City's work activity centers around its MICs and is guided by the City's Comprehensive Plan, which has a 20-year timeline and is updated every year.

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<sup>26</sup> Puget Sound Regional Council, "Centers | Puget Sound Regional Council."

<sup>27</sup> Puget Sound Regional Council, "Map of Regional Growth Centers and Manufacturing / Industrial Centers."

<sup>28</sup> Puget Sound Regional Council, "Industrial Lands Analysis," 3-2.

## Regional Growth Centers and Manufacturing/Industrial Centers

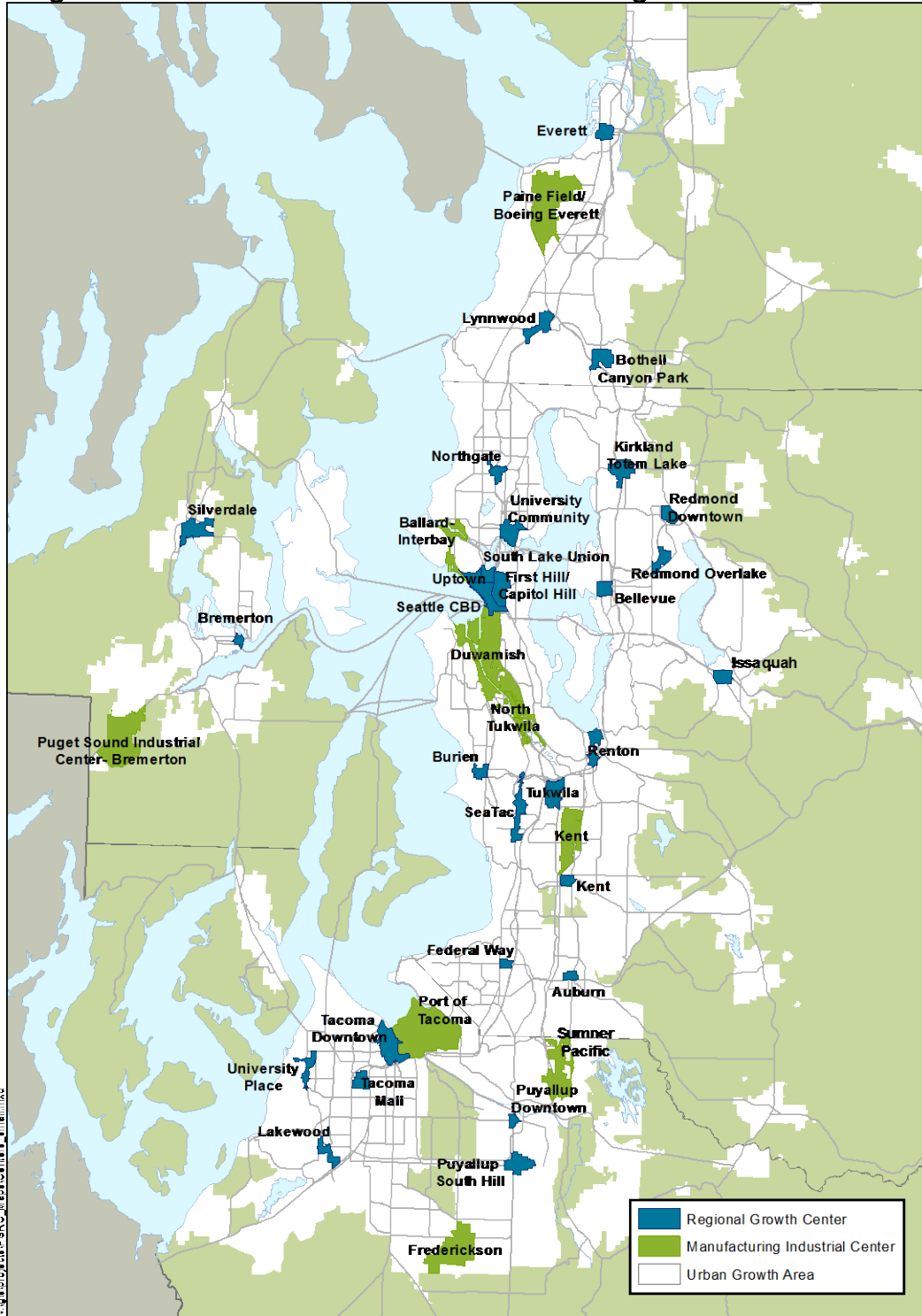


Figure 1: Regional Centers of Puget Sound from PSRC's 2013 Regional Centers Monitoring Report

## *City of Seattle 2007-2009 Work on Industrial Lands*

The City's Department of Planning and Development under Mayor Greg Nickels did a variety of work in 2007-2009 on industrial lands. An archived OPCD website serves as a homepage for the City's effort to develop an industrial lands strategy.<sup>29</sup> In 2006 the City Council provided funding to examine the amount of industrial land the City had to accommodate future industrial needs and look at zoning reclassification requests. In 2007 there were several products that came out of this effort: a public involvement conversation series with the Seattle Planning Commission<sup>30</sup> and a variety of reports: a background report, an investigation of comparable cities, a survey of business owners, a more targeted interview effort focused on getting perspectives on the benefits and challenges of industrial business opportunities, and a summary report listing recommendations for the mayor (see Figure 2 and Figure 3).<sup>31</sup> A subsequent report on the economic impacts of zoning changes came out in 2008 and a review of regulatory tools came out in 2009 (see Figure 4 and Figure 5).<sup>32</sup>

The reports set the table for a conversation about industrial land in Seattle with a variety of main points, which follow here. Industrially-zoned land occupies about 12 percent of Seattle's land area, which is more than any other zone except for single-family. That 12% is 5,142 acres, which is a decrease from the 5,698 acres, or 14% of the city's land area that was zoned industrial in 1984. Most of the current industrially zoned land is located in the City's two MICs. Although

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<sup>29</sup> City of Seattle Office of Planning and Community Development, "Industrial Lands Website."

<sup>30</sup> Seattle Planning Commission, "The Future of Seattle's Industrial Lands."

<sup>31</sup> City of Seattle Department of Planning and Development, "Seattle's Industrial Lands: Mayor's Recommendations"; City of Seattle Department of Planning and Development, "Seattle's Industrial Lands: Background Report"; City of Seattle Department of Planning and Development, "Industrial Lands Survey: Survey of Business Owners"; City of Seattle Department of Planning and Development, "Industrial Lands Survey: Investigation of Comparable Cities"; City of Seattle Department of Planning and Development, "Industrial Lands Survey: Perspectives on the Benefits and Challenges of Business Opportunities in Seattle's Industrial Lands."

<sup>32</sup> City of Seattle Department of Planning and Development, "Economic Impacts of Seattle Industrial Area Zoning Changes"; City of Seattle Department of Planning and Development, "Seattle's Industrial Lands: Regulatory Tools."

industry in some cities has dramatically declined, Seattle's industrial areas are active and thriving, with over 70,000 jobs and a significant portion of Seattle's economic activity. There is high demand for industrial space and building vacancy is low. Industrial land is scarce and the opportunity to create new industrial land in Seattle is nearly non-existent due to several conditions: almost all land within the city limits is already developed; the ability to change zoning from another use to industrial is highly limited because of environmental and quality of life issues for adjacent, non-industrial uses; and increasing demand for residential and commercial land elevates the price of land beyond what is affordable to industrial users. Some growing firms do end up moving to the Kent Valley because Seattle lacks space for expansion. And if a firm does leave, a new industrial firm soon takes its place.<sup>33</sup>

While the Seattle Comprehensive Plan strongly supports the use of industrial lands for industrial purposes, at that time zoning rules allowed 75,000 or 100,000 square feet of commercial uses in industrial areas, which was deemed a policy inconsistent with the City's goal. A review of Seattle's industrial zones showed that only about 18 percent of the retail and office uses in those zones exceeded 10,000 square feet in area. The revised limit of 10,000 square feet is closer to limits set in other cities that have successfully protected industrial areas. For instance, Portland limits office and retail uses to 3,000 square feet, and Vancouver only allows them as an accessory to an industrial use.<sup>34</sup>

While recognizing that zoning and other factors keep prices for industrial land and buildings low, the reports acknowledge that some owners and investors speculate that the

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<sup>33</sup> City of Seattle Department of Planning and Development, "Seattle's Industrial Lands: Mayor's Recommendations."

<sup>34</sup> City of Seattle Office of Planning and Community Development, "Industrial Lands Website"; City of Seattle Department of Planning and Development, "Seattle's Industrial Lands: Background Report"; City of Seattle Department of Planning and Development, "Seattle's Industrial Lands: Mayor's Recommendations."

industrial land could be worth more if zoning were less restrictive. Indeed, some think that using more industrial land for offices and retail activities is inevitable. However, the survey work done of Seattle industrial firms found many prefer locations in Seattle that are close to suppliers and customers and near the Port of Seattle’s terminal facilities and SODO’s railroad and highway connections.<sup>35</sup> Further, non-industrial uses such as commercial, office, and residential raise the cost of land (and rents), making it harder for industrial businesses to be profitable or new businesses to locate there.

In the end, the result of the City’s efforts was an amendment to the City’s land use code that lowered the maximum size of office and retail uses allowed in industrial zones. The new rules were effective in January 2008. How the maximum sizes changed, in square feet, are shown in Table 2.

*Table 2: Land use square footage maxim limits pre and post-2008*

	IG1		IG2	
	Pre-2008	Post-2008	Pre-2008	Post-2008
Retail Sales and Service	30,000	10,000	75,000	25,000
Entertainment	30,000	10,000	75,000	10,000
Office	50,000	10,000	100,000	25,000

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<sup>35</sup> City of Seattle Department of Planning and Development, “Seattle’s Industrial Lands: Mayor’s Recommendations,” 14.



Figure 2: 2007 Seattle Planning Commission Report

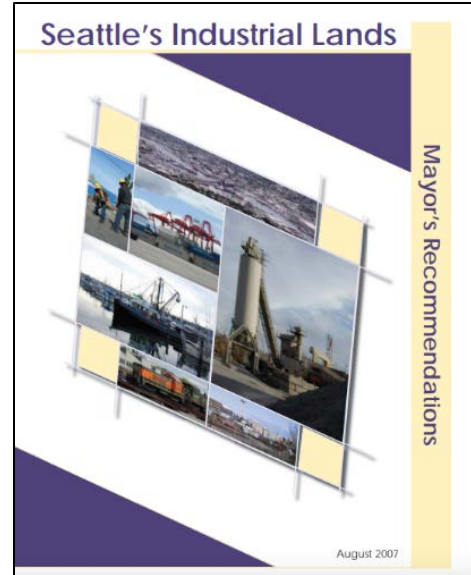


Figure 3: Mayor's Recommendations from 2007 Work

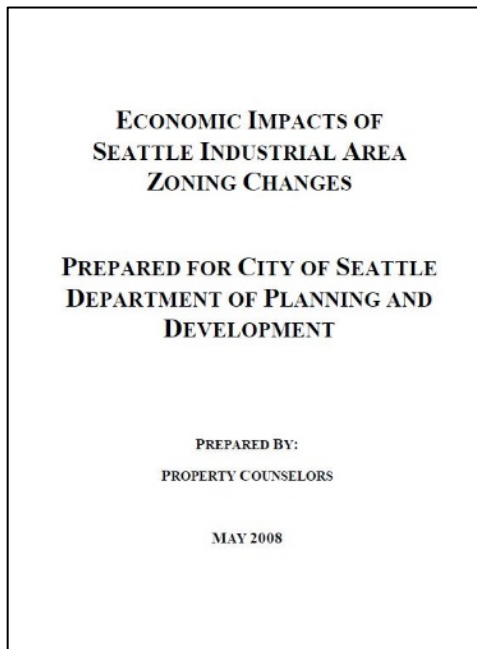


Figure 4: 2008 Economic Impacts Report



Figure 5: 2009 Regulatory Tools Review

*City of Seattle 2013 Duwamish M/IC Policy and Land Use Study*

More recent work done on the SODO area comes from the Duwamish Manufacturing/Industrial Center Policy and Land Use Study, completed in 2013 (see Figure 6). This study was undertaken based on a commitment made by the City as part of an agreement with King County and proponents of the proposed SODO basketball arena. The agreement was a memorandum-of-understanding that called on the City to “evaluate the necessary policies, land uses, and zoning mechanisms...to protect maritime and industrial uses and reinforce the role” of the MICs as industrial-exclusive areas.<sup>36</sup> The planning effort builds on the City’s Comprehensive Plan policies and goals for the MIC as well as the Port of Seattle’s Century Agenda.

Unlike the City’s work from the previous decade, this report provides details specifically on the Duwamish MIC. The MIC has 57,000 jobs (as of 2010), contains 87% of Seattle’s industrial land, and 93% of its zoning is Industrial General 1 or Industrial General 2, which is the City’s strongest zoning for industrial land uses (see page 34 for more information on Seattle’s industrial zoning). However, there is Industrial Commercial (IC) zoning in the MIC as well, located at the northern end near the baseball and football stadiums. According to the report, IC zones are “intended for areas that could attract new businesses, near major institutions, former industrial areas in transition and areas where there is an existing concentration of research and development type uses.”<sup>37</sup> However, in the past few years, sites with IC zoning have mostly produced large single-use office buildings, since industrial uses cannot compete with commercial uses on rent. In other words, IC zoning has not resulted in production, distribution and repair

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<sup>36</sup> City of Seattle Department of Planning and Development, “Duwamish M/IC Policy and Land Use Study,” 3.

<sup>37</sup> City of Seattle Department of Planning and Development, 13.

type uses. Therefore, one of the report’s recommendations is to not allow any more land to be rezoned to IC in the MIC.<sup>38</sup>

The study makes several observations on land use patterns in the MIC. Transportation uses are dominant, which makes sense given the presence of the Port of Seattle’s cargo operations, major rail yards, the King County International Airport, and private land that serves as truck staging areas and freight logistics companies. Retail uses are concentrated along corridors, namely 1<sup>st</sup> and 4<sup>th</sup> Avenues. Finally, industrial land is used less for manufacturing and more for storage, repair, and production. This is an important observation, in that the report calls out repair uses (such as truck, car, and machinery repair) and distinguishes the word “production” from “manufacturing.”<sup>39</sup> While the Seattle Land Use Code defines “manufacturing” as including production of articles from both raw and prepared materials, the report deems “manufacturing” to just refer to just production from raw materials, and “production” meaning later-stage activities such as assembling prepared or already-manufactured individual parts into a final product. See “Appendix B: “Manufacturing” definition from Seattle Land Use Code” for a complete definition of “manufacturing” according to the City’s Land Use Code.

The report points out that 42% of land in the Duwamish MIC is owned by public agencies. Indeed, many of publicly-owned and run operations are present, whether taking place on public land or in privately-owned leased space. These include the U.S. Coast Guard Base Seattle, the headquarters for the Coast Guard’s Puget Sound Sector; a U.S. Post Office (both a retail location and a vehicle maintenance facility); a Washington State emissions testing station; the Washington State Patrol’s toxicology and crime labs; multiple facilities owned by the Port of

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<sup>38</sup> City of Seattle Department of Planning and Development, 37.

<sup>39</sup> City of Seattle Department of Planning and Development, 17.

Seattle (both terminals and buildings); the King County International Airport (more commonly known as Boeing Field); a variety of King County Metro facilities, including its Central and Ryerson bus bases, its communications control center, and a power distribution center; Sound Transit's Central Link light rail base; the Seattle School District Headquarters; Seattle Fire Station 14; Seattle City Light's South Service Center and maintenance complex; the Seattle Department of Transportation's traffic signs and signals shop; the Seattle Police Department's evidence unit, photo lab, and training facility; Seattle Public Utilities' Water Quality Lab and Water Operations Control Center; and the City's Charles Street Campus, which includes a diverse group of City operations including fleet management, SDOT street maintenance, SPU's materials laboratory, and the Seattle First Hill Streetcar maintenance facility.<sup>40</sup> In many of these cases the uses are industrial or transportation-related and would not be appropriate uses in other parts of the City. In a few cases, however, the public use is not industrial and could be located in other parts of the City, such as the school district building.<sup>41</sup>

Finally, the report notes how auto dealerships are a growing presence in the MIC. As they have faced pressure in other locations in Seattle,<sup>42</sup> dealerships like Honda and Toyota have relocated to SODO. Auto-dealerships tend to look for areas of the city with good access and visibility and relatively large, inexpensive sites, which matches the characteristics of land in the MIC. Also, much of the auto-dealership business is devoted to the storage of cars (which can be thought of as similar to warehousing), as well as large service and repair functions in their operations, which are similar to existing uses on industrial-zoned land. In the end, the report

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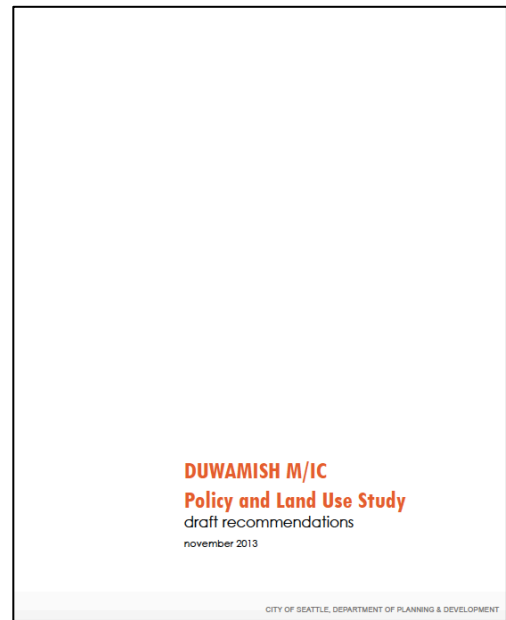
<sup>40</sup> SKS Architects, "Charles Street Campus Relocation Analysis"; City of Seattle Department of Finance and Administration, "City of Seattle Property Finder."

<sup>41</sup> City of Seattle Department of Planning and Development, "Duwamish M/IC Policy and Land Use Study," 26.

<sup>42</sup> Zoning changes in several neighborhoods do not support auto-dealerships as a use, largely because their outdoor storage of cars has negative impacts on the pedestrian environment. For all these reasons, potential sites within the city for dealerships have shrunk severely.

concludes that the use profile of auto-dealerships may be a reasonable fit with the characteristics of industrial-zoned land in the Duwamish.<sup>43</sup> However, as a retail use that can afford higher land costs than typical industrial businesses, dealerships could have a disruptive effect on the industrial area. Therefore, one of the report’s recommendations is limiting them to a confined geographic area, which could control the impacts on land costs.<sup>44</sup>

The report also includes a land-use map for the larger Duwamish MIC (see Figure 7). There are 21 different land-use categories identified, with no description as to why these, in particular, were chosen. The categories are: Single Family, Duplex/Triplex, Other Housing, Multi-Family, Office, Retail/Service, Hotel/Motel, Entertainment, Mixed Use, Parking, Industrial, Warehouse, Transportation/Utilities/Communication, Institutions, Public Facilities, Schools, Open Space, Easement, Vacant, and Unavailable or Unknown.



*Figure 6: 2013 Duwamish M/IC Policy and Land Use Study*

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<sup>43</sup> City of Seattle Department of Planning and Development, “Duwamish M/IC Policy and Land Use Study,” 35.

<sup>44</sup> City of Seattle Department of Planning and Development, 39.

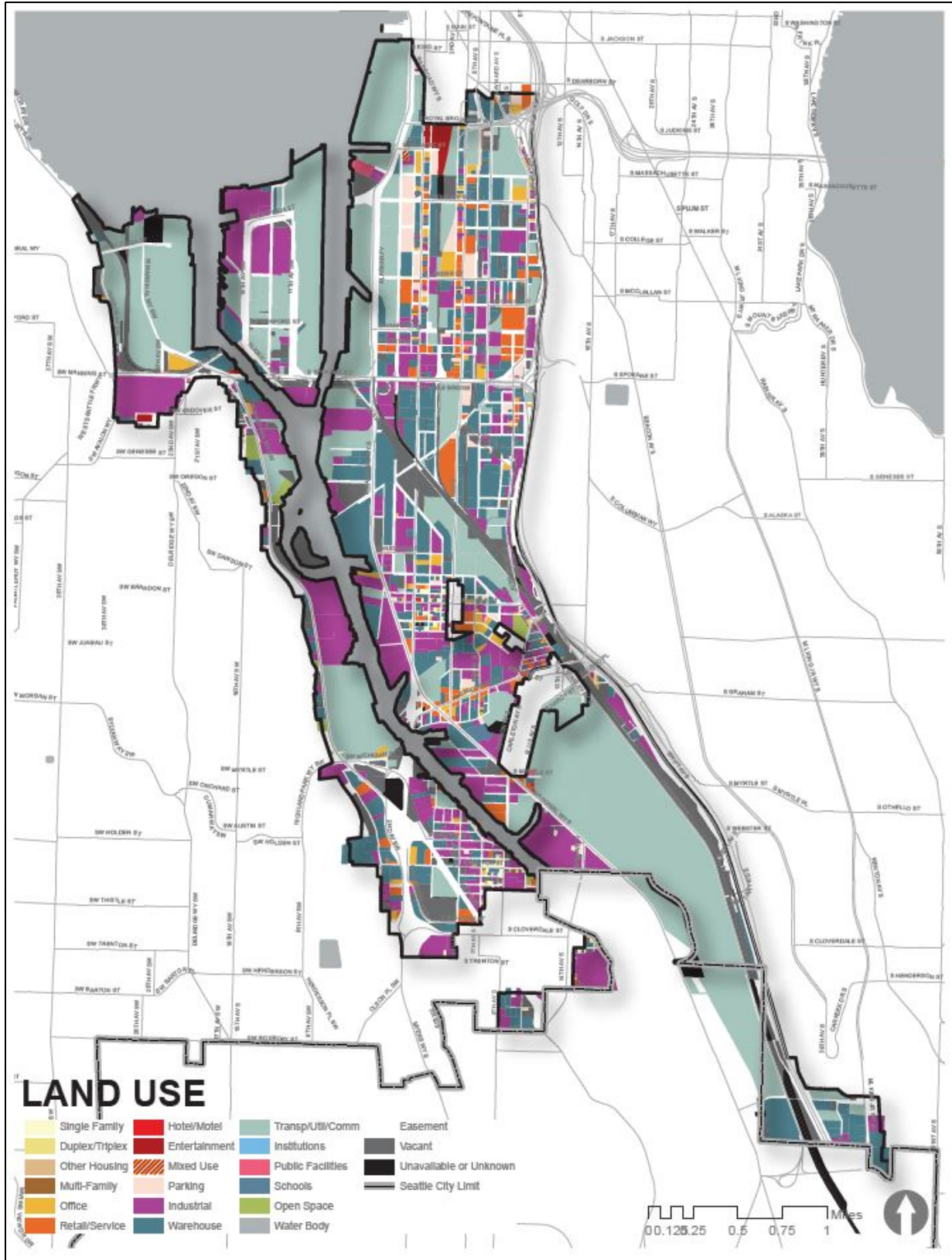


Figure 7: Duwamish M/IC Land Use Map from 2013 Duwamish M/IC Policy and Land Use Study

*PSRC's 2013 Regional Centers Monitoring Report Profile on the Duwamish M/IC*

Also in 2013, the Puget Sound Regional Council released their 2013 Regional Centers Monitoring Report (see Figure 8) which contains an analysis of the regional centers as a whole, as well as individual profiles of each one. The Center Profile on the Duwamish MIC provides a series of basic information and statistics on population, housing, employment, transportation, and more (see Table 3). It also includes a land use map of the area (see Figure 9). In this case, there are seven categories identified: residential, mixed-use, commercial/retail/office, industrial/warehousing, park/open space, institutional/government/military/school/public, and right-of-way/vacant/other.<sup>45</sup>

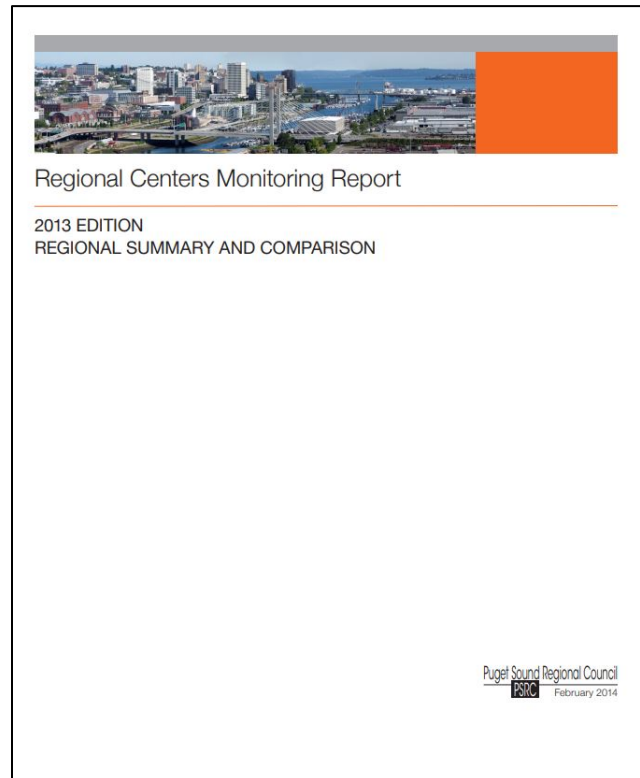
There are a few interesting points from the profile. First, while it may not be known for it, people do live in the Duwamish MIC. While housing is not a dominant land use, there are pockets in certain areas, such as Georgetown and South Park. From 2000-2010 housing decreased by 143 units (a 21% decrease). The MIC includes some unique housing, including caretaker residences and artist live /work spaces. No new housing is permitted in the MIC since it has all been zoned industrial, and industrial zoning does not allow any new residential land uses to be established.

Regarding transportation, for work-based trips the profile observes that the Duwamish MIC's travel characteristics are somewhat different from the region as a whole. Namely, there are fewer single-occupant vehicle (SOV) and slightly more transit trips. The region's SOV share is 76 percent, while the MIC's is 73 percent. The region's non-SOV mode share is 24 percent, while the MIC's non-SOV share is 27 percent. In terms of employee access to transit, the Duwamish MIC has 68 percent of employees within a quarter-mile walk to a transit stop. For a

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<sup>45</sup> Puget Sound Regional Council, "2013 Regional Centers Monitoring Report - Center Profiles - Duwamish MIC."

half-mile walkshed, the MIC has nearly complete levels of employee access to transit (90%). This high percentage is likely due to the several major road corridors (and their bus routes) that run through much of the MIC, as well as the light rail station located in the SODO neighborhood.



*Figure 8: 2013 PSRC Regional Centers Monitoring Report*

Table 3: 2010 Summary Statistics from 2013 Regional Centers Monitoring Report Duwamish MIC Profile

<b>Land Use</b>	
Gross acreage	5,062
Average block size (acres)	11.2
Average parcel size (acres)	2.0
<b>Mix of uses</b>	
Population/Employee ratio	2:10
<b>Population</b>	
Total population	1,376
Change (2000-2010)	-513
<b>Housing</b>	
Total housing units	523
Change (2000-2010)	-143
<b>Employment</b>	
Total employment	58,771
Change (2000-2010)	-9,050
<b>Transportation</b>	
Employee access to transit	68%
Work-based mode share	
SOV / HOV	73% / 9%
Walk & Bike / Transit	3% / 15%

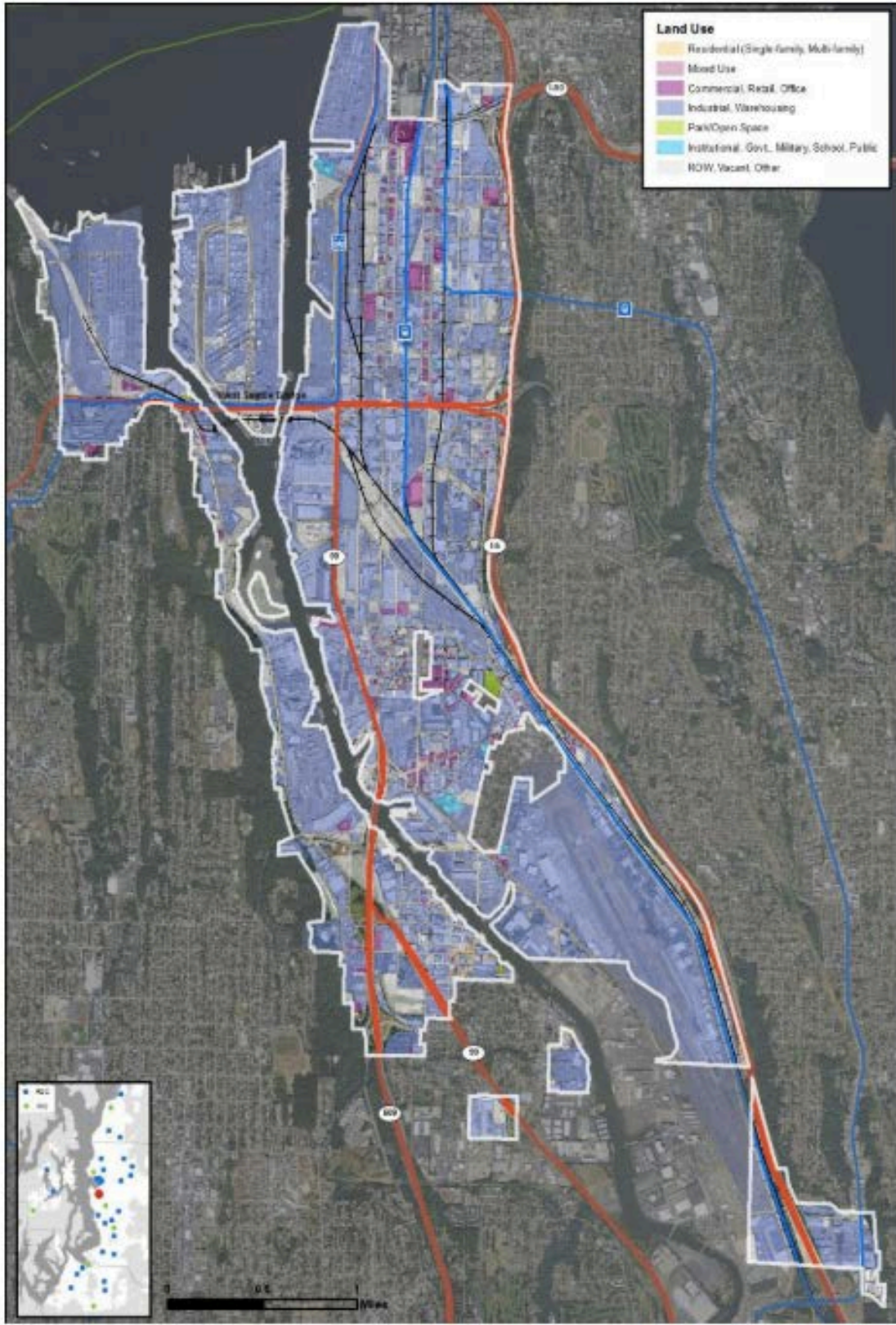


Figure 9: Duwamish M/IC Land Use Map from 2013 PSRC Regional Centers Monitoring Report

### *Manufacturing Industrial Council Land Use Map*

The Manufacturing Industrial Council is an advocacy group for businesses in the industrial sector.<sup>46</sup> According to its website, the Council “provides full-time staff support and a team of consultants to provide an influential voice on behalf of our thriving industrial economy.”<sup>47</sup> It was established in 1998 and provides access to events and decision makers, and warns its members about public policies that may impact industrial businesses. Council policy and program decisions are determined by its Executive Committee and include freight mobility, environmental compliance, regulatory issues, and workforce education. Forty-eight members are featured on the website and range in size from large (such as Boeing and BNSF Railway) to small (Western Neon and Seattle Bank).<sup>48</sup> Together with the Port of Seattle, these two organizations are the strongest and most unapologetic advocates for preserving industrial land and jobs.

The Council has produced its own land-use map of the Duwamish MIC (see Figure 10). It has 17 categories: Manufacturing/Processing, Warehouse, Outdoor Storage, Heavy Sales/Service, Marine, Public Facilities/Utilities, Institutions, Research and Development, Office, Entertainment, Retail/Service, Residential, Open Space, Transportation, Right of Way, Parking, and Vacant.<sup>49</sup> This land use map, along with the ones from the 2013 Duwamish M/IC Policy and Land Use Study and the 2013 PSRC Duwamish M/IC Center Profile, represent the most recent efforts to classify land use within the SODO neighborhood. As can be seen, they each define, categorize, and separate land use differently and to varying degrees of specificity.

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<sup>46</sup> Manufacturing Industrial Council, “Homepage.”

<sup>47</sup> Manufacturing Industrial Council, “About MIC.”

<sup>48</sup> Manufacturing Industrial Council, “MIC Membership.”

<sup>49</sup> Manufacturing Industrial Council, “Seattle’s Industrial Zoned Land Primary Parcel Uses.”

# Seattle's Industrial Zoned Land Primary Parcel Uses

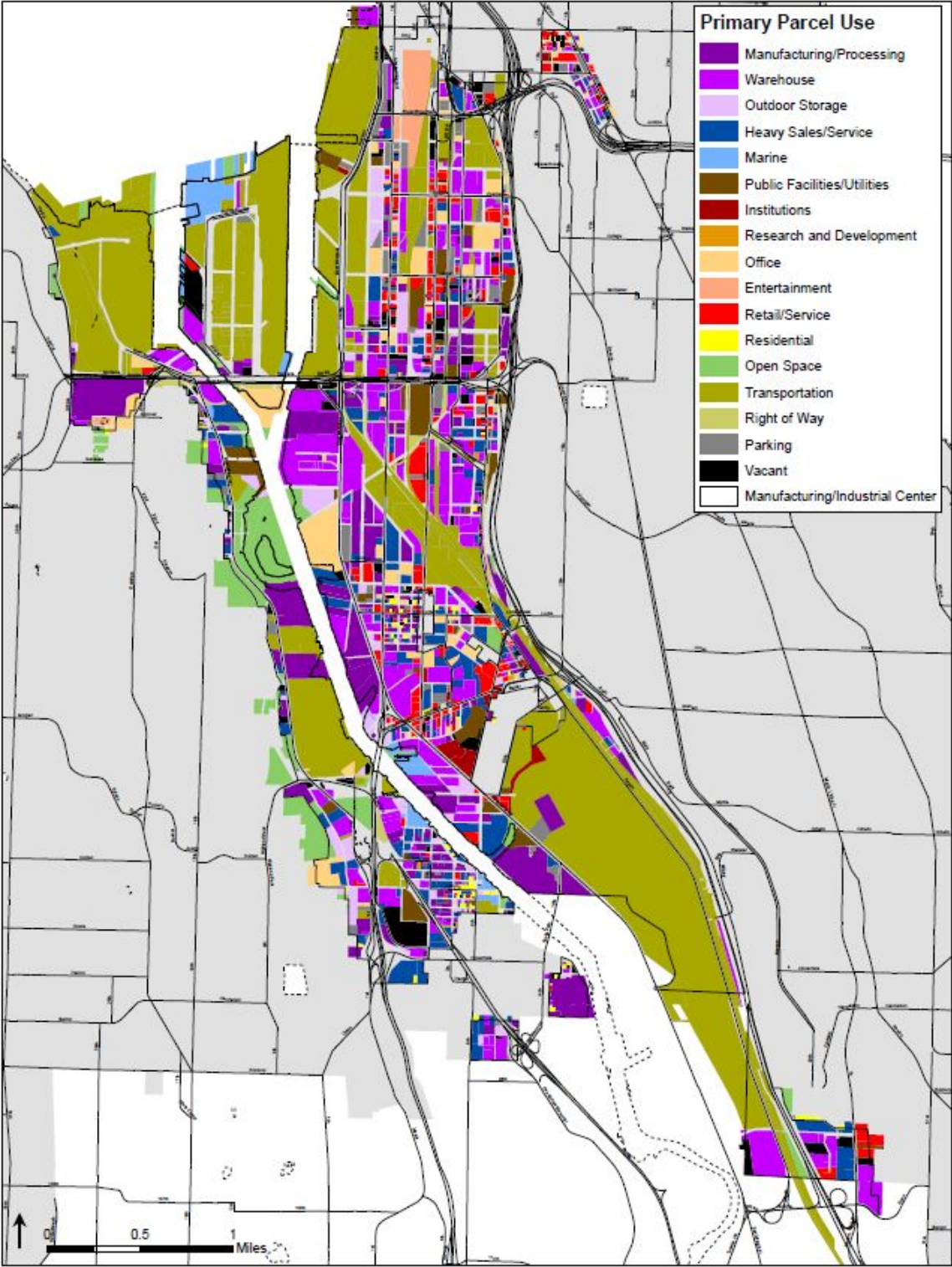


Figure 10: Duwamish MIC Land Use Map from the Manufacturing Industrial Council

### *PSRC's 2015 Industrial Lands Analysis*

PSRC's 2015 Industrial Lands Analysis is a major update of similar work conducted in 1998 and 2000.<sup>50</sup> It focuses on the economic activity of all industrial areas in the four-county region, with information such as industry forecasts, employment forecasts, growth capacity, and policies and zoning strategies for enhancing industrial land. It also includes an insert of subarea profiles, including a profile of the Duwamish and North Tukwila MICs combined. Data presented includes employment by industry group, market trends, and data on building size, age, and floor-area ratio (FAR). Table 4 presents a variety of what the profile calls "vital statistics," on the two combined MICs. When adding North Tukwila, both MICs represent eight percent of the region's industrial land and ten percent of its industrial employment, which is an impressive figure. Of the total employment in the two MICs, 64% is industrial-related. Of those industrial-related jobs, 45% are manufacturing-related, 18% are warehousing and wholesale, construction and transportation distribution and logistics each have 14%, with "other industrial taking" up 9% (see Figure 11). Table 5 shows the combined MICs' top ten land use categories according to assessor's land use codes. These data are presented with the caveat that the assessor's land use codes may not accurately reflect current parcel land use.<sup>51</sup>

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<sup>50</sup> Puget Sound Regional Council, "Summary of 1998 and 2000 PSRC Reports on Industrial Lands."

<sup>51</sup> Puget Sound Regional Council, "Industrial Lands Analysis," P-17-P-19.






*Table 4: Duwamish/North Tukwila MICs Vital Statistics*

Subarea Size, in Acres	5,497
Percent of Region’s Industrial Land	8%
Industrial / Non-Industrial Employment	48,100 / 27,300
Percent of Region’s Industrial Employment	10%
Ownership (by Parcel Area)	37% Public 63% Private
Average Parcel Size	2.2 acres
Specialization(s)	Aerospace, Wholesaling, Transportation/Distribution/Logistics (TDL)

*Table 5: Duwamish/North Tukwila MICs Top Ten Land Use Categories*

Rank	Category	Acreage
1	Warehouse	832
2	Air Terminals & Hangars	596
3	Industrial (Heavy)	591
4	Terminal (Marine/Comm Fish)	475
5	Vacant (Industrial)	413
6	Right of Way/Utility, Road	348
7	Industrial (General Purpose)	326
8	Terminal (Marine)	305
9	Terminal (Rail)	150
10	Industrial (Light)	134

# Industries & Employment

Macro Grouping	Industry Grouping	Employment	Percentage of	
			Subarea	All Subareas
 <b>Construction</b>		<b>6,900</b>	<b>14%</b>	<b>22%</b>
	Builders & Contractors	6,200	13%	
	Heavy & Civil Construction	700	2%	
 <b>Manufacturing</b>		<b>21,500</b>	<b>45%</b>	<b>13%</b>
	Aerospace Manufacturing	11,100	23%	
	Electronics & Components	300	1%	
	Food & Bev Processing	1,400	3%	
	Machinery & Transport. Equip.	1,600	3%	
	Metals & Fabrication	2,000	4%	
	Printing & Publishing	2,100	4%	
	Refining, Chemicals & Plastics	200	0%	
	Textiles, Apparel & Leather	800	2%	
	Wood & Paper Products	200	0%	
	Other Manufacturing	1,800	4%	
 <b>Transportation Distr. &amp; Logistics</b>		<b>6,600</b>	<b>14%</b>	<b>22%</b>
	Transp., Distr., Logistics	6,600	14%	
 <b>Warehousing &amp; Wholesale</b>		<b>8,700</b>	<b>18%</b>	<b>17%</b>
	Warehousing & Storage	400	1%	
	Wholesaling	8,300	17%	
 <b>Other Industrial</b>		<b>4,500</b>	<b>9%</b>	<b>18%</b>
	Building & Grounds Serv.	1,400	3%	
	Industrial Services	900	2%	
	Telecom, Broadcasting & Video Prod.	300	1%	
	Utilities	-	-	
	Waste Mgmt. & Remediation	1,000	2%	
	Other Industrial	900	2%	
<b>All Industrial</b>		<b>48,100</b>		
Non-industrial		18,900		
Public Sector		8,400		
<b>Total Employment</b>		<b>75,400</b>		

Source: PSRC, Washington State Employment Security Department (ESD), CAI, 2012

Figure 11: Top Industries and Employment in the Duwamish and North Tukwila MICs

*City of Seattle's 2015 Duwamish Industrial Lands Study*

In 2015 Seattle's Office of Planning and Community Development did a Duwamish Industrial Lands Study. This was a follow-on effort from the 2013 study previously referenced, and was done as part of ongoing industrial lands work to inform the periodic Comprehensive Plan update work.<sup>52</sup> A series of meetings were hosted in late 2014 and early 2015 about proposed industrial lands policy changes in the Comprehensive Plan. In addition to land use policy recommendations, the study analyzed existing conditions and past studies related to industrial lands, and includes information from the outreach efforts, including display boards and presentations used during the meetings, as well as public comments received. After conducting this outreach, the OPCD amended the draft Comprehensive Plan policies for industrial lands. The policies as presented in the Draft Seattle 2035 Comprehensive Plan are:

“LU11.22 Limit the future application of the IC zone inside the M/IC boundaries to prevent the expansion of offices and other non-industrial uses.”

“GS2.20 Retain land in the Manufacturing/Industrial Centers for industrial uses and develop criteria for evaluating requests to remove land from a M/IC, recognizing the important economic resource the land in these centers represents.”

The City Council considered these recommendations for industrial lands policies in 2016 as part of that year's major Comprehensive Plan update. In the currently adopted plan there are a suite of policies related to protecting and enhancing industrial land.<sup>53</sup> However, the two recommended policies, as written, are not included. It is unclear why there were not ultimately added. Some would argue that other language, such as GS 1.18, accomplishes a similar message: “Promote the

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<sup>52</sup> City of Seattle Office of Planning and Community Development, “Duwamish Industrial Lands Study Website.”

<sup>53</sup> City of Seattle Office of Planning and Community Development, “Seattle 2035 Comprehensive Plan,” 26.

use of industrial land for industrial purposes.”<sup>54</sup> However, others may counter that the language is not strong enough in that it fails to explicitly ban any more IC zoning within MICs, for example.

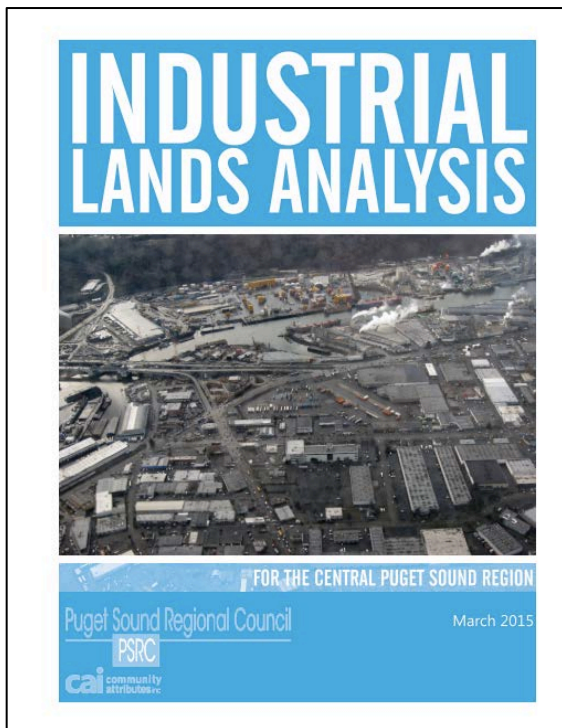


Figure 12: 2015 PSRC Industrial Lands Analysis

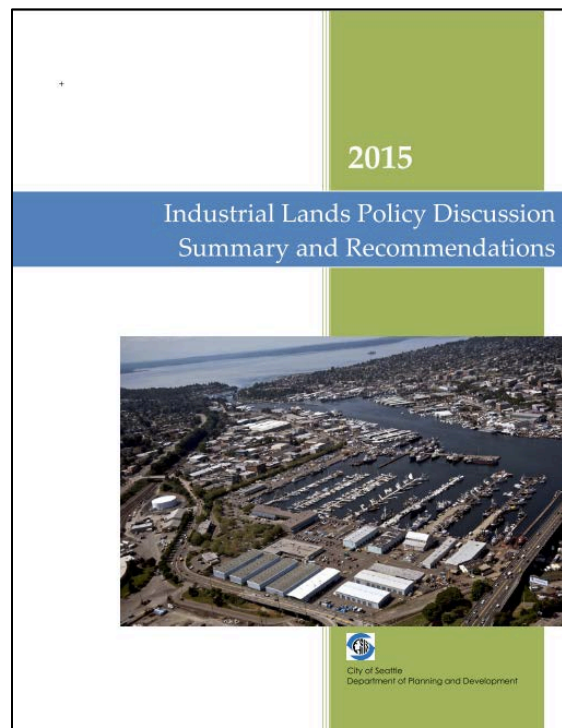


Figure 13: 2015 OPCD Duwamish Industrial Lands Study

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<sup>54</sup> City of Seattle Office of Planning and Community Development, 26.

## City of Seattle Industrial Zoning Code

The City of Seattle’s zoning code for industrial land will provide important information for defining industrial land designation. There are four industrial designations that will be reviewed here: Industrial General 1 (IG1), Industrial General 2 (IG2), Industrial Commercial (IC), and Industrial Buffer (IB). All four are found in the Duwamish MIC.<sup>55</sup>

IG1 is designed as the fullest industrial designation, with the intent being “to protect marine and rail-related industrial areas from an inappropriate level of unrelated retail and commercial uses by limiting these uses to a density or size limit lower than that allowed for industrial uses.” Typical land uses expected here include general and heavy manufacturing, transportation and utility services, salvage and recycling uses, and high impact uses as a conditional use. According to the 2013 Duwamish MIC Policy and Land Use Study, IG1 zones “are intended for areas with direct water access, upland property of sufficient depth to accommodate industrial activity, an existing industrial character, areas directly related to major rail lines serving industrial businesses; areas containing mostly industrial uses (manufacturing, heavy commercial, warehousing, transportation, utilities and similar activities); large areas with generally flat topography; and areas platted into large parcels of land.”<sup>56</sup>

With IG1 there is no maximum height limit except for non-industrial land uses, which are allowed despite the industrial intention. However, they are limited in scope: retail, entertainment, and office uses are allowed up to only 10,000 square feet. See Figure 14.

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<sup>55</sup> City of Seattle Department of Construction and Inspections, “Seattle’s Industrial Zoning Chart”; City of Seattle Department of Construction & Inspections, “City of Seattle City-Wide Zoning Map.”

<sup>56</sup> City of Seattle Department of Planning and Development, “Duwamish M/IC Policy and Land Use Study,” 13.

# IG1

## General Industrial 1 (IG1)

The intent of the IG1 zone is to protect marine and rail-related industrial areas from an inappropriate level of unrelated retail and commercial uses by limiting these uses to a density or size limit lower than that allowed for industrial uses.

### Typical Land Uses

General and heavy manufacturing, commercial uses, subject to some limits, high impact uses as a conditional use, institutional uses in existing buildings, entertainment uses other than adult, transportation and utility services, and salvage and recycling uses.

### Height

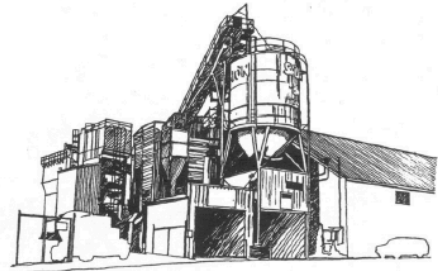
No maximum height limit; except retail, office, entertainment, research and development, and institution uses which are limited to 30', 45', 65', 85' as designated on the Official Land Use Map.

### Maximum size of use

Retail sales and service and entertainment uses: 10,000 square feet.

Office uses: 10,000 square feet.

Some exceptions apply to maximum size of use limits (23.50.027.B).



### FAR

2.5

### Setbacks

A setback may be required in order to meet street improvement requirements.

Screening and landscaping may be required.

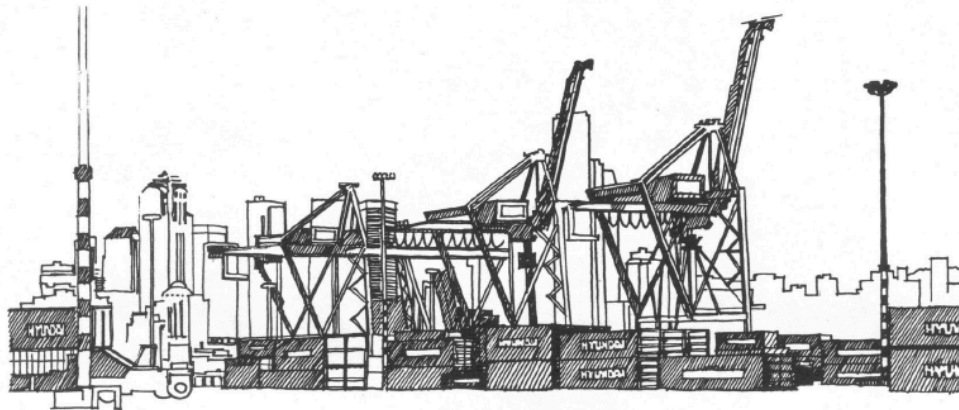


Figure 14: General Industrial 1 Zoning Summary Chart produced by City of Seattle Department of Construction and Inspections

IG2 is the same as IG1, but with a broader “range of uses where the industrial function of an area is less established than in IG1 zones, and where additional commercial activity could improve employment opportunities and the physical condition of the area, without conflicting with industrial activity.” Here, lodging/entertainment, retail and commercial uses have fewer limiting requirements and are, therefore, easier to implement compared to IG1. The maximum height limits are the same here as IG1. Lodging and entertainment uses are allowed up to 10,000 square feet and office and retail up to 25,000 square feet. See Figure 15.

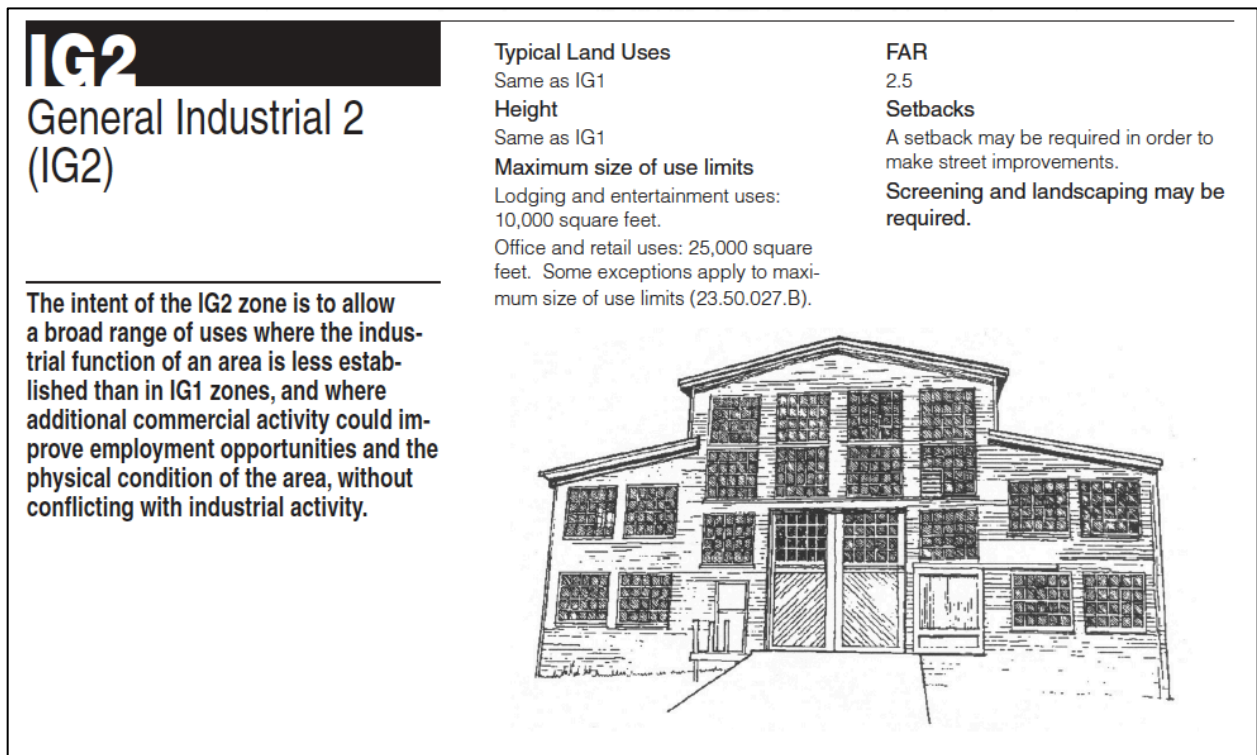


Figure 15: General Industrial 2 Zoning Summary Chart produced by City of Seattle Department of Construction and Inspections

Industrial Commercial zoning places a greater emphasis on developing commercial land uses. It is designed to “promote development of businesses which incorporate a mix of industrial and commercial activities, including light manufacturing and research and development, while accommodating a wide range of other employment activities.”<sup>57</sup> In general, the typical uses are the same as IB, but with specific regulations favoring commercial space. The 2013 Duwamish study says that IC zones “are intended for areas that could attract new businesses, near major institutions, former industrial areas in transition and areas where there is an existing concentration of research and development type uses.”<sup>58</sup>

Here there are specific maximum height requirements ranging from 30 to 65 feet. Retail sales and service and entertainment can be up to 75,000 square feet in size, and office uses have no maximum size limit. There are additional requirements for setbacks, screening, landscaping, and methods to deal with major odor sources and light and glare. As can be seen, this zoning allows for larger non-industrial land uses, which comes with more specific regulations on development. See Figure 16.

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<sup>57</sup> City of Seattle Department of Construction and Inspections, “Seattle’s Industrial Zoning Chart.”

<sup>58</sup> City of Seattle Department of Planning and Development, “Duwamish M/IC Policy and Land Use Study,” 13.

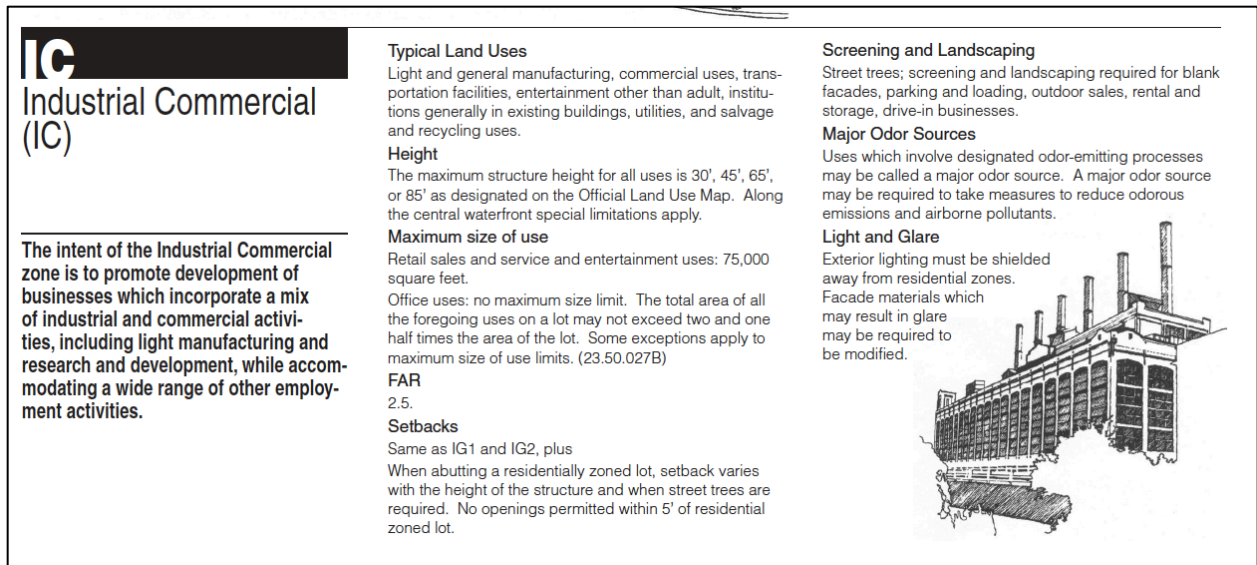


Figure 16: Industrial Commercial Zoning Summary Chart produced by City of Seattle Department of Construction and Inspections

The last industrial zoning type is Industrial Buffer. As the name implies, the intent of IB is “to provide an appropriate transition between industrial areas and adjacent residential zones, or commercial zones having a residential orientation and/or a pedestrian character.” Typical uses are light and general manufacturing, commercial use subject to some limits, transportation services, institutions generally in existing buildings, and salvage and recycling uses. Retail and entertainment are allowed up to 75,000 square feet, and office up to 100,000 square feet. Like IC, there are additional requirements for setbacks, screening, landscaping, and methods to deal with major odor sources and light and glare. Also like IC, this zoning allows for larger non-industrial land uses, which comes with more specific regulations on development. See Figure 17.

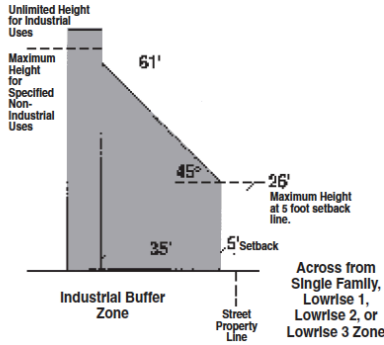
# IB

## Industrial Buffer (IB)

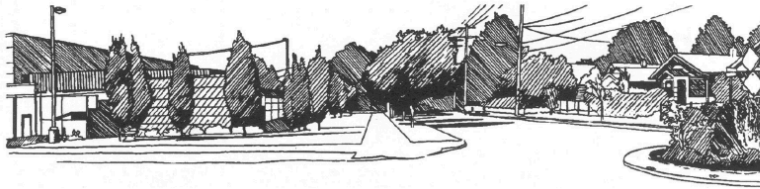
The intent of the Industrial Buffer is to provide an appropriate transition between industrial areas and adjacent residential zones, or commercial zones having a residential orientation and/or a pedestrian character.

**Typical Land Uses** Light and general manufacturing, commercial use subject to some limits, some transportation services, entertainment uses other than adult, institutions generally in existing buildings, salvage and recycling uses.

**Height** Same as IG1 and 2, except that on lots across a street from SF or Lowrise zones the following limits apply:



Similar but modified rules apply when across an alley from or abutting SF or Lowrise zones, or abutting MR, HR, and Commercial zones.



**Maximum size of use** Retail sales and service and entertainment uses: 75,000 square feet.

Office uses: 100,000 square feet. The total area of all the foregoing uses on a lot may not exceed two and one-half times the area of the lot. Some exceptions apply to maximum size of use limits (23.50.027B).

**FAR** 2.5

**Setbacks** Same as IG1 and IG2, plus

- 5' from street property lines when across from SF or Lowrise zones (see diagram)
- 5' for parking and loading facilities and storage and recycling collection facilities when across a street from MR, HR, or RC zones, or across an alley from any residential zone
- 5' for parking lots and structures or drive-in businesses when any lot line abuts a residential zone
- 15' for outdoor loading, recycling collection or storage facilities when any lot line abuts a residential zone
- 50' from any lot in a residential zone for outdoor manufacturing, recycling or refuse compacting
- 5' for all windows or openings that face an abutting residentially zoned lot, unless the opening is translucent or perpendicular to lot line or screened

**Screening and Landscaping** Street trees and screening required for rooftop areas, parking, loading, outdoor sales and storage, and drive-in businesses when lot abuts or is across right-of-way from residential or Neighborhood Commercial areas.

**Access to Parking and Loading** No limits to parking and loading location except as provided under setbacks. Parking and loading access is prohibited across streets or alleys from residentially zoned lots, except in limited circumstances.

**Major Odor Sources** Uses which involve designated odor-emitting processes may be called a major odor source. A major odor source may be required to take measures to reduce odorous emissions and airborne pollutants.

**Light and Glare** Exterior lighting must be shielded away from residential zones. Facade materials which may result in glare may be required to be modified.

Figure 17: Industrial Buffer Zoning Summary Chart produced by City of Seattle Department of Construction and Inspections

## **Land Use Classification**

In 1993 the Federal Highway Administration enlisted the American Planning Association (APA) with updating its 1965 Standard Land Use Coding Manual (SLUCM). At that time SLUCM was the only national-level attempt to standardize land-use coding for local, regional, and state land-use planning applications. The APA, in collaboration with several federal agencies, developed the Land-Based Classification Standards (LBCS) system, and the first version of the standards was released in 2000, with periodic updates since. At its core, the LBCS model “extends the notion of classifying land uses by refining traditional categories into multiple dimensions, such as activities, functions, building types, site development character, and ownership constraints.”<sup>59</sup> These multiple dimensions allow one to classify land use more precisely. There are five dimensions, each with its own set of categories and subcategories. A review of each one along with a table of each dimension’s first-level categories follows.

### *Activity Dimension*

The “Activity” dimension refers to the actual use of the land based on its observable characteristics. Its categories and subcategories are fairly general; for example, under the shopping subcategory there are only two groups: goods-oriented shopping and services-oriented shopping. It is a similar situation with the “plant, factory, or heavy goods storage or handling activities” subcategory: the only groups under it are “primarily plant or factory-type activities,” such as assembly plants, manufacturing facilities, industrial machinery, etc.” or “primarily goods storage or handling activities” which is “characterized by loading and unloading goods at warehouses, large storage structures, movement of goods, shipping, and trucking.” Table 6 lists the first-level Activity categories, with subcategories listed for select categories.

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<sup>59</sup> American Planning Association, “Land Based Classification Standards (LBCS).”

Table 6: Activity Dimension Categories and Select Subcategories

Residential activities
Shopping, business, or trade activities
Shopping
Restaurant-type activities
Office activities
Industrial, manufacturing, and waste-related activities
Plant, factory, or heavy goods storage or handling activities
Solid waste management activities
Construction activities (grading, digging, etc.)
Social, institutional, or infrastructure-related activities
School or library activities
Emergency response or public-safety-related activities
Activities associated with utilities (water, sewer, power, etc.)
Mass storage, inactive
Health care, medical, or treatment activities
Interment, cremation, or grave digging activities
Military base activities
Travel or movement activities
Pedestrian movement
Vehicular movement
Trains or other rail movement
Sailing, boating, and other port, marine and water-based activities
Aircraft takeoff, landing, taxiing, and parking
Spacecraft launching and related activities
Natural resources-related activities
No human activity or unclassifiable activity

### *Function Dimension*

The “Function” dimension refers to the economic function or type of establishment using the land, irrespective of the actual activity happening on the land. This dimension has more categories than the previous Activity dimension, and many more subcategories. This makes sense—there are many more functions in need of categorizing. For example, the Function subcategories “retail sales or service,” “heavy consumer goods sales or service,” “durable consumer goods sales or service,” “consumer goods, other,” and “grocery, food, beverage, dairy, etc.” would all just be considered part of the “shopping” subcategory of the Activity dimension. In another example, a hotel would be in the “residential” category under both Activity and Function. However, its Function subcategory would be “hotels, motels, or other accommodation services” while its Activity subcategory would simply be “transient living” since that indeed describes the activity of a hotel. See Table 7 for a list of the first-level Function categories, with subcategories listed for select categories.

Table 7: Function categories and select subcategories

Residence or accommodation functions
General sales or services
Retail sales or service
Heavy consumer goods sales or service
Durable consumer goods sales or service
Consumer goods, other
Grocery, food, beverage, dairy, etc.
Health and personal care
Finance and insurance
Real estate, and rental and leasing
Rental and leasing
Business, professional, scientific, and technical services
Food services
Personal services
Pet and animal sales or service (except veterinary)
Manufacturing and wholesale trade
Food, textiles, and related products
Wood, paper, and printing products
Chemicals, and metals, machinery, and electronics manufacturing
Miscellaneous manufacturing
Wholesale trade establishment
Warehouse and storage services
Transportation, communication, information, and utilities
Transportation Services
Communications and Information
Utilities and utility services
Arts, entertainment, and recreation
Education, public administration, health care, and other inst.
Construction-related businesses
Mining and extraction establishments
Agriculture, forestry, fishing and hunting

### *Structure Dimension*

The “Structure” dimension refers to the type of structure or building on the land. Many land-use terms, such as “single-family house,” “office building,” “warehouse,” “hospital building,” or “highway,” describe a structural characteristic. While some activities and functions are closely associated with certain structures, that’s not always the case, thus the separate Structure dimension. Many buildings are often adapted for uses other than its original use; for instance, a single-family residential structure may be used as an office. Here, a hotel would be considered part of the “hotels, motels, and tourist courts” group within the “other specialized residential structures” subcategory under the “residential buildings” category. See Table 8 for a list of the first-level Structure categories, with subcategories listed for select categories.

*Table 8: Structure categories and Select Subcategories*

Residential buildings
Commercial buildings and other specialized structures
Office or bank building
Store or shop building
Office or store building with residence on top
Office building over storefronts
Malls, shopping centers, or collection of shops
Industrial buildings and structures
Warehouse or storage facility
Public assembly structures
Institutional or community facilities
Transportation-related facilities
Utility and other nonbuilding structures
Specialized military structures
Sheds, farm buildings, or agricultural facilities
No Structure

### *Site Dimension*

The “Site” dimension refers to the overall physical development character of the land. It describes what is actually on the land in general physical terms. For most land uses, it is simply expressed in terms of whether the site is developed or not. However, some sites that may not appear to have observable development cannot be treated as undeveloped. Parks and open spaces, for example, have a complex mix of activities, functions, and structures on them, and need categories independent of other dimensions. Parking lots would be considered “developed site – no buildings and no structures.” See Table 9 for a list of the first-level Site categories, with subcategories listed for select categories.

*Table 9: Site categories and subcategories*

Site in natural state
Developing site
Developed site — crops, grazing, forestry, etc.
Developed site — no buildings and no structures
Outdoor storage areas, graded or ungraded
Developed site — nonbuilding structures
Developed site with landscaped or ornamental features
Developed site with billboards, signs, etc.
Developed site with roads, train tracks, and other linear structures
Developed site with tanks, reservoirs, etc.
Developed site — with buildings
Developed site — with parks
Not applicable to this dimension
Unclassifiable site development character

### *Ownership Dimension*

The last dimension is “Ownership.” At first glance this may seem simple, since the function of most land uses is either public or private and not both. However, relying solely on this binary distinction could obscure such uses as private parks, public theaters, private stadiums, and other entities with mixed public and private ownership. This dimension allows for the classification of such ownership characteristics more accurately. See Table 10 for a list of the first-level Ownership categories.

*Table 10: Ownership categories and subcategories*

No constraints — private ownership
Some constraints — easements or other use restrictions
Limited restrictions
Public restrictions
Other public use restrictions — regional, special districts, etc
Nonprofit ownership restrictions
Joint ownership character — public entities
an
Not applicable to this dimension

### *LBCS Usability*

Of the five dimensions in the LBCS, Activity, Function, and Structure will be of the best use in my classification work for SODO land use. The King County parcel and assessor data already contains a land use category which, upon initial review, appears to be a mix of Activity and Function, and the Structure dimension calls out industrial buildings and warehouses. Since SODO is a fairly developed area, with even seemingly empty parcels serving a purpose (a storage yard or parking lot, for example) the Site dimension will be less useful. If one were doing a buildable lands analysis, Site would play more of a role. Finally, while it has been acknowledged that the Duwamish area is home to publicly-owned land and many public uses, this project is broader than just public versus private land use. The focus of the study does not

center on ownership, as a city-owned warehouse or storage yard looks the same as a privately-owned warehouse or storage yard to the general public; that is to say, they both appear “industrial.” Therefore, the Ownership dimension is less valuable.

### **Implications for Transportation and Goods Movement**

In order to explore the possible effects of evolving industrial land use on freight transportation and goods movement, it is important to review literature related to freight transportation in Seattle. A prominent piece of literature that falls in this category is the City of Seattle freight master plan. It is one of the City’s specific modal plans. It justifies planning for and investing in freight transportation movement in Seattle for both economic and safety reasons. In this crowded city, delivery vehicles and trucks have to travel safely among people walking, riding bicycles, taking transit, or driving other vehicles. The FMP 1) provides the Seattle freight context (the environment for freight in Seattle), 2) a policy framework, 3) defines Seattle’s Freight Network through data analysis, and 4) develops solutions and an implementation strategy.<sup>60</sup>

The State of Washington also maintains a statewide freight plan. Produced by the Washington State Department of Transportation (WSDOT), the plan ensures that the transportation system in Washington supports and enhances trade and sustainable economic growth. As one of the most trade-dependent states in the nation, Washington relies on an efficient freight transportation network. This plan provides overall context for the importance of freight to Washington State, and how much of the state's freight moves through the Seattle area.<sup>61</sup>

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<sup>60</sup> City of Seattle Department of Transportation, “Seattle Freight Master Plan.”

<sup>61</sup> Washington State Department of Transportation, “2017 Washington State Freight System Plan.”

A TRB report produced by the Puget Sound Regional Council and the University of Washington, titled “Smart Growth and Urban Goods Movement,” identifies the interrelationships between the transportation of goods in the urban environment and land-use patterns. In the report the researchers: (1) describe current smart growth principles and practices and develop a definition of smart growth; (2) identify metrics and performance measures, especially for goods movement (3) identify a wide variety of stakeholders that would be affected by smart growth plans, policies, and regulations; (4) interview stakeholders to identify and define the attributes of smart growth that might impact goods movement; (5) develop smart-growth scenarios that impact goods movement; (6) input the scenarios into a demand-forecasting model and compare the smart growth scenarios with different baseline and transportation network alternatives; and (7) describe the implications of the smart-growth and goods movement interaction on transportation and freight planning.<sup>62</sup>

Another TRB report, called “Freight Facility Location Selection: A Guide for Public Officials” describes the key criteria that the private sector considers when making decisions on where to build new logistics facilities. The location of freight facilities can have both positive and negative economic and social effects on different jurisdictions (local communities, regions, states, etc.). By providing insight on location decisions for freight facilities, and suggesting best practices for transportation, land use, economic development, and regional partnerships, public sector agencies can better understand how to regulate land use in a way that will be beneficial for private sector location decisions. The site selection process is gone into in great detail here, which could be useful information.<sup>63</sup>

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<sup>62</sup> Puget Sound Regional Council and University of Washington, “Smart Growth and Urban Goods Movement.”

<sup>63</sup> CWS Consulting Group LLC et al., “Freight Facility Location Selection : A Guide for Public Officials.”

### 3: Methods

#### Study Area

In order to answer my primary research question, my secondary research questions must be investigated. In order to define both industrial land designation and industrial land use in Seattle, as well as their locations, the study area must first be carefully set. Naturally, one first looks to the two MICs that are designated within the City of Seattle: the Duwamish MIC and the Ballard Interbay MIC for study area candidates. From the City of Seattle's Duwamish MIC Policy and Land Use Study:

“[T]here are many differences between the two [districts] in [terms of] scale, character, development patterns, and surrounding uses. The Duwamish is older and larger (almost 5 times larger than Ballard-Interbay). . . . A significant proportion of land in the Duwamish, close to 42%, is publicly-owned land used for critical public infrastructure. These include facilities for the City's public utilities, police, and transit (bus and light rail) maintenance, school district headquarters, post office facilities, Port operations and the King County Airport.”

It would be ideal to look at both MICs in this study. The industrial areas around the Ballard and Interbay neighborhoods are facing significant gentrification pressures, whether evidenced by the debates over the Burke Gilman Trail missing link extension, the redevelopment of the National Guard armory site, or the rapidly changing business climate in Ballard.<sup>64</sup> However, the Duwamish MIC covers nearly 5,000 acres and includes most of the industrial land in the City,

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<sup>64</sup> Giordano, “As Ballard Changes, Bike Controversy Heats Up”; Fesler, “Could the Interbay Armory Become a Mixed-Use District?”; McIntosh, “Port of Seattle Considered Workforce Housing Project for Interbay”; McIntosh, “Sink or Swim: With Major Investments Planned, Seattle's Working Waterfront Is at a Crossroads”; Stiles, “Eagle Rock Ventures' Scott Shapiro Says Upzoning Will Help Seattle's Housing Crunch”; Garnick, “The Ballard Boom: Restaurants and Bars Proliferate in the Historic Fishing Village”; Balk, “‘Yuppie Playgrounds’? Where Gentrification Is Hottest in Seattle.”

and its SODO neighborhood occupies a prominent place in the long history of Seattle industry and is intriguing to study for a few reasons.

The SODO neighborhood is more prominent in its geographic scope (it is larger by area), contiguity (it is one large area, as opposed to Ballard and Interbay being separate areas) and has many more large parcels, which make a wider range of redevelopment possible. The industries located in SODO include some of the heaviest industrial uses in Seattle, which stand out to some as the most undesirable land uses and define the entire neighborhood. Finally, the location of the neighborhood, being directly adjacent to the central business district, the sports stadiums, and the port, with easy access to important transportation facilities such as I-5, SR-99, and railroads, serves to create a controversial and dynamic environment where many people and business interests are competing over scarce land. The recent debates over the SODO basketball arena are an excellent example of this, where industrial, business, and entertainment interests crash together in a swirling debate over highest and best use.

Therefore, given time constraints requiring a more limited scope of study, the Duwamish MIC is chosen to investigate further (see Figure 18 for the MIC's borders). The area is a vital international trade and transportation crossroads, receiving and distributing goods via roadway, water, rail, and air. The Port of Seattle container terminals and half of Boeing Field are also included in this designation. Its southern end adjoins the North Tukwila MIC. There are pockets in the southern portion of the MIC that are excluded from the designation since they contain commercial and residential land uses that the Georgetown neighborhood centers around. However, according to the City's neighborhood designations, the Georgetown neighborhood is defined as a much larger area than these isolated pockets, extend all the way from the southern

City border with Tukwila north to Lucille Street, at which point the SODO, or Industrial District neighborhood, begins (see Figure 19).

In addition to Georgetown, the Duwamish MIC consists of several neighborhoods. According to City-defined neighborhood borders, the area commonly thought of as SODO goes by the name “Industrial District” and also includes the eastern edge of West Seattle (where the Port of Seattle’s Terminal 5 is) and the land along the western side of the Duwamish River. Harbor Island and parts of South Park are also within the MIC boundaries. See Figure 19 for a map of all the City-defined neighborhoods that have some part within the MIC’s boundaries, and Figure 20 for the same map with the MIC border included.

As one can see, the Duwamish MIC actually consists of a much larger area than what is commonly considered “SODO.” One can look to the SODO Business Improvement Area’s (BIA) borders for another definition of what is considered SODO (see Figure 21). Since the intent of the project is to investigate SODO, the Industrial District neighborhood will be used as the study area.<sup>65</sup> Harbor Island will be included, since it sits between the two areas of the neighborhood and is often associated with the western portion of the Industrial District (since both areas contain major Port of Seattle container terminals). The areas of the MIC that are considered Georgetown and South Park are excluded from analysis, given that they are considered cohesive neighborhoods with their own character, governance and advocacy structures, and issues. Narrowing the geographic scope will limit the study to the area most

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<sup>65</sup> Some minor deviations from the neighborhood boundary will be made, namely 1) excluding the northwestern portion of the neighborhood area that extends along Alki Beach from the study area, 2) including the area just south of the West Seattle Bridge, which is the site of NUCOR Steel, in the study area 3) including in the study area several areas along the eastern shore of the Duwamish waterway that are technically in the Georgetown neighborhood but across from and associated with the industrial land uses on the other side of the river, and 4) including Terminal 46, which is actually considered part of the Pioneer Square neighborhood but also part of the Duwamish MIC, in the study area.

commonly considered “SODO” and will allow for a more focused analysis. See Figure 22 for the finalized study area.

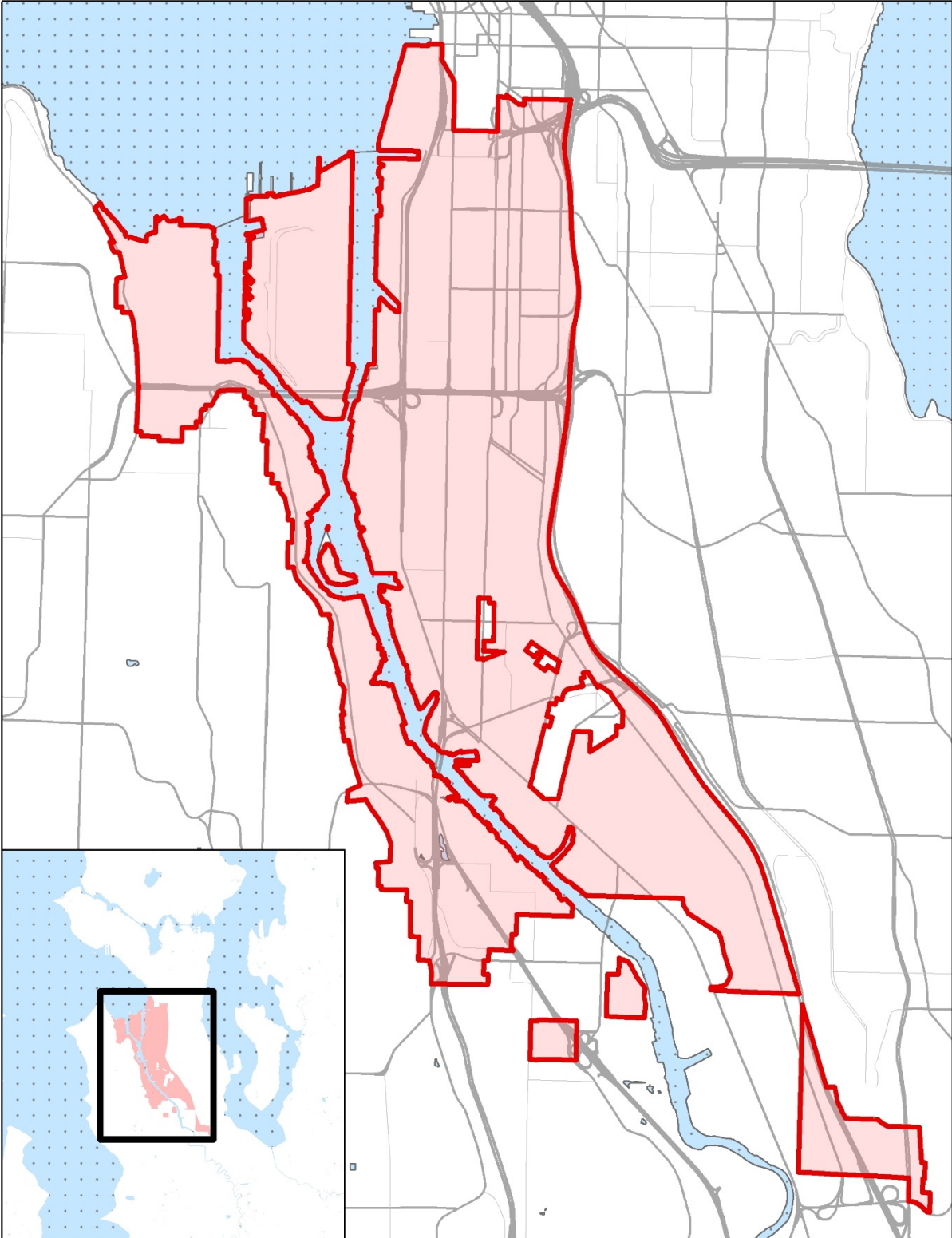


Figure 18: Duwamish MIC Borders

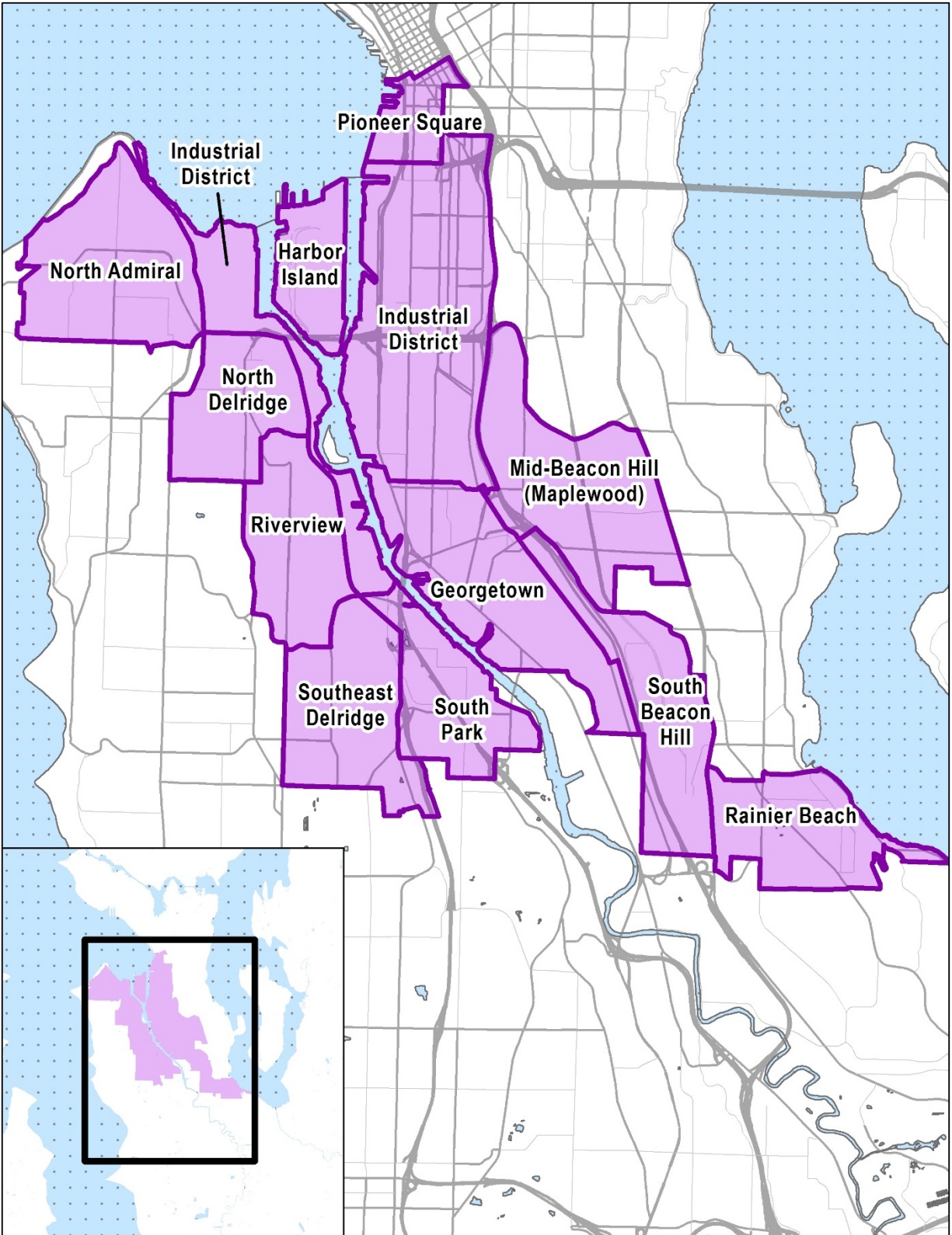


Figure 19: Seattle neighborhoods that overlap with Duwamish MIC

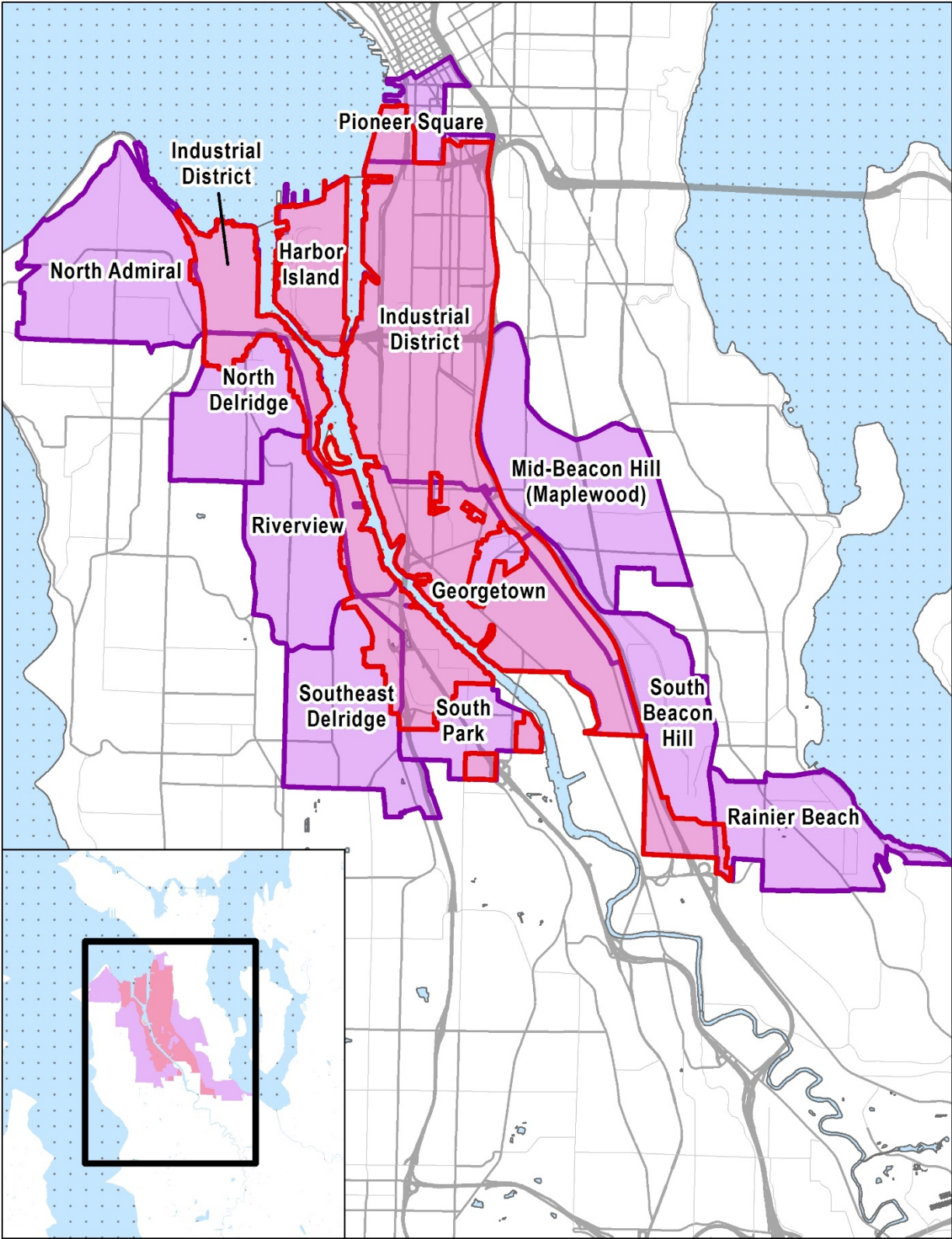


Figure 20: Seattle neighborhoods with Duwamish MIC Borders

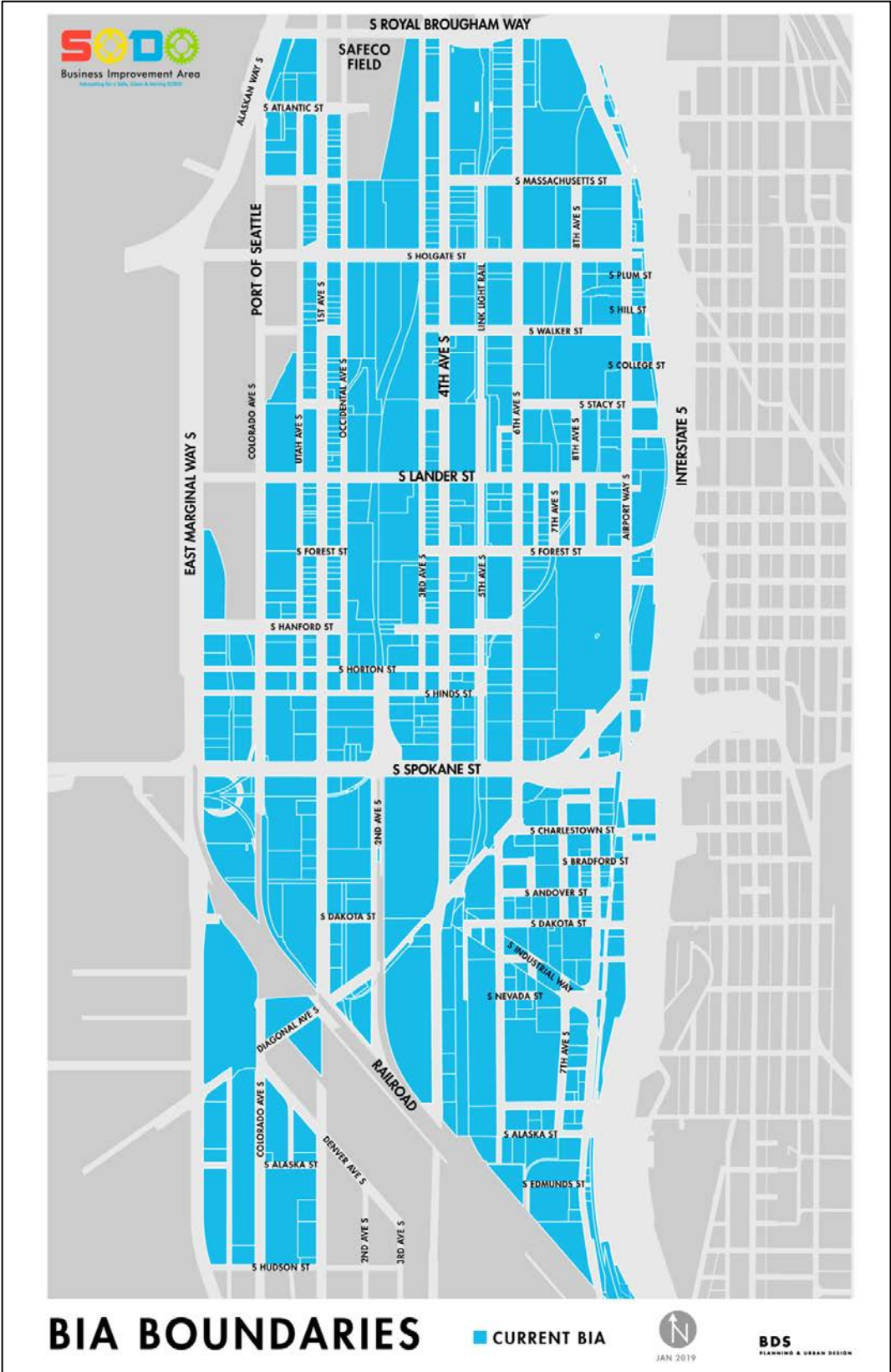


Figure 21: SODO BIA Boundary Map

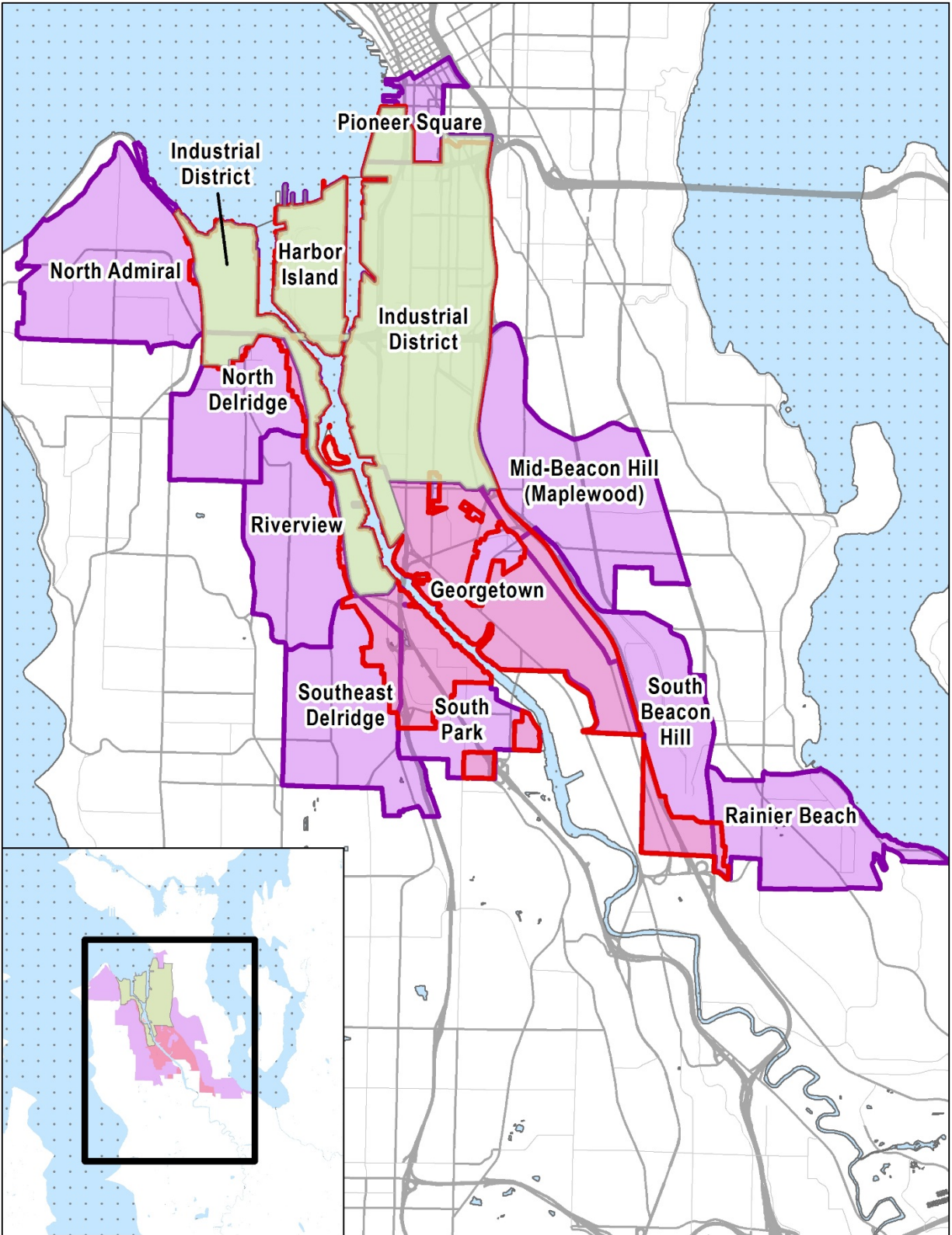


Figure 22: Study Area (in green)

## **Defining “Industrial”**

When looking at a specific geography, one can differentiate between what land use that geography is designated for, and what land use is actually occurring there. It is important to define both what an industrial designation is and what actual industrial land use is since they will be compared to each other. This comparison acknowledges that it is possible, and indeed likely, that the two may not match; that even though an area is designated to be industrial, it may not actually host an industrial land use. How this comparison shakes out rests largely in the definition of each.

### *Defining Industrial Land Designation*

Zoning is the first line of defense when it comes to a city’s control and regulation of land use. As detailed in the literature review, Seattle has four types of industrial zoning: Industrial General 1 (IG1), Industrial General 2 (IG2), Industrial Commercial (IC), and Industrial Buffer (IB).<sup>66</sup> These four zones will comprise the definition of industrial designated land, as they, by name and by law, are meant to allow for industrial land uses. Within them, of course, are nuances that must be explored further.

As seen in the review of industrial zoning in the literature review, IG1 is intended to allow for the fullest industrial designation with the least amount of allowances or concessions for other uses. IG2, however, allows a variety of land uses, from industrial activity to a mix of industrial activity and a wide range of commercial uses.<sup>67</sup> Taking commercial further, IC zones “are intended for areas that could attract new businesses, near major institutions, former industrial areas in transition and areas where there is an existing concentration of research and

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<sup>66</sup> City of Seattle Department of Construction and Inspections, “Seattle’s Industrial Zoning Chart”; City of Seattle Department of Construction & Inspections, “City of Seattle City-Wide Zoning Map.”

<sup>67</sup> City of Seattle Department of Planning and Development, “Duwamish M/IC Policy and Land Use Study,” 13.

development type uses.”<sup>68</sup> Finally, IB zones are intended for areas that act as a buffer between more intensive industrial zones and non-industrial uses. Additional development standards such as required screening and landscaping apply in IB zones.

As can be seen in Figure 23, the study area primarily consists of IG1, with IG2 dominant along the eastern edge of West Seattle, the western edge of the I-5 corridor, and along the 1<sup>st</sup> Ave S corridor. IC only exists near the stadiums and between the Chinatown-ID neighborhood and the I-5/I-90 entrance/exit ramp cluster. IB does not exist in the study area—it is largely located in the southern part of the Duwamish MIC surrounding the Georgetown pockets (see Figure 24 for a map of zoning in the entire Duwamish MIC).

Since the City has made an effort to have only industrial zoning within the designated Duwamish MIC, and since the obvious intention of industrial zoning is to allow industrial land uses, the City’s four industrial zoning types will be used to define industrial designation. However, given the allowances present in IG1, IG2, and IC, and given the range of land uses present on the ground in SODO, it must be acknowledged that, while all the zones have the word “industrial” in their name, the range of allowed land uses may go beyond what many think of when hearing the word “industrial.” The question of how to define industrial land use, irrespective of what the underlying zoning is, will be dealt with next.

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<sup>68</sup> City of Seattle Department of Planning and Development, 13.

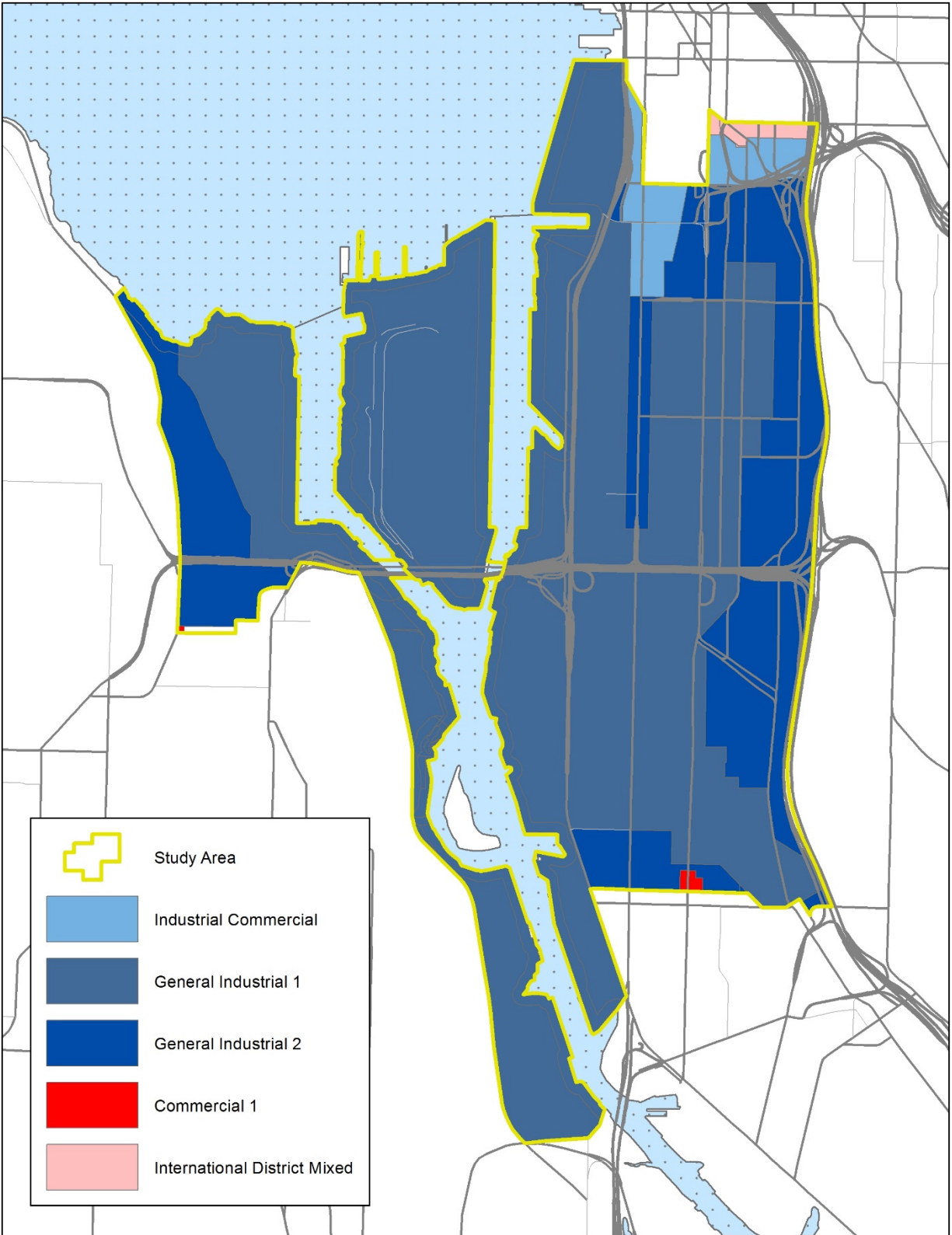


Figure 23: Zoning map of study area

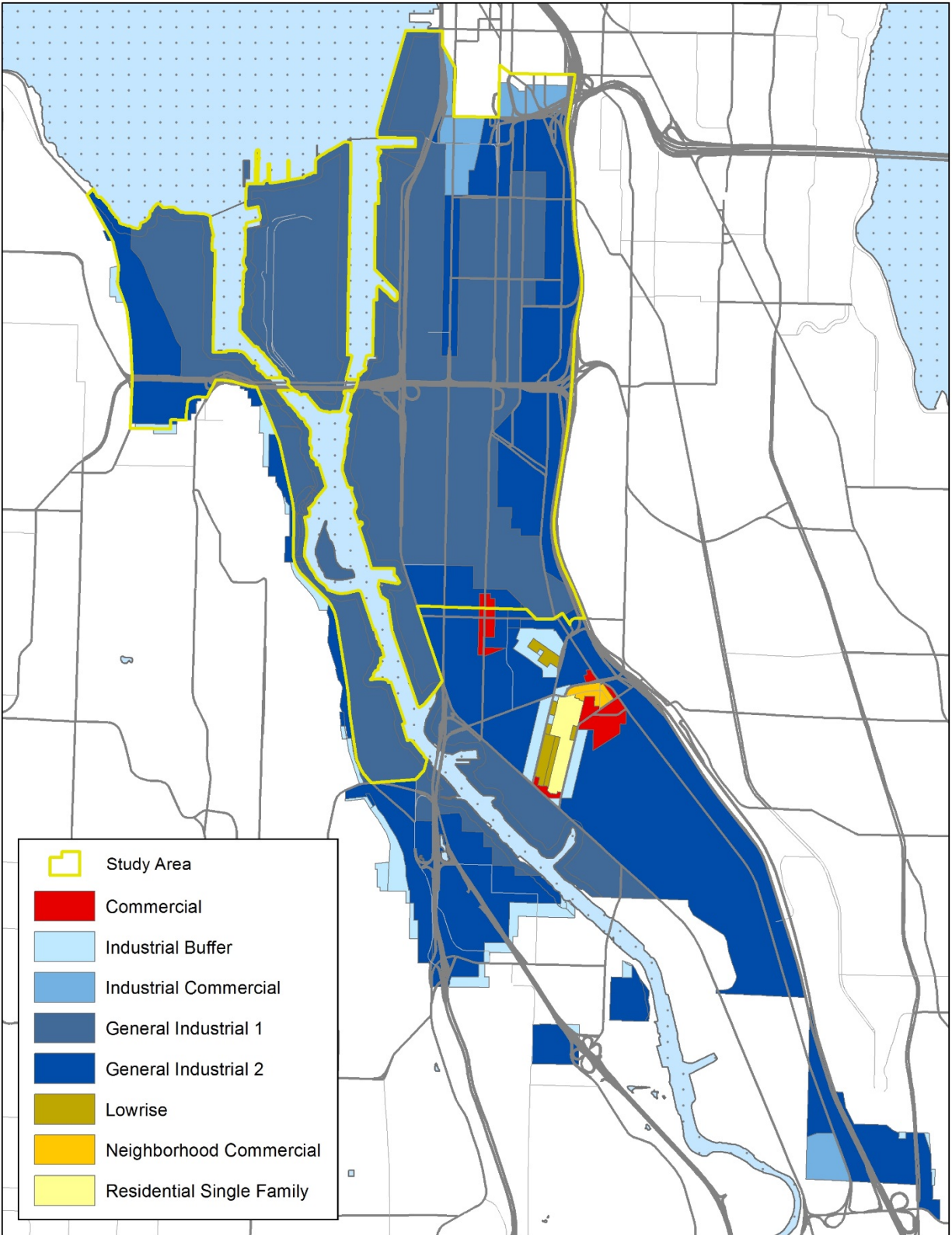


Figure 24: Duwamish MIC Zoning

### *Defining Actual Industrial Land Use*

To start defining industrial land use for this study, it is useful to refer again to the LBCS. The Activities, Function, and Structure dimensions all contain categories and subcategories with definitions that relate to industrial land uses. Within the Activities dimension there is a category called “industrial, manufacturing, and waste-related activities.” Within that there are two subcategories that I classify as industrial: “Plant, factory, or heavy goods storage or handling activities” and “Solid waste management activities.” See Table 11 for descriptions of each subcategory. Whether it is an assembly plant, a goods storage or handling activity at a warehouse, or a resource recovery operation, they are all industrial activities.<sup>69</sup>

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<sup>69</sup> American Planning Association, “LBCS Activity Dimension with Descriptions.”

Table 11: Select subcategories and their definitions under the “Industrial, manufacturing, and waste-related activities” category

<ul style="list-style-type: none"> <li>● Plant, factory, or heavy goods storage or handling activities <ul style="list-style-type: none"> <li>○ Primarily plant or factory-type activities <ul style="list-style-type: none"> <li>▪ Assembly plants, manufacturing facilities, industrial machinery, etc.</li> </ul> </li> <li>○ Primarily goods storage or handling activities <ul style="list-style-type: none"> <li>▪ Characterized by loading and unloading goods at warehouses, large storage structures, movement of goods, shipping, and trucking. Includes self-storage activities.</li> </ul> </li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>● Solid waste management activities Includes storing, collecting, dumping, waste processing, and other related operations. <ul style="list-style-type: none"> <li>○ Solid waste collection and storage <ul style="list-style-type: none"> <li>▪ Solid waste activities at source or intermediate locations, such as recycling centers. Use this category for large sites that have their own recycling areas where solid waste is separated or pretreated. Solid waste includes demolition waste, street sweepings, sewage sludge, industrial solids and sludges, agricultural manure, and crop wastes.</li> <li>▪ The term garbage refers to food waste portion of solid waste and refuse or trash refer to mixed solid wastes.</li> <li>▪ This category also includes activities associated with recycling (or refuse reclamation) and other related operations with landfilling.</li> </ul> </li> <li>○ Landfilling or dumping <ul style="list-style-type: none"> <li>▪ Activities that typically occur at landfills and resource recovery facilities. Also useful to mark those areas not necessarily identified as landfills, but used as dumps. The term sanitary landfill is sometimes used to differentiate public landfills from others.</li> </ul> </li> <li>○ Waste processing or recycling <ul style="list-style-type: none"> <li>▪ Activities normally associated with incinerators, recycling facilities, resource recovery facilities, etc.</li> </ul> </li> </ul> </li> </ul>

Under the Function dimension, there is a large category called “manufacturing and wholesale trade.” The description of this category acknowledges that differentiating manufacturing from retail or service establishments can be challenging, and the distinctions within the category closely follow the North American Industry Classification System (NAICS) definitions, which is a classification system for capturing statistical data on businesses to describe the U.S. economy.<sup>70</sup> The “manufacturing” part of “manufacturing and wholesale trade” has a variety of subcategories covering items as varied as food, paper products, and electronics. All subcategories and select subcategory definitions are listed in Table 12.

The other subcategories are “wholesale trade establishment” and “warehouse and storage services,” which are not manufacturing functions but involve the storage and transfer of manufactured products. These categories explain the concepts of wholesaling and warehousing effectively: wholesalers sell or arrange the purchase of goods to other businesses and normally operate from a warehouse, office, or a combination of the two, whereas warehouses function as storage facilities for products and do not sell the goods they handle. In some cases, there is a retail component to a wholesaler or warehouse where product will be sold from a retail space in the building. Often this is labeled a “factory outlet.” Examples in SODO include Franz Bakery, Grand Central Bakery, and Filson outerwear. Certain retailers have leaned into this model and become well known for it, such as Costco, where every store functions as a warehouse.

What follows is part of the definition that accompanies the manufacturing and wholesale trade functions category:

“Manufacturing establishments are located in plants, factories, or mills and employ power-driven machines and materials-handling equipment. They may also employ

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<sup>70</sup> United States Census Bureau, “North American Industry Classification System (NAICS) Frequently Asked Questions (FAQs)”;  
American Planning Association, “LBCS Function Dimension with Descriptions.”

workers who create new products by hand, without the characteristic machinery-intensive enterprise. Many manufacturing establishments process products of agriculture, forestry, fishing, mining, or quarrying as well as products of other manufacturing establishments. The subcategories reflect sectors with distinct production processes related to material inputs, production equipment, and employee skills. Most manufacturing establishments have some form of captive services (e.g., research and development, and administrative operations, such as accounting, payroll, or management).”<sup>71</sup>

The last sentence of the definition is key; it acknowledges that most manufacturing, wholesale, and warehouse functions require some form of “captive services” which often is a different function, such as business and professional services or, in many cases, retail sales and service. The Seattle zoning code allows for sales and service activities within industrial zoning,<sup>72</sup> and one can observe that in SODO, whether it is a custom furniture maker that manufactures in the back and sells its product via a showroom front-of-house, or a restaurant-supply company with joint warehousing, distribution, and wholesale/retail activities all in the same building.

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<sup>71</sup> American Planning Association, “LBCS Function Dimension with Descriptions.”

<sup>72</sup> City of Seattle Land Use Code, Title 23, Subtitle III, Chapter 23.50, Section 012 (23.50.012)

Table 12: Subcategories and select subcategory definitions under the “Manufacturing and wholesale trade functions” category

<ul style="list-style-type: none"> <li>• Food, textiles, and related products</li> </ul>
<ul style="list-style-type: none"> <li>• Wood, paper, and printing products</li> </ul>
<ul style="list-style-type: none"> <li>• Chemicals, and metals, machinery, and electronics manufacturing</li> </ul>
<ul style="list-style-type: none"> <li>• Miscellaneous manufacturing</li> </ul>
<ul style="list-style-type: none"> <li>• Wholesale trade establishment  Wholesaling is an intermediate step in the distribution of merchandise. Wholesalers either sell or arrange the purchase of goods to other businesses and normally operate from a warehouse or office. They may be located in an office building or a warehouse. Unlike retailers, their warehouses and offices have little or no display of merchandise. Functional coding should reflect the type of economic establishment. Whether the establishment is in a warehouse or an office building is specified by a combination of activity and structure-type dimensions. Subcategories provided under wholesale trade may be arbitrary. They are included here to accommodate older data sets that maintained such distinctions. <ul style="list-style-type: none"> <li>○ Durable Goods <ul style="list-style-type: none"> <li>▪ Establishments in the durable goods subcategory sell or arrange the purchase or sale of capital or durable goods to other businesses. These establishments wholesale products, such as motor vehicles, furniture, construction materials, machinery and equipment (including household-type appliances), metals and minerals (except petroleum), sporting goods, toys and hobby goods, recyclable materials, and parts. Durable goods generally have life expectancy of at least three years.</li> </ul> </li> <li>○ Nondurable Goods <ul style="list-style-type: none"> <li>▪ Establishments in the nondurable goods subcategory sell or arrange the purchase or sale of nondurable goods to other businesses. These establishments wholesale products, such as paper products, chemicals, drugs, textiles, apparel, footwear, groceries, farm products, petroleum products, alcoholic beverages, books, magazines, newspapers, flowers, and tobacco products. Nondurable goods generally have a life expectancy of less than three years.</li> </ul> </li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Warehouse and storage services  These service establishments operate warehouse and storage facilities for general merchandise, refrigerated goods, and other warehouse products. They provide the facilities to store goods but do not sell the goods they handle. They may also provide a range of services related to the distribution of goods, such as labeling, breaking bulk, inventory control and management, light assembly, order entry and fulfillment, packaging, pick and pack, price marking and ticketing, and transportation arrangement. Bonded warehousing, storage services, and warehouses located in free trade zones are included in this category.</li> </ul>

Finally, the Structure dimension can be used to help define what the buildings that industrial activity takes place in look like. Within the “Commercial buildings and other specialized structures” category, the subcategories “Industrial buildings and structures” and “Warehouse or storage facility” describes the physical space industrial enterprises often locate in. See Table 13 for more detailed definitions of these subcategories.

Table 13: Subcategory definitions under “Commercial buildings and other specialized structures” category

<p><b>Industrial buildings and structures</b></p> <ul style="list-style-type: none"> <li>• <b>Light industrial structures and facilities</b>  Many industrial structures were described by their roof design (saw tooth, monitor, etc.). But modern industrial structures may look no different from an office building. <ul style="list-style-type: none"> <li>○ Loft building <ul style="list-style-type: none"> <li>▪ Multistoried industrial building, often with higher ceilings and wider columns than a comparable office building. They are popular structures for rehab to residential activities. Other rehab adaptations include art galleries, selling books, computer data centers, mail order centers, and general office space.</li> </ul> </li> <li>○ Mill-type factory structures <ul style="list-style-type: none"> <li>▪ These are older single or multistory factories, common in many older industrial areas, and supported by large wood beams and columns. They are popular structures for rehab to activities that are not industrial (art galleries, book selling, computer data centers, mail order centers, etc.). For lumber mills, see the agricultural facilities category.</li> </ul> </li> <li>○ One-story modern manufacturing plants <ul style="list-style-type: none"> <li>▪ Many newer industrial structures may look and generate impacts like a typical office building, but they rely on special power, water, or waste disposal systems for operations.</li> </ul> </li> <li>○ Industrial parks <ul style="list-style-type: none"> <li>▪ Also known as research and development parks, these are one or more buildings used for light industrial activities, often by several independent enterprises, that may share common loading, parking, and business services. Sometimes they are also referred to as business incubators that are similar to a light industrial structure but differ in the duration of tenancy (incubators only lease for a year to two to help a business in its initial development). Industrial malls, structurally, are like business incubators, but without tenancy restrictions.</li> </ul> </li> <li>○ Laboratory or specialized industrial facility <ul style="list-style-type: none"> <li>▪ A catch-all category for unique and specialized structures that cannot be easily classified under light industrial structures.</li> </ul> </li> </ul> </li> <li>• <b>Heavy industrial structures and facilities</b>  Typically the largest facilities in a community, these structures house complex operations, some of which might be continuous (operated 24 hours a day, seven days a week). Because these facilities are constructed for specific occupants, they have a high degree of obsolescence. Because the subcategories mirror those used by industrial property appraisers, appraisal data sets may already contain some or all these distinctions. <ul style="list-style-type: none"> <li>○ Assembly and construction-type plants <ul style="list-style-type: none"> <li>▪ A typical heavy manufacturing facility.</li> </ul> </li> <li>○ Process plants (metals, chemicals, etc.) <ul style="list-style-type: none"> <li>▪ Process sometimes also applies to oil refineries, which are categorized separately.</li> </ul> </li> </ul> </li> </ul>
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<ul style="list-style-type: none"> <li>• Oil refinery facility</li> </ul>
<p>Warehouse or storage facility Includes public storage, mini-warehouse, mini-storage, and other storage buildings.</p> <ul style="list-style-type: none"> <li>• Mini-warehouse High-rise mini-warehouse</li> <li>• Warehouse structure Does not include grain elevator structures; they should be classified in agricultural structures.</li> <li>• Produce warehouse Specialized warehouse structures for storing, sorting, repackaging, and, sometimes, wholesale selling of produce.</li> <li>• Refrigerated warehouse or cold storage Large industrialized warehouse structures with specialized cold storage and climate control facilities.</li> <li>• Large area distribution or transit warehouse A subcategory for specifying large warehouse structures that occupy several acres of land.</li> <li>• Wharf and dock shed Waterfront structures for marine and water-based enterprises.</li> <li>• Tank farms Tanks that primarily store fuel, oil, and other liquid products (except water). <ul style="list-style-type: none"> <li>○ Tank farms with anchored tanks</li> <li>○ Tank farms with unanchored tanks</li> </ul> </li> </ul>

From these LCBS definitions, one can see a differentiation being made between manufacturing and storage. In the Activity dimension, assembly plants and manufacturing facilities are separated from goods storage and handling structures. In the Function dimension, there are a few different manufacturing subcategories and two subcategories devoted to wholesaling and warehousing. However, it is important to keep in mind that in both these dimensions the manufacturing and storage subcategories are aggregated up into the same category. This is all to say that industrial land use should include both manufacturing and storage activities. Indeed, one of the City of Seattle’s 2007 reports defines industrial as “all things related to manufacturing and supporting activities such as warehousing, utilities, and transportation

among others”<sup>73</sup> whereas manufacturing “refers more specifically to jobs and businesses that relate to production of a finished product.”<sup>74</sup>

In the end, the word “industrial” can mean a lot of things. It can mean production (manufacturing), processing, storage, or transfer activities. It can mean whatever isn’t residential, commercial, office, institutions, or parks. It can mean large parcels and nondescript buildings, as well as very noticeable buildings with lots of action around them (such as sorting yards). Finally, it can mean “dirty,” “smelly,” “unsightly,” “loud,” “undesirable,” and a 24/7 operation. It is these last descriptors that I consider at the end of the process of defining what industrial is; it is a land use that people at best pay no mind to, and at worst do not want to be near.

With this in mind, industrial is not just warehousing, wholesale trade, heavy and light manufacturing, and solid waste management. It is also certain manifestations of utilities and transportation. In these categories I do not mean the linear manifestations, such as roads or transmission lines, as those must take place throughout a city, but non-linear land uses, such as an electric substation and distribution facilities; marine cargo handling terminals, docks, piers, and dry dock operations; and rail maintenance, storage, switching, or related activities. This also means large maintenance and storage facilities for public transit, whether it is buses or light rail vehicles. See Table 14 for the categories and subcategories to refer to for transportation and utility-related land uses.

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<sup>73</sup> City of Seattle Department of Planning and Development, “Seattle’s Industrial Lands: Mayor’s Recommendations,” 3.

<sup>74</sup> City of Seattle Department of Planning and Development, 3.

Table 14: Select dimensions, categories, and subcategories for transportation and utility-related land uses

Activity	Social, institutional, or infrastructure-related activities
	Activities associated with utilities (water, sewer, power, etc.)
	Travel or movement activities
	Vehicular movement
	Trains or other rail movement
	Sailing, boating, and other port, marine and water-based activities
	Aircraft takeoff, landing, taxiing, and parking
Function	Transportation, communication, information, and utilities
	Transportation Services
	Utilities and utility services
Structure	Transportation-related facilities
	Utility and other nonbuilding structures

### Classification Process

Having both industrial land use and industrial designation defined is the first step in answering research questions two and three. For question two— “What percentage of land is zoned industrial in the SODO neighborhood?”—I will use the zoning data I gathered to make a determination. For research question three—“What percentage of the land use is considered industrial in the SODO neighborhood?”—I will use the land use data gathered, both from previous land use studies<sup>75</sup> as well as my own field survey of the study area to classify the land use in the study area by parcel. This, in turn, will allow me to determine what percent of the study area is actual industrial land use and what percent of the industrial-zoned land is actual industrial land use (if the two are different).

My methods center around a case study approach coupled with a field survey. I am doing a case study, in that I am conducting an “in-depth analysis of a case...bounded by time and activity...collect[ing] detailed information using a variety of data collection procedures over a

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<sup>75</sup> City of Seattle Department of Planning and Development, “Duwamish M/IC Policy and Land Use Study”; Puget Sound Regional Council, “2013 Regional Centers Monitoring Report - Center Profiles - Duwamish MIC”; Manufacturing Industrial Council, “Seattle’s Industrial Zoned Land Primary Parcel Uses.”

sustained period of time.”<sup>76</sup> The case in this instance is the SODO neighborhood, with in-depth analysis and detailed data collection via a review of all literature on the area as well as a comprehensive field survey of the area. This work is by nature bounded by time and activity, in that the research is taking stock of the area at a specific time in its development.

The analysis itself is a mix of attribute analysis using GIS software and in-person observational field survey work. King County parcel information was the main source of data analysis, with the “PREUSE\_DESC” (Present Use Description) and “PROP\_NAME” (Property Name) attributes providing the most information. The metadata describes the property name field as “common identifier for parcel when available” and the present use description carries no further definition.<sup>77</sup> I could not find a source from King County detailing the reasons for their specific present use descriptions.

After reviewing the different LBCS dimensions, the Function dimension was determined to most accurately achieve the classification style desired to pursue my research questions. As seen in the previous section, Activity, Function, and Structure all succeed in identifying industrial land use in their varying capacities and points of departure. However, Function provides a level of detail not achieved in either Activity or Structure. In Structure, both industrial buildings and warehouses are classified in the same category as offices and retail land uses. Activity was deemed inadequate largely for its lack of specificity when it came to commercial land uses. For example, the “shopping, business, or trade activities” category only provides three subcategories, which in turn offer very little delineation within them (see Table 15). Also, utility activities were grouped together with schools and hospitals under the “Social, institutional, or infrastructure-related activities” category. Schools, hospitals, and police/fire stations are

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<sup>76</sup> Creswell and Creswell, *Research Design*, 14.

<sup>77</sup> King County, “Parcels for King County with Address, Property and Ownership Information.”

academically considered “infrastructure” just as much as transportation or utilities in that they are often publicly funded and managed.<sup>78</sup> However, public views about being located near the former are often tamer than those associated with being located near the latter. Therefore, I thought utilities would group better with transportation.

These dimensions are all opposed to the Function dimension, which groups land uses into categories more intuitive to the public’s perception of industrial. “General sales or services” includes retail, professional services, and office activities. Institutional activities such as schools and hospitals have their own category, and the otherwise hard-to-classify arts/entertainment/recreation uses are grouped together. Utility functions are grouped with transportation, as opposed to schools or hospitals. (See Table 7 for a complete list of all Function categories and select subcategories).

*Table 15: Shopping, business, or trade activities category and subcategories*

Shopping, business, or trade activities <ul style="list-style-type: none"><li>• Shopping<ul style="list-style-type: none"><li>○ Goods-oriented shopping</li><li>○ Service-oriented shopping</li></ul></li><li>• Restaurant-type activity<ul style="list-style-type: none"><li>○ Restaurant-type activity with drive-through</li></ul></li><li>• Office activities<ul style="list-style-type: none"><li>○ Office activities with high turnover of people</li><li>○ Office activities with high turnover of automobiles</li></ul></li></ul>
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<sup>78</sup> Fulmer, “What Is the World Infrastructure?”

## 4: Results

### Land Use Categories

Table 14 lists the land use categories that were classified in the study area. The ones that are not official “Function” dimension categories are “Parking,” “Vacant,” and “Mixed Use.” Interestingly, I could not find a category that parking fit in; one might expect the transportation category to be a logical home, but that only defined uses dealing with the movement of vehicles, not the storage (parking) of vehicles. Given the number of parcels dedicated to parking lots in SODO, I determined the need to retain it as its own category. A similar situation was faced with vacant land use. Finally, there are a few parcels in SODO that contain buildings with multiple land uses and cross-over categories. These are parcels that did not have a discernably dominant land use such as the old Rainier Brewery building, which has housing, manufacturing, and entertainment functions to name a few. In situations where there were multiple land uses, but one was dominant, such as a warehouse with a small parking lot included in the parcel, the parcel would be classified according to the dominant land use (warehouse).

*Table 16: Land use categories classified in study area*

Arts, Entertainment, and Recreation
Education, public administration, health care, and other inst.
General Sales or Service
Manufacturing and Wholesale Trade
Mixed Use
Parking
Residence or accommodation functions
Transportation, communication, information, and utilities
Vacant

## Land Use by Number of Parcels and Total Area

### *First-Level Categories*

Within the study area, there are 1159 parcels. These parcels range from the largest at 129 acres (Port of Seattle's Terminal 18) to many at less than one acre. See Table 17 for a breakdown of parcels by acre. As can be seen, the majority of the parcels are one acre or less, with 30% being just one acre and 43% at less than an acre. Just over one percent of the parcels in the study area are 20 acres or more.

The land uses by number of parcels are detailed in Table 18 and mapped in Figure 25. As can be seen, the "Manufacturing and Wholesale Trade" category ranks first, with 426 parcels, or 36.76% of the total. This is followed by "Transportation, Communication, Information, and Utilities" with 293 parcels, or 25.28%, and then "General Sales or Service" with 146, or 12.6%. However, this may not accurately reflect the dominance of one category in SODO over another given the range in size of parcels. Therefore, Table 19 ranks the land use categories by total area, this time using square footage<sup>79</sup> as a more accurate measurement given the large number of parcels less than one acre. However, few changes occur, with the top three categories staying the same. The "Arts, Entertainment, and Recreation" category overtakes "Parking" by moving up to fourth place. This makes sense, since this category includes some large parcels which contain parkland on the western side of the Duwamish River and the baseball field T-Mobile Park. And while "parking" has 78% more parcels than "Arts, Entertainment, and Recreation" many of those parcels are under 1 acre (the mean parking parcel size is 0.76 acre). The "Right of Way" shown in Figure 25 is a separate feature class produced and provided by the City and is not comprised of parcels or considered in this analysis.

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<sup>79</sup> Total square footage of all parcels: 111,432,266 square feet

Table 17: Parcel size in acres

Size in Acres	Number of Parcels	Percent
> 100	1	0.09
99 – 50	4	0.35
49 – 30	5	0.43
29 – 20	5	0.43
19 – 10	33	2.85
9 – 6	42	3.62
5 – 2	207	17.86
1	353	30.46
< 1	502	43.31

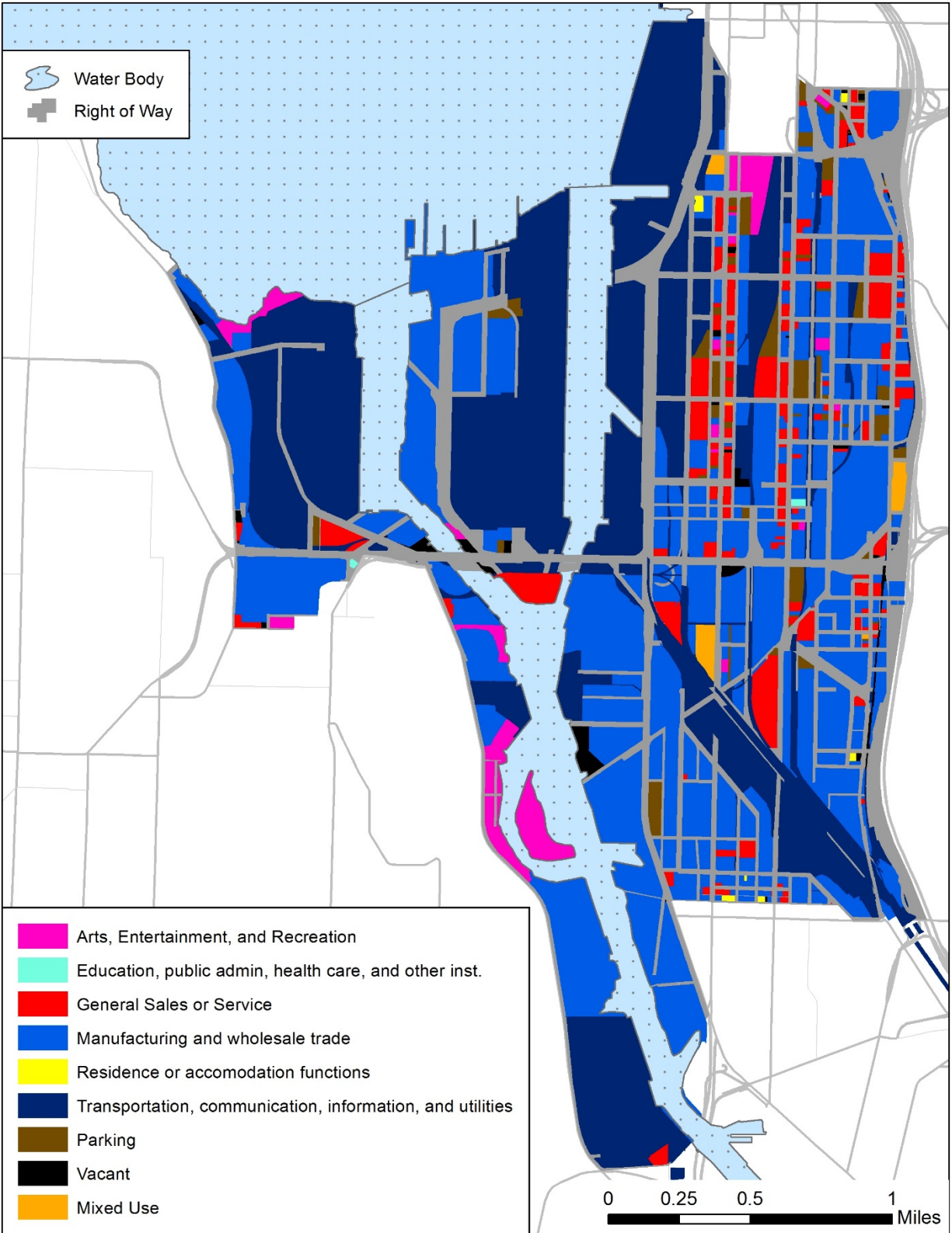
Table 18: Land use categories by number of parcels

Land Use	Number of Parcels	Percent
Manufacturing and Wholesale Trade	426	36.76
Transportation, communication, information, and utilities	293	25.28
General Sales or Service	146	12.60
Parking	64	5.52
Vacant	45	3.88
Arts, Entertainment, and Recreation	36	3.11
Residence or accommodation functions	11	0.95
Mixed Use	7	0.60
Education, public administration, health care, and other inst.	2	0.17

Table 19: Land use categories by percent of total area

Land Use	Square Feet	Percent
Manufacturing and Wholesale Trade	48,339,988	43.38
Transportation, communication, information, and utilities	46,708,472	41.92
General Sales or Service	6,267,036	5.62
Arts, Entertainment, and Recreation	3,408,906	3.06
Parking	2,416,156	2.17
Vacant	1,076,113	0.97
Mixed Use	672,423	0.60
Residence or accommodation functions	130,981	0.12
Education, public administration, health care, and other inst.	54,649	0.05

Figure 25: Map of land use categories in study area by parcel



### *Expanded Categories*

Given the amount of both parcels and area that are taken up by the top three land use categories, it is instructive to break down the Manufacturing and Wholesale Trade, Transportation, Communication, Information, and Utilities, and General Sales or Service categories into their leading subcategories. Parks/Open Space will also be broken out from the Arts, Entertainment, and Recreation category, given that the larger category ranks fourth in total area. Table 20 shows the subcategories and the larger categories they reside within.

Manufacturing and Wholesale Trade is made up of warehouse, manufacturing, and storage yard subcategories—all industrial land uses. The dominant subcategories in Transportation, Communication, Information, and Utilities are railroad, marine terminal, ROW, and utility. It was necessary to define a “right-of-way” or ROW subcategory for parcels of land that are publicly owned and part of the transportation network. These parcels were not included in the already-made ROW feature class, yet they function as ROW space, so they are included here in their own category independent of the City-provided ROW feature class. Finally, General Sales or Service will be broken down into Office and Retail/Commercial.

In Table 21 one can see that warehouse is the dominant land use with 262 parcels, or 22.6% of all parcels. This is followed by railroad, marine terminal, and then manufacturing. However, Table 21 shows that the marine terminal land use occupies the most area in SODO, followed by manufacturing and then warehouse, railroad and storage yard. Railroad may have the second highest number of parcels, but many of its parcels are small, leading to it not being ranked as high in total area. See Figure 26 for these land use categories mapped.

Table 20: Breakdown of Select Land Use Categories into their Main Subcategories

<b>Land Use Category</b>	<b>Main Subcategories</b>
Manufacturing and Wholesale Trade	Warehouse
	Manufacturing
	Storage Yard
Transportation, communication, information, and utilities	Railroad
	Marine Terminal
	ROW (Right of Way)
	Utility
General Sales or Service	Office
	Retail/Commercial
Arts, Entertainment, and Recreation	Parks/Open Space
	Arts, Entertainment, and Recreation (other)

Table 21: Expanded land use categories by number of parcels

<b>Land Use</b>	<b>Number of Parcels</b>	<b>Percent</b>
Warehouse	262	22.61
Railroad	135	11.65
Manufacturing	117	10.09
Marine Terminal	106	9.15
General Sales or Service (Excluding Office)	92	7.94
Parking	64	5.52
Office	54	4.66
ROW	49	4.23
Storage Yard	47	4.06
Vacant	45	3.88
Arts, Entertainment, and Recreation	20	1.73
Park/Open Space	16	1.38
Residence or accommodation functions	11	0.95
Mixed Use	7	0.60
Utility	3	0.26
Education, public administration, health care, and other inst.	2	0.17

Table 22: Expanded land use categories by percent of total area

<b>Land Use</b>	<b>Square Feet</b>	<b>Percent</b>
Marine Terminal	32,458,790	29.13
Manufacturing	22,073,931	19.81
Warehouse	17,577,804	15.77
Railroad	12,763,491	11.45
Storage Yard	8,688,253	7.80
Park/Open Space	4,133,722	3.71
General Sales or Service (Excluding Office)	3,369,398	3.02
Office	2,897,638	2.60
Parking	2,416,156	2.17
ROW	1,404,823	1.26
Vacant	1,076,113	0.97
Arts, Entertainment, and Recreation	992,750	0.89
Mixed Use	672,423	0.60
Residence or accommodation functions	130,981	0.12
Utility	81,368	0.07
Education, public administration, health care, and other inst.	54,649	0.05

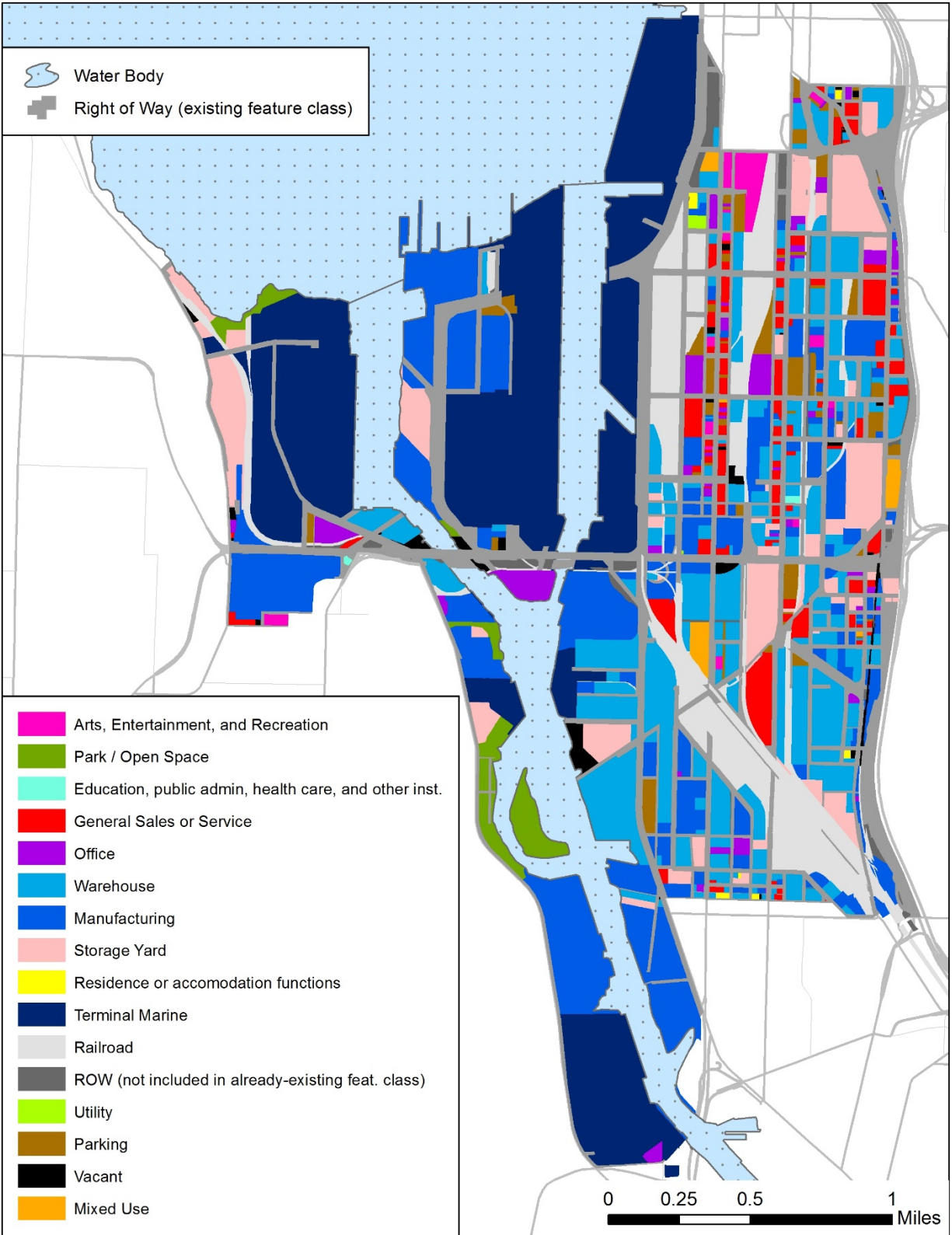


Figure 26: Map of expanded land use categories in study area by parcel

## 5: Interpretation

### Industrial Designation and Land Use Compared

Having defined industrial land designation and industrial land use earlier and subsequently determined where both are located, one can determine the percentages of both within the study area. For designation, it is almost 100%; just over 99% of the land in the study area is zoned, and therefore designated, industrial.<sup>80</sup> However, only 62% of the study area's parcels, or 85% of the land area, contain actual industrial land use. At first glance, these percentages may seem high. Indeed, it can be said that well over the majority of the land in the study area is devoted to industrial (see Figure 27). However, one must remember that the marine terminal and railroad land uses are land intensive. When those uses are removed from consideration, the percent of industrial land area (industrial, warehouse, storage yard, and utility land uses) is only 42%.

Despite the high number of parcels with an industrial land use in SODO, the fact remains that there are notable nonindustrial land uses present in the neighborhood. Highly-visible landmarks, such as the Starbucks headquarters building or the auto dealerships mentioned in the introduction, affect people's perception of SODO, drive traffic to the area, and encourage other land uses to locate there. Indeed, one SODO business owner says she is happy about the breweries and other attractions that have located in SODO: "it helps drive potential customers to the area and gives our business more visibility."<sup>81</sup>

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<sup>80</sup> There are small pockets of Commercial and International District Mixed zoning at the edges of the study area, but combined they constitute less than one percent of the study area.

<sup>81</sup> Sue Lunz (co-owner, Seattle Pottery Supply), interviewed by David Tomporowski, Seattle, WA, May 9, 2019.

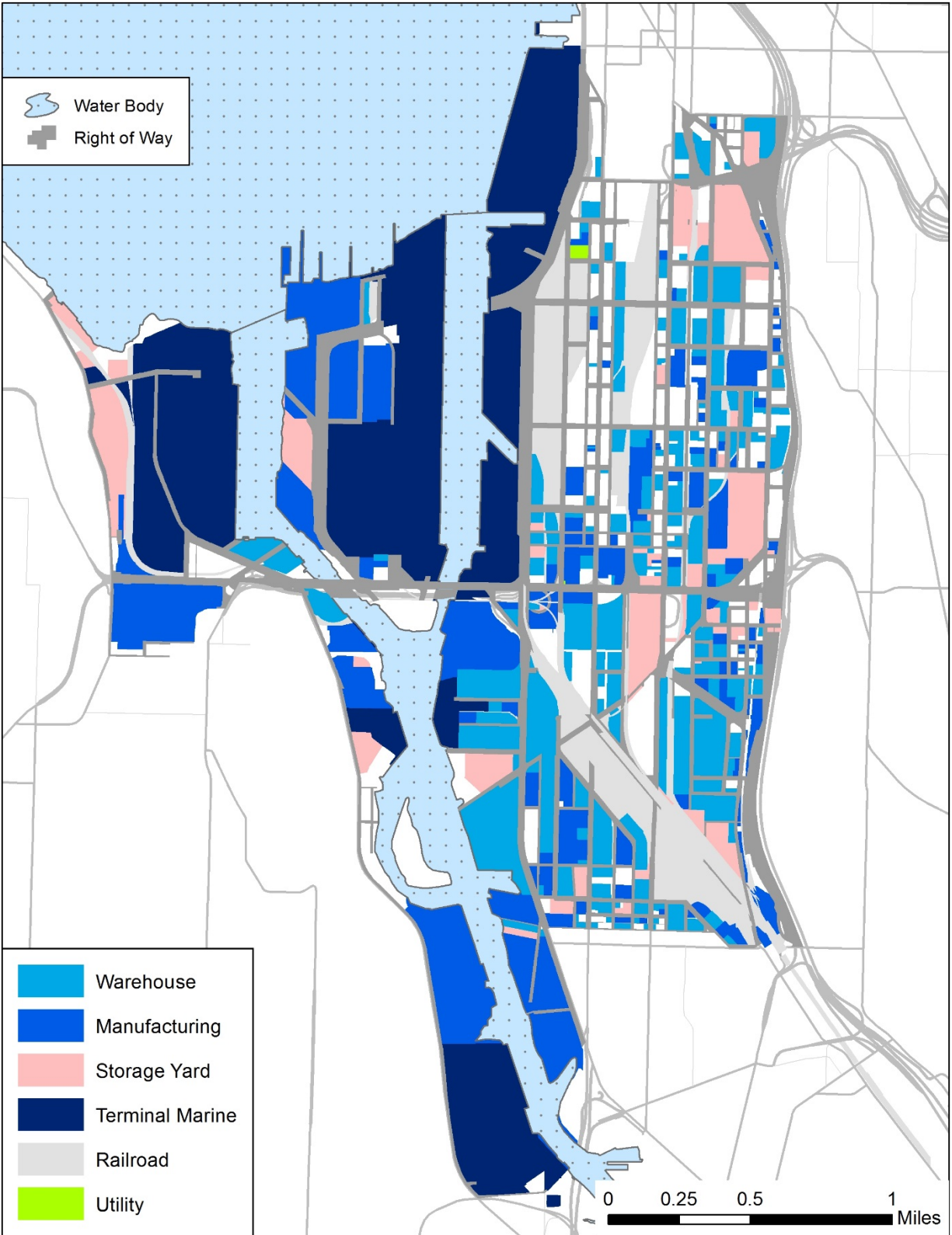


Figure 27: Map of just industrial land uses

## Non-Industrial Uses

Non-industrial uses are spread throughout the study area, with many located to the north of Spokane Street along 1<sup>st</sup> Ave S and adjacent to Interstate-5. This makes sense given the presence of Industrial Commercial and IG2 zoning in these areas; both zoning types allow for more flexible non-industrial uses than IG1. (IG2 allows for 25,000 square feet for office and retail uses, compared to IG1's 10,000 square feet). It is these land uses that stand as testaments to the ability to build seemingly non-industrial uses in industrial zoning. What follows is a review of these land uses by category. See Figure 28 for a map of non-industrial land uses.

First, the largest non-industrial category is “General Sales or Service.” It is quite broad, including four banks in the “Finance and Insurance” subcategory, eight full-service and ten quick-service restaurants under the “Food Services” subcategory, and many different kinds of retail and professional service businesses under the “Retail Sales and Service” subcategory. The largest group within this is “Automobile Sales or Service Establishment,” which includes both vehicle repair shops and auto showrooms and lots. Five brands—Mercedes Benz, BMW, Toyota, Honda, and Nissan—all have locations in SODO concentrated along Airport Way South. This aligns with one of the recommendations in the 2013 Duwamish M/IC Policy and Industrial Lands Study, which recommends creating an “auto row” along Airport Way in order to concentrate dealerships and limit their impacts on surrounding land costs while still providing a viable space for them to operate. As the largest consumer retail sector in the country and therefore a significant source of sales tax revenue, auto dealerships are a valuable retail use for the City. They also provide jobs with low barriers to entry.<sup>82</sup>

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<sup>82</sup> City of Seattle Department of Planning and Development, “Duwamish M/IC Policy and Land Use Study,” 35.

The Arts, Entertainment and Recreation category has three gyms (including an indoor climbing gym and a trapeze school), an art gallery, two museums, two rentable event venues, the Mariner’s ballpark, a strip club, a concert venue, and a business that bills itself as a “country club for gearheads.”<sup>83</sup> Equal parts auto body shop, storage space, club, restaurant, and lounge, “The Shop,” as it’s called, could fit into many categories, but was classified here given its blend of entertainment and recreation purposes. Parks and Open Space are included in this category but shown separately on the map (Figure 28).

The only land use included in the “Education, Public Administration, Healthcare, and Other Institutions” are Seattle Fire Stations 14 and 36 (in the “Public Safety” group of the “Public Administration” subcategory). There is a Salvation Army shelter in the study area, which could fall under the “Social Assistance, Welfare, and Charitable Services” group of the “Health and Human Services” subcategory, but since its primary function is providing shelter, it has been classified as residential.

The “Residence or Accommodation Function” category includes mostly single-family homes which are located at the very southern end of the study area along S Brandon Street. However, these parcels are inside the Duwamish MIC zone, and the zoning is General Industrial 2 in which residential land uses are not allowed. This implies the housing has been grandfathered into the existing zoning or has achieved a zoning variance. There are also a small motel and the historic Bemis Building near T-Mobile Park that now contains live/work artist studios.<sup>84</sup>

Finally, the Mixed Use category includes parcels with multiple land uses. The old Rainier Brewery building, which itself is comprised of three parcels, contains offices, event spaces,

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<sup>83</sup> “The Shop Seattle - A Country Club for Car and Motorcycle Enthusiasts.”

<sup>84</sup> Somerset Properties, “The Bemis Building | Seattle SoDo.”

retail, and artist lofts.<sup>85</sup> Other parcels contain a building with a marble and granite business on the ground floor and artist lofts above, a warehouse space that also includes a brewery (Pyramid Alehouse), and a multi-tenant business park with a mix of retail, warehouse, manufacturing, professional services, a combined brewery and restaurant (Schooner Brewing), the restaurant Din Tai Fung's central kitchen, and no less than nine winery tasting rooms.<sup>86</sup> Indeed, alcohol has quite a presence in SODO, and will be explored further next.

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<sup>85</sup> The Old Rainier Brewery, "The Old Rainier Brewery."

<sup>86</sup> Blanton Turner, "SODO Urbanworks."

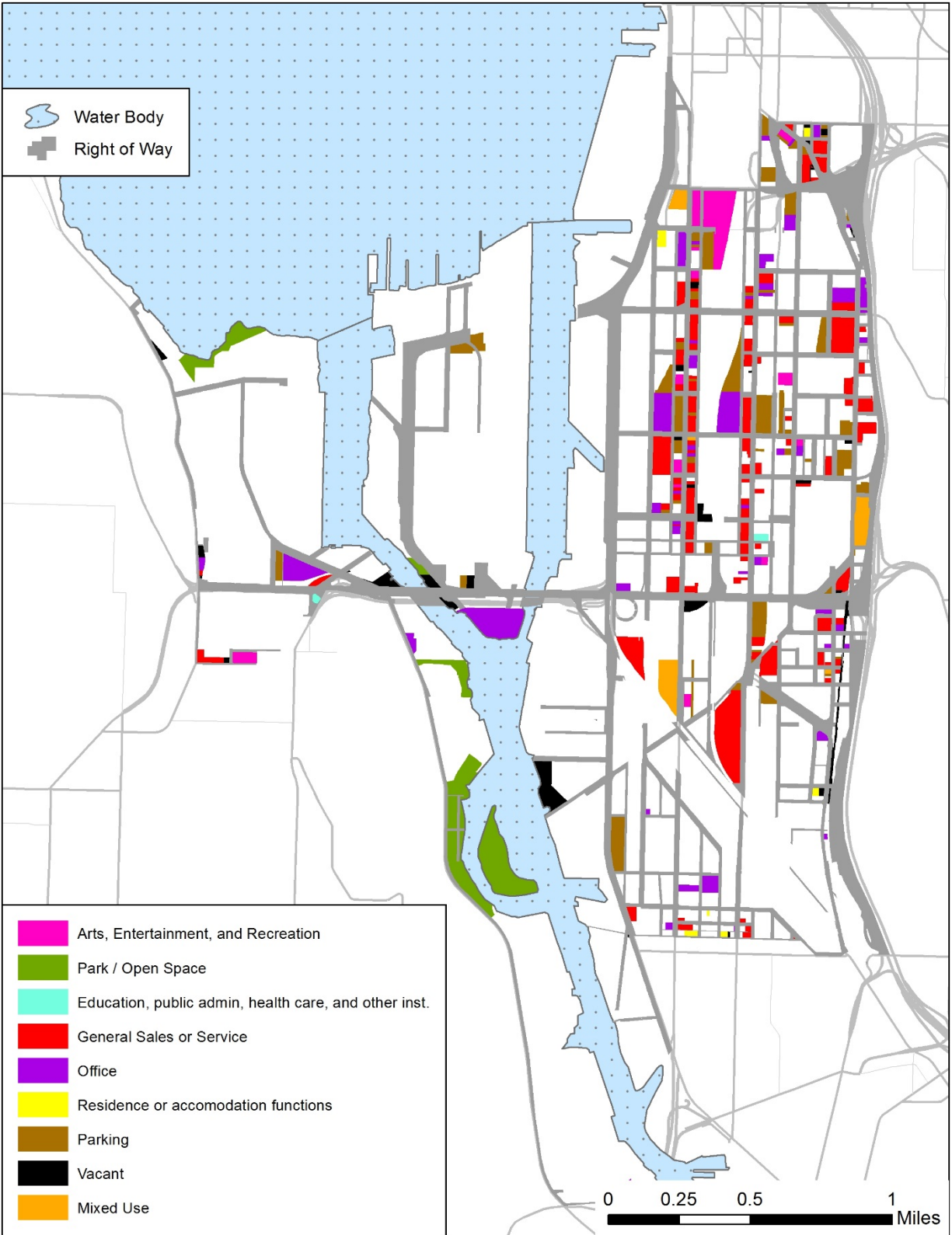


Figure 28: Map of non-industrial land uses

## **Alcohol and Cannabis**

There are two specific industries in SODO that deserve special mention. The first is alcohol: there are 16 parcels with some sort of alcohol production or retail function and there are over 20 individual breweries, distilleries, wineries, and tasting rooms. These businesses represent the sometimes-gray area that land uses can occupy. A brewery or distillery with an attached tasting room and retail space occupies several categories of land use; there are production activities happening on site as well as retail and food, making it hard to assign one dominant land use.

The second industry is cannabis. In 2012 Washington State became the first state in the nation to legalize recreational marijuana use, which prompted a thriving cannabis production and retail industry to spring forth. There are both cannabis production facilities and retail stores located in SODO. According to Washington State law, a store cannot be located within 1000 feet of any elementary or secondary school, playground, recreation center or facility, child care center, public park, public transit center, library, or game arcade that allows minors to enter.<sup>87</sup> This restriction may account for the number of stores and production sites in SODO given the area's lack of schools, libraries, and other places where youth congregate.

Beyond that possibility, it is not a coincidence that both these types of businesses are located in SODO; they need a larger space for production and storage of product, which attracts them to industrial areas, where space and land are cheaper and plentiful. In turn, they can serve as anchor businesses that draw and attract other businesses and people. There has been research done on the relationship between the craft brewing and distilling industry and gentrification of industrial and post-industrial areas, with general conclusions that the two are related, although

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<sup>87</sup> Washington State Liquor and Cannabis Board, "FAQs on Marijuana"; City of Seattle, "Frequently Asked Questions - Marijuana."

there is a question of whether gentrification follows them, or they follow gentrification.<sup>88</sup> In the end, however, the breweries, distilleries, tasting rooms, and cannabis shops in SODO serve as a draw for people to the neighborhood, which increases foot traffic and encourages other non-industrial businesses to consider locating there.

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<sup>88</sup> Walker and Fox Miller, "Have Craft Breweries Followed or Led Gentrification in Portland, Oregon? An Investigation of Retail and Neighbourhood Change"; Mathews and Picton, "Intoxifying Gentrification: Brew Pubs and the Geography of Post-Industrial Heritage"; Barajas, Boeing, and Wartell, "Neighborhood Change, One Pint at a Time: The Impact of Local Characteristics on Craft Breweries."

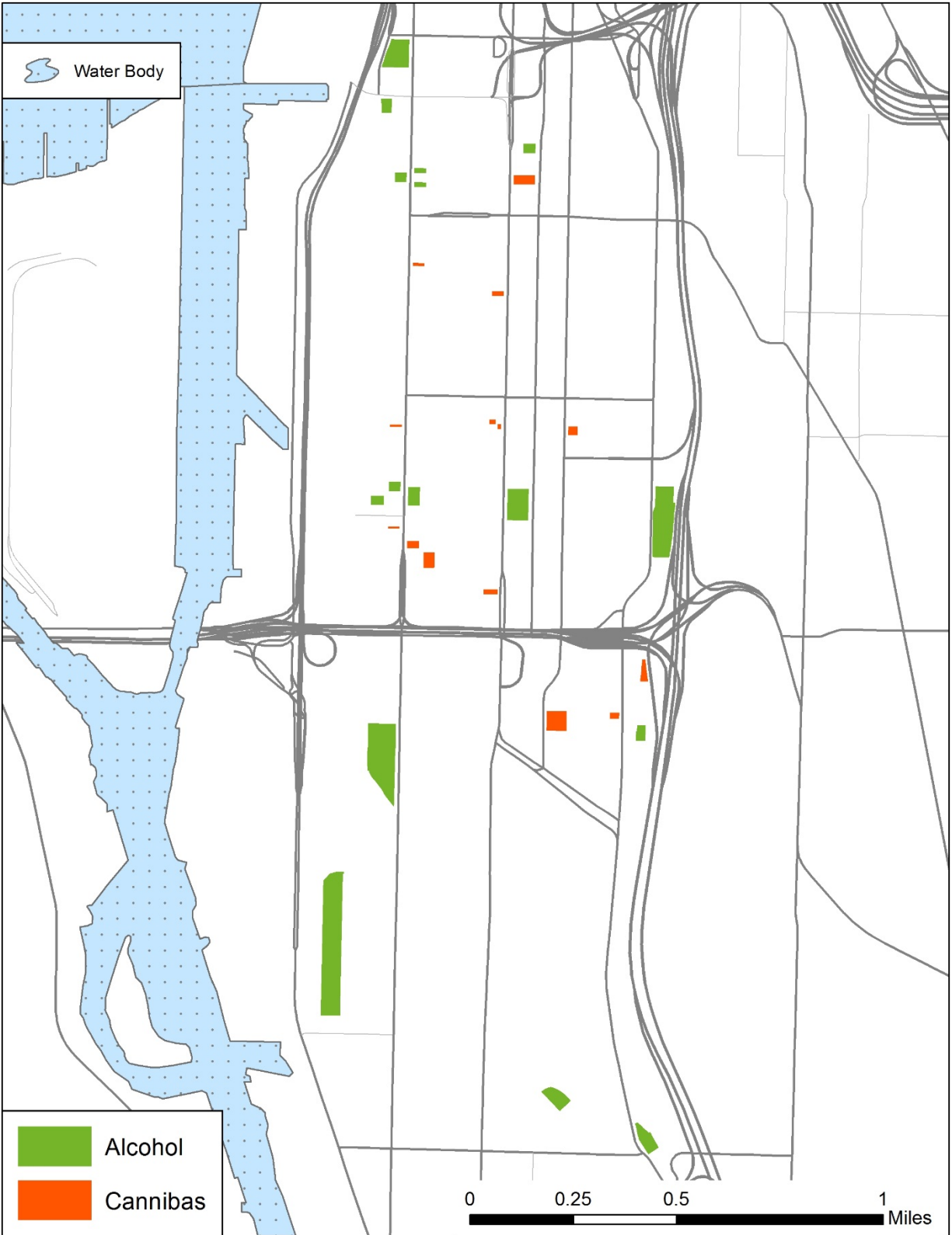


Figure 29: Map of parcels that contain alcohol or cannabis functions

## **Implications for freight transportation and goods movement in SODO**

People generally do not like living next to loud transportation, whether it is a busy highway or a rail line. The SODO neighborhood has both of these: besides being bounded to the east by I-5 and to the west by SR 99, the busy Spokane Street Viaduct and major corridors such as 1<sup>st</sup> and 4<sup>th</sup> Avenues all run through the neighborhood. Further, a railroad mainline cuts the neighborhood in half and two railroad companies, BNSF and UP, have rail yards in the area, not to mention the many sidings and spurs that run right up to buildings.

Seattle's Freight Master Plan recognizes the importance of the transportation network in SODO. The plan designated an official freight network for the City designed to identify and concentrate resources on a specific set of facilities important to truck movement.<sup>89</sup> The network has four road levels: Limited Access Facility, Major Truck Street, Minor Truck Street, and First/Last Mile Connector.<sup>90</sup> The entire City-wide network is shown in Figure 30, and Figure 31 displays the network overlaid with the study area. As can be seen, the network is most concentrated in the SODO neighborhood and the larger Duwamish MIC, speaking to the large presence of industrial activity in the area. Many of the main corridors in SODO are classified as major truck streets, which means they carry over 500 trucks per day. Then there are the first/last mile connectors, which connect the latter designation with businesses and carry over 250 trucks a day.

It is clear that Seattle City transportation policy, via the Freight Master Plan and the freight network designation, is intended to recognize and support adequate transportation connections for industrial land uses. We have seen how the network has concentration in the SODO neighborhood, which is part of the Duwamish MIC and, therefore, protected as industrial

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<sup>89</sup> City of Seattle Department of Transportation, "Seattle Freight Master Plan," 57–88.

<sup>90</sup> City of Seattle Department of Transportation, 65.

zoning. However, we have also seen how industrial zoning does not guarantee a lack of non-industrial uses. What are the effects on transportation if those industrial land uses continue to become less concentrated and instead are replaced with commercial, residential, entertainment, or other land uses?

One can see a potential answer in the Ballard cases mentioned at the beginning of this research. As more residential and commercial uses have come to Ballard, long-time local industry has faced pressure in the form of transportation. The seafood businesses relocated, citing increased traffic and congestion. The businesses along Shilshole Way are fighting a new bike corridor planned to run across their truck-laden driveways. In SODO, the debate over the proposed basketball arena quickly centered on traffic; the Port of Seattle's fierce lobbying presented worries of the permanent closure of a roadway used by trucks and increased traffic from game days at yet another sports stadium.<sup>91</sup> It is clear that when industrial and non-industrial land uses start to develop near each other, the conflicting nature of the two often shows up in the form of transportation conflicts. These conflicts can take the form of increased congestion on the roads, or complaints about traffic with one group placing blame on another. The cycle of non-industrial land uses moving in to industrial areas, drawing more people that create increased traffic congestion and eventually grow to protest the freight traffic, which causes industrial land uses to leave, is ever-present in Ballard and is at risk of happening in SODO as well.

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<sup>91</sup> Heffter, "Port Commissioners: Arena Threatens Jobs, Gambles with City Money"; Baker, "Seattle City Council Kills Sale of Street for Sodo Arena; Sonics Fans Despair."



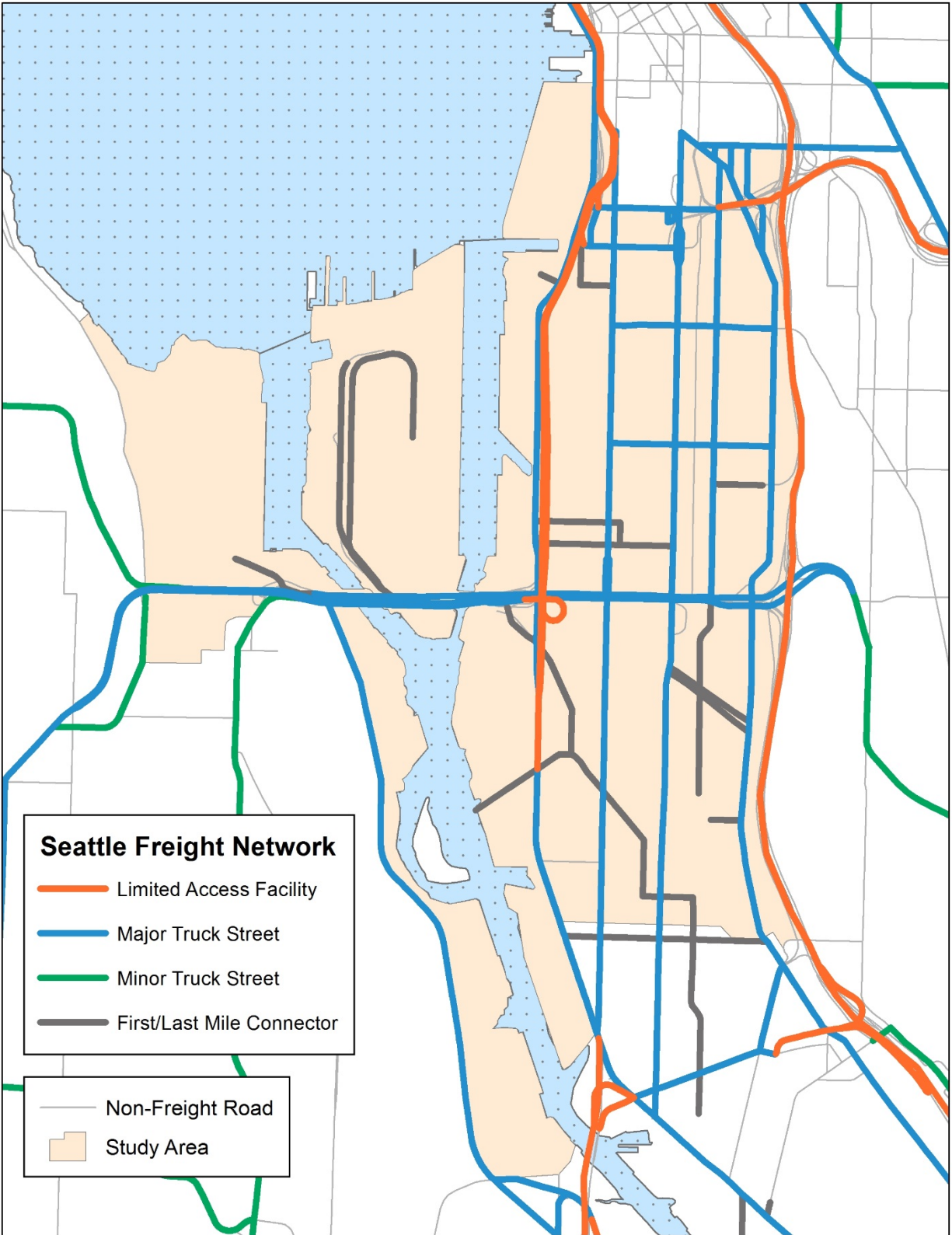


Figure 31: Map of Seattle Freight Network and study area

## **6: Conclusion**

### **Limitations and Challenges**

There is never enough time to fully investigate a subject, and this work is no exception. What follows are a few limitations and challenges of this research. First, a further analysis of Seattle's industrial zoning code beyond the review of the industrial zoning charts (Figures 15-18) would have been welcome. Seattle's Land Use Code was utilized, but only a small section of it is cited in this paper. Regarding land classification processes, it would have been ideal to investigate other possible models of land classification, although the LBCS does employ a comprehensive strategy by defining multiple dimensions. When it came to classifying actual parcels, it was occasionally hard to parse the multiple functions present. Lots of warehouses have retail components or office space, for example. Breweries produce product, sell it, and serve it all under the same roof. A music venue is entertainment, arts, and often serves food/drink all at once. Attempts were made to capture these land use complexities, subtleties, and nuances, but more could have done; for instance, each parcel could have been classified under all five LBCS dimensions. Finally, the transportation component of the study could have been expanded with additional data: a historical review of truck volumes, for instance. However, given the narrow scope of the research question, that was not pursued.

## **A Conversation with Two Businesses**

At a recent SODO Business Improvement Association event the author talked with the owners of two businesses about their perspectives on SODO's perceived gentrification. Mike and Sheryl Batt own Silver Platters, a local independent music, record, and movie retailer that's been in business for over 30 years. Besides their SODO location on 1<sup>st</sup> Ave South between Forest and Hanford Streets, they also have stores in Lynwood and Bellevue. Another couple, Jim and Sue Lunz, founded Seattle Pottery Supply in 1975 and have been at their Hanford Street location in SODO since 1981. When asked about their perspective on gentrification in SODO, both parties agree that it's been happening.

Jim and Sue Lunz opined that the reason businesses are leaving SODO, and indeed Seattle in general, could have something to do with the way the City treats them. Increasing costs, such as rent, property tax, and business license fees all contribute to a more challenging business environment. Add to that an extra City fee assessed to SODO businesses for extra police patrols, trash pickup, and marketing, and they say the cost of doing businesses has greatly increased. The City is providing extra police patrols and trash pickup because of the high rates of homelessness, drug use, and crime in SODO. This is by far the largest issue that businesses and property owners talked about, bringing it up unprompted whereas I had to ask about gentrification. The increased crime, accumulating trash, and unsightly encampments have led to "a feeling of helplessness," according to Sue, with the City not responding adequately. There is a worry that these issues also are scaring customers away, while they actually like the increasing number of breweries, distilleries, and cannabis shops as they draw customers to the area and increases their business' visibility. Sue stressed that she didn't feel that industrial and manufacturing businesses were leaving because of the homelessness issue—rather it's because

the City is simply changing, with growing tourism and marketing promoting Seattle as a hub for tech, entertainment, and millennials that have increased traffic and prices and caused industrial businesses to depart for more friendly locations.<sup>92</sup>

Mike Batt talked about how the formation of a Business Improvement Area was originally advocated for by property and business owners who wanted a greater voice on the City Council to advocate for zoning changes to allow for greater flexibility in land uses.<sup>93</sup> They have been disappointed to discover that the BIA, like all BIAs in Seattle, have it in their bylaws not to get involved with zoning. Yet the key point here is that some of the advocacy for gentrification of SODO comes from within SODO itself.

Indeed, it may be surprising to find out that some of the biggest advocates for loosened, more flexible zoning restrictions that allow land uses beyond industrial are industrial business owners themselves. Some are still located in SODO, and others have relocated their business but still own land and buildings in the neighborhood. Regardless, they all have a keen eye turned toward the future and see lucrative business opportunities when it comes to their land, as long as the zoning doesn't get in the way. The owner of the Seattle Textile Company, located on 2<sup>nd</sup> Ave N in SODO, is realistic when it comes to his land. "The space has to get used by somebody and it should go to the best and highest use...[p]utting artificial zoning on things isn't going to keep people from wanting to build here. The market is the market." The president of Pacific Iron and Metal, which is also still located in SODO, believes strongly that he has the right to do whatever he wants with his family property, and is not in favor of aggressive industrial zoning regulations

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<sup>92</sup> Sue Lunz (co-owner, Seattle Pottery Supply), interviewed by David Tomporowski, Seattle, WA, May 9, 2019.

<sup>93</sup> Mike Batt (co-owner, Silver Platters), interviewed by David Tomporowski, Seattle, WA, May 9, 2019.

put in place in the mid 2000s by Mayor Greg Nickles to protect the very types of businesses like his.<sup>94</sup>

## **Conclusion**

What can SODO tell us about the perception and reality of the state of industrial land designation and industrial land use gentrification in Seattle? To answer one had to first define what it means to be designated as industrial land and what actual industrial land use looks like. While the designation question was straightforward—land had to be zoned as one of four industrial zoning designations—the actual land use question was harder and more multifaceted. The LBCS’s Function dimension guided the process, resulting in a land use that includes manufacturing, processing, and storage, or warehousing, of goods, as well as the supporting and ancillary activities that come along with those uses, such as utilities and transportation like port terminals and rail yards. Industrial also can be land uses that require lots of space, such as storage yards or bus maintenance facilities, or land uses that people would rather not be near, and certainly not live near, such as landfills or aggregate processing centers.

Having these definitions in hand, an analysis and field survey of SODO revealed that over 99% of the land is designated industrial, and 85% of the land area contains actual industrial uses. The top two land use categories are both industrial: “Manufacturing and Wholesale Trade” and “Transportation, Communication, Information, and Utilities.” Therefore, it would seem that industrial land use is alive and well in SODO. However, when land-intensive marine terminals and railroad land uses are removed, the percent of industrial land area drops to only 42%. And the land uses that constitute that percentage (manufacturing, warehouse, storage yard and utility) are not all blatantly industrial in nature. Warehouses and factories may include office or retail

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<sup>94</sup> Raley, *Tideflats to Tomorrow : The History of Seattle’s SoDo*, 123–25.

space on-site or sit in nondescript buildings on a small lot. And then there are the many non-industrial uses. Driving down 1<sup>st</sup> Avenue South in SODO one will pass breweries, fast food restaurants, a plethora of retail stores, and office buildings. The “General Sales or Service” category, which includes offices, restaurants, and retail, came in third in total land area. So while the classification methods conclude that SODO is largely still industrial, that does not matter when one drives through the neighborhood and sees non- after non-industrial use, even if they take up small lots and land area.

In the end, after reviewing the literature and analyzing both the designated and actual industrial land in the SODO neighborhood, one can get a sense of both the perception and reality of industrial land designation, land use, and gentrification in Seattle. First, the narrative of industrial gentrification is not as universal as initially perceived. This investigation has shown that not all businesses frame their leaving SODO or Seattle as being “forced out.” They see it as a necessary step that comes with the growth of their business. Further, those businesses that have retained ownership of their SODO land and buildings, and even some that are still located in SODO, are often big advocates for easing industrial zoning restrictions, not increasing them to protect industrial land use. They see how the City is changing and are keeping an eye on their property’s redevelopment potential, if only the zoning meant to protect them would be more flexible.

Second: speaking of zoning, being designated as industrial land by zoning is not a surefire way to achieve what some would consider actual industrial land use. While IG1, IG2, IC, and IB zoning all have the word “industrial” in their names, non-industrial uses are still permissible if one delves into the nuances of code; lodging, entertainment, retail and office land uses are all allowed in some form of industrial zoning. For instance, the 2013 Duwamish M/IC

Policy and Land Use study observes that IC zoning has mainly produced large, single-use office buildings due to its generous allowances for office and retail uses. It cites the Home Plate development, which is a large office building complex near T-Mobile Park that is built on land zoned IC, as an example of an incompatible land use with industrial land.<sup>95</sup> This is why the report ultimately recommends that no more IC zoning be designated within the Duwamish MIC. In the end, this is what makes pointing to the MIC designation as proof that Seattle is protecting industrial land a troublesome conclusion: as was discovered, the Duwamish MIC is only as strong as the zoning within it.

However, a third observation should be made on that count as well. It was found that 85% of the study area could be considered industrial. That, in fact, matches the percentage that the PSRC Regional Centers Monitoring Report profile gave as the amount of industrial land in 2013.<sup>96</sup> Despite the presence of commercial and office land uses in SODO along 1<sup>st</sup> Ave S and near the stadiums, the majority of it has stayed industrial. It can be surmised that the study and actions undertaken by the City in the 2000s—namely increasing the size limits on non-industrial land uses in industrial zoning—have been effective at keeping SODO industrial. If the City had not taken action, that number may have been lower.

Fourth and finally, the question of whether Seattle is losing industry and industrial land rests on how one defines and perceives those terms. If industrial land includes port terminals and railyards, then SODO is still comfortably industrial by 85% of land area. However, with those two categories removed, less than half of SODO remains industrial. To be sure, there are still land uses in SODO that are blatantly industrial in nature: recycling and processing facilities like

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<sup>95</sup> City of Seattle Department of Planning and Development, “Duwamish M/IC Policy and Land Use Study,” 37; American Life Incorporated, “Home Plate Seattle.”

<sup>96</sup> Puget Sound Regional Council, “2013 Regional Centers Monitoring Report - Center Profiles - Duwamish MIC,” 120.

Republic Services or Nucor Steel, chemical and aggregate operations like Ash Grove Cement or CertainTeed Gypsum, countless dirt parking and storage lots filled with equipment or materials, many auto body and truck repair shops, and factories producing a wide variety of goods, from glass bottles to copper piping, neon signs to silk pies, diesel engines to down feathers. However, there are less blatant and intrusive industrial land uses, such as SODO's many nondescript warehouses, or quasi-commercial operations such as the car dealerships along Airport Way South with repair shops and storage lots on site or the custom designer furniture stores along 1<sup>st</sup> Ave S that sell their product out of the front of the store and manufacture it in the back. These land uses are attracted to SODO its cheaper rents, available spaces, and good transportation connectivity.

Further, the 2013 Duwamish MIC Policy and Land Use study found that while new industrial users and investors are migrating out of congested, older urban areas to greenfield sites with larger parcel sizes and newer one-story buildings, the ability to customize production has led to rising demand for low-rent space to house small, craft businesses that require flexible, industrial-grade spaces but may not have the same impacts or infrastructure needs as traditional industrial uses. There is anecdotal evidence from my fieldwork that these niche industrial uses exist in SODO, and some could argue they make an area just as industrial as a "heavy" use.

As seen by looking at the proliferation of alcohol and cannabis in the neighborhood, it is not hard to see how the process of gentrification can creep through an industrial area like SODO. Business owners like Jim and Sue Lutz, who depend on foot traffic and have concerns about homelessness and crime, welcome this increased attention on their neighborhood, and at least some business owners accept getting priced out as a necessary occurrence and, in fact, a business

opportunity. However, those industrial land uses that remain will face increased pressure, especially in the form of transportation conflicts, as more people complain about truck traffic.

Today's urban industrial land use is different from when William Boeing produced his first aircraft, or when containerization first made Seattle a global shipping gateway. Regardless, the importance of industry to Seattle cannot be overstated, and it remains a dominant part of the City's economy and culture. As Seattle has become associated with new names such as Microsoft and Amazon, one must afford a careful eye to the changing nature of Seattle's origin story, and the land uses on which that story rests.

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## Appendix B: “Manufacturing” definition from Seattle Land Use Code

City of Seattle Land Use Code, Title 23, Subtitle IV, Chapter 23.84A, Section 025 (23.84A.025)

“Manufacturing” means a use in which articles are produced by hand or by machinery, from raw or prepared materials, by giving to those materials new forms, qualities, properties, or combinations, in a process characterized by the repetitive production of items made to the same or similar specifications. Items produced are generally sold directly to other businesses, or are sold at wholesale. The retail sale of items to the general public is incidental to the production of goods. For the purpose of this definition, uses listed as food processing and craft work or high-impact uses are not considered manufacturing uses. Manufacturing uses include the following:

1. “Manufacturing, light” means a manufacturing use, typically having little or no potential of creating noise, smoke, dust, vibration or other environmental impacts or pollution, and including but not limited to the following:
  - a. Production, assembly, finishing, and/or packaging of articles from parts made at another location, such as assembly of clocks, electrical appliances, or medical equipment.
  - b. Production of finished household and office goods, such as jewelry, clothing or cloth, toys, furniture, or tents, from materials that are already refined, or from raw materials that do not need refining, such as paper, fabric, leather, premilled wood; or wool, clay, cork, semiprecious or precious metals or stones, fiber, or other similar materials;
  - c. Canning or bottling of food or beverages for human consumption using a mechanized assembly line or food processing for animal consumption;
  - d. Printing plants with more than five thousand (5,000) square feet of gross floor area.
2. “Manufacturing, general” means a manufacturing use, typically having the potential of creating moderate noise, smoke, dust, vibration or other environmental impacts or pollution, and including but not limited to the following:
  - a. Production of items made from stone or concrete;
  - b. Production of items from ferrous or nonferrous metals through use of a machine shop, welding or fabrication; or from nonferrous metals through use of a foundry; or from ferrous metals through use of a foundry heated by electricity (induction melting);
  - c. Production of recreational or commercial vessels of less than one hundred twenty (120) feet in length to individual customer specifications;
  - d. Production of finished goods, that typically are not for household or office use, such as barrels, ceramic molds, or cardboard cartons, from materials that are already refined, or from raw materials that do not need refining, such as paper,

- fabric, leather, premilled wood; or wool, clay, cork, semiprecious or precious metals or stones, fiber, or other similar materials;
- e. Production of finished goods, for household or non-household use, such as toys, film, pens, or linoleum from plastic, rubber, or celluloid;
  - f. Production of parts to be assembled into a finished product;
  - g. Development of film on a wholesale basis;
  - h. Production of items through biological processes, such as pharmaceuticals and industrial purifiers, manufactured by bioengineering techniques;
  - i. Production of items such as paint and coatings, dyestuffs, fertilizer, glue, cosmetics, clay, or pharmaceuticals that require the mixing or packaging of chemicals.
3. “Manufacturing, heavy” means a manufacturing use, typically having the potential of creating substantial noise, smoke, dust, vibration and other environmental impacts or pollution, and including but not limited to:
- a. The extraction or mining of raw materials, such as quarrying of sand or gravel;
  - b. Processing or refining of raw materials, such as but not limited to minerals, petroleum, rubber, wood or wood pulp, into other products;
  - c. The milling of grain or refining of sugar, except when accessory to a use defined as food processing for human consumption or as a retail sales and service use;
  - d. Poultry slaughterhouses, including packing and freezing of poultry;
  - e. Refining, extruding, rolling, or drawing of ferrous or nonferrous metals, or the use of a non-induction foundry for ferrous metal;
  - f. Mass production of commercial or recreational vessels of any size and the production of vessels one hundred twenty (120) feet in length constructed to individual specifications;
  - g. Production of large durable goods such as motorcycles, cars, manufactured homes, airplanes, or heavy farm, industrial, or construction machinery;
  - h. Manufacturing of electrical components, such as semiconductors and circuit boards, using chemical processes such as etching or metal coating;
  - i. Production of industrial organic and inorganic chemicals, and soaps and detergents; and
  - j. Conversion of solid waste into useful products or preparation of solid waste for disposal at another location by processing to change its physical form or chemical composition. This includes the off-site treatment or storage of hazardous waste as regulated by the State Department of Ecology. The on-site treatment and storage of hazardous waste is considered an incidental or accessory use.