



# I. Appendix A: Acknowledgements

This economic growth plan arose from a highly collaborative process with hundreds of individuals and organizations across the Portland region, as well as national experts from across the country. These individuals and organizations participated in the creation of this plan through interviews and meetings, engaging in brainstorming, analysis, strategy discussion and identification of promising strategies.

Thank you to our client, Prosper Portland – not only for their strategic guidance and leadership, but also for facilitating many of the connections to local stakeholders for interviews and focus groups. Thank you to the Bureau of Planning and Sustainability, who was deeply engaged throughout the project. Thank you as well to Mayor Wheeler and the various City agencies that have contributed so much to this work.

In addition, a special thank you to the Steering Committee and Leadership Roundtable – both of whom provided key insights and direction as the market analysis progressed. Many thanks, as well, to the many advisors and organizations interviewed; these one-on-one conversations were incredibly helpful in providing more specificity around the initial trends, opportunities and challenges surfaced in the data analysis and research. Together, these individuals and organizations guided the plan be responsive to the unique opportunities, and grounded in the unique assets, in the Portland region. The team is grateful to all of these organizations and individuals.

## Steering Committee

- **Mayor Ted Wheeler**, *City of Portland*
- **Tavo Cruz**, *Prosper Portland Board*
- **James Paulson**, *Worksystems Board*
- **Adam Zimmerman**, *Craft3*
- **Alando Simpson**, *PBA Board + COR*
- **Ali Saalabian**, *Silver Eagle*
- **Andrew Speer**, *MHCC Commissioner + PGE*
- **Angela Jackson**, *Portland State University*
- **Bridgid Blackburn**, *BBPDX, CEIC Boards + Cargo*
- **Carlo Quinonez**, *HMCC Board + Nike*
- **Dan Mehls**, *GPI Board + Mortenson*
- **Desirée Williams-Rajee**, *Verde Board + Kapwa Consulting*
- **Eddie Sherman**, *ONAC, NAYA Boards + Against the Current*
- **Edward Feser**, *Oregon State University*
- **Eric Cress**, *CEIC Board + Urban Development Partners*
- **Grace Hendrix**, *APANO*
- **Jill Sherman**, *Edlen & Co.*
- **Katherine Lam**, *Port Commissioner + Bambuza Hospitality*
- **Kurt Huffman**, *Travel Portland Board + ChefStable*
- **Maggie Long**, *SEIU 49*
- **Stephanie Copeland-Weber**, *TAO Board + Ruby*
- **Nidal Kahl**, *Venture Portland, GABA Boards + Biogen Lab*
- **Nolan Leinhart**, *Albina Vision Trust Board + ZGF*
- **Peter Andrews**, *Jobs Action Table + Melvin Mark*
- **Sabrina Wilson**, *Rosewood Initiative*
- **Su Embree**, *OCF Trustee + ELI & SINE*

## Leadership Roundtable

- **Andrew Hoan**, Portland Business Alliance
- **Andrew McGough**, Worksystems, Inc.
- **Annette Mattson**, Mt Hood Community College
- **Ashley Henry / Karin Power / Stephen Green**, Business for a Better Portland
- **Carmen Castro**, Hispanic Metropolitan Chamber of Commerce
- **Clare Briglio**, Central Eastside Industrial District
- **Cobi Lewis**, Micro Enterprise Services of Oregon
- **James Alan Parker**, Oregon Native American Chamber
- **Jan Mason**, Philippine American Chamber of Commerce
- **Jeff Miller**, Travel Portland
- **Jeff Raker / Malu Wilkinson**, Metro
- **Jesse Hyatt**, Black American Chamber of Commerce
- **Joe McFerrin II**, POIC
- **Jorge Guerra**, Oregon Association of Minority Entrepreneurs
- **Joy Church**, Venture Portland
- **Kenechi Onyeagusi / Matt Hennessey**, Professional Business Development Group
- **Lance Randall**, Black Business Association – Oregon
- **Mitch Daugherty**, Built Oregon
- **Monique Claiborne**, Greater Portland, Inc.
- **Nate McCoy**, National Association of Minority Contractors Oregon
- **Oscar Arana**, Native American Youth & Family Services
- **Raihana Ansary**, Portland Office of Management & Finance
- **Rob Schneider**, The Lemelson Foundation
- **Skip Newberry**, Technology Association of Oregon
- **Tamara Kennedy-Hill**, Port of Portland
- **Willy Myers**, Columbia Pacific Building Trades Council
- **Mayor Ted Wheeler**, *City of Portland*
- **Biko Taylor**, City of Portland, Chief Procurement Officer
- **Donnie Oliveira**, Portland Bureau of Planning & Sustainability
- **Kimberly Branam**, Prosper Portland
- **Rebecca Esau**, Portland Bureau of Development Services
- **Shannon Callahan**, Portland Housing Bureau

## Individuals and Organizations Interviewed

The team interviewed hundreds of individuals and organizations across the city, region, and state throughout the 9-month project. These individuals, who were assured confidentiality, ranged from advanced manufacturing CEOs to entrepreneurs to community development organizations. The work would not have been possible without their insights and guidance, which informed the entire scope of analysis and strategies detailed in the report: We are deeply indebted to them for their time and insights.



## Project Team

The work overall was led by RW Ventures, LLC, which assembled a project team of leading national consultants. Working in close collaboration with the city over the course of 9 months, this team gathered and organized a breadth of research and data, led interviews, and undertook analysis and strategy development. The team also worked closely with Climate and Equity Advisors as well as Communications Advisors, who conducted several focus groups and interviews to dive more deeply into themes that arose throughout the project process, as well as conduct extensive research on climate action and its implications for economic development. It has been an extremely productive partnership.

## RW Ventures, LLC - Staff

- Ashley Bakelmun
- Karen Cuenca
- Charu Gupta
- Matt Schuneman
- Kyle Terry
- Robert Weissbourd

## RW Ventures, LLC - Consultants

- Genevieve Coady – Independent Contractor
- DJ Fiore – Independent Contractor
- Robin Gaster – Incumetrics
- Thom Goff – Mass Economics
- Tracey Harting – Mass Economics
- Shelly Herman – Independent Contractor
- Gretchen Kleinert – Independent Contractor
- Paul Levy – Center City District, serving as Independent Contractor
- Teresa Lynch – Mass Economics
- Rodrick Miller – Ascendant Global Consulting
- Dave Shryock – Independent Contractor

## Climate and Equity Advisors

- Jade Aguilar – ECONorthwest
- Jolie Brownell – ECONorthwest
- Andrew Dyke - ECONorthwest
- Cecilia V. Estolano – Estolano Advisors
- Nan Ni – Estolano Advisors
- Tulsi Patel – Estolano Advisors
- Melissa Rowe – ECONorthwest
- Aleka Seville – Collective Strategies Consulting
- Charlotte Will – Estolano Advisors

## Communications Advisors

- Camille Trummer - Camille E. Trummer Consulting
- Saerom Yoo – Saerom Yoo Consulting

## II. Appendix B: Stakeholder Engagement

### Engagement Summary for the City of Portland’s Inclusive Economic Development Strategy

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#### BACKGROUND + CONTEXT

In March 2022, The City of Portland launched a process to support the development of an Inclusive Economic Development Strategy (IEDS) that will establish a roadmap for widespread economic growth and prosperity. Facilitated by the City of Portland’s economic development agency, Prosper Portland, the Bureau of Planning and Sustainability, and a team of consultants, the strategy presents an ambitious and visionary economic growth plan for Portland rooted in racial equity and climate action and informed by community voice and an analysis of the region’s current assets, challenges, and opportunities.

The IEDS addresses key opportunities for people, businesses, and places — such as individual economic mobility, shared household and neighborhood prosperity, business growth, and urban competitiveness — with a central focus on aligning core principles for economic growth with advancing equity and climate resiliency to provide a healthy, vibrant, prosperous place for all Portlanders.

Community and advocate engagement — particularly with populations who have traditionally been marginalized from civic participation in the Portland region — has been central to the development of the IEDS. Engagement opportunities have been designed to incorporate community and advocate insights and feedback throughout the development of the Strategy to ensure substantive drafts highlight key challenges, barriers, and opportunities for communities historically most impacted by economic development decisions.

The latest draft of the IEDS identifies an array of complementary objectives, strategies, and investments necessary to achieve inclusive, sustainable economic growth goals in the near-term (three to five years). Key objectives include propelling inclusive economic growth & innovation, promoting equitable wealth creation, fostering vibrant commercial districts, and connecting Portlanders to high-quality jobs in future-ready sectors. However, as an economic growth plan, it does *not* directly address many of the intersectional challenges that Portland and similar-sized cities are facing today — such as increasing racial and socioeconomic disparities, widespread unaffordability, public safety concerns, lack of investment in the K-12 education system, and growing behavioral health and homelessness challenges. Rather, the IEDS outlines a set of strategies intended to ensure Portland achieves and maximizes the fundamentals of economics—we must have the essentials in place in order to create opportunities for businesses to expand and create jobs for people—generating more income and wealth to support homeownership and entrepreneurship, demands for goods, services, and amenities, stronger connections within and across communities, and overall higher quality of life for all Portlanders.

Portland's economic trajectory stems from and is challenged by a history of race-based inclusivity and marginalization. Originating as a “white utopia” Portland and Oregon passed laws to intentionally discriminate against Native, Indigenous, and Black populations creating widespread, intersectional, and deepening disparities that our communities still experience today. Against that backdrop, the City of Portland has committed to becoming an anti-racist organization that prioritizes civic participation and engagement with communities that have been historically under-served by Portland's economic development outcomes. The development of the IEDS has been a key opportunity for centering and engaging historically marginalized communities—and ensuring substantive drafts of the Strategy reflect their insights, is responsive to the barriers and challenges they face, and ensures long-term outcomes produce longstanding benefits for their households and future generations.

## APPROACH TO COMMUNITY AND SUBJECT-MATTER EXPERT ENGAGEMENT

Due to the historical negative impacts of economic development on disadvantaged communities, the City of Portland is committed to encouraging and increasing civic participation from historically marginalized and underrepresented populations. The perspectives and input from historically disadvantaged populations helps the City of Portland and its partners consider historical context, potential impacts, challenges, barriers, and opportunities across various scopes of work. More specifically, Prosper Portland and the Bureau of Planning and Sustainability rely on collaboration with community partners and subject matter experts in both public and private sectors to inform and advise on strategies to achieve the agency's goals in alignment with their equity and inclusion policies.

At the outset of the IEDS project, Prosper Portland acknowledged the challenges and barriers to civic engagement and recognized that meaningful input requires time, commitment, resources, and access to information. Therefore, community and subject-matter expert engagement to support the development of the IEDS has been designed to reduce barriers, encourage and incentivize strategic partnerships with local community-based organizations and coalitions using community engagement core principles developed by Camille E. Trummer Consulting:

- Acknowledge the institutional, systemic, and structural barriers that perpetuate inequality that have silenced communities over time
- Honor, respect, and center community expertise and resilience to own and co-create solutions that meet their needs
- Build trust, credibility and authentic long-term relationships
- Facilitate meaningful engagement, shared leadership, swift community support and capacity building, and co-creation of solutions using social justice and antiracist frameworks and best practices
- Compensate individuals and groups in reciprocity for their engagement and to increase their capacity to support initiatives aligned with their mission and values

As a result, the IEDS project prioritized engagement with and has solicited feedback from historically disadvantaged populations and those who have experienced barriers to participating in city livability projects and policymaking initiative.

Prioritized populations include but have not been limited to:

- Black, Indigenous, and People of Color (BIPOC) communities
- BIPOC young professionals (18-35 years old)
- LGBTQAI+ young professionals (18-35 years old)
- Black founders, executives, entrepreneurs, and community and faith leaders
- East Portlanders
- Differently-abled individuals; individuals with disabilities
- Low-income individuals

## FROM APPROACH TO PRAXIS

In addition to engaging prioritized populations, the IEDS project has collaborated with a broad spectrum of subject matter experts (SMEs) in both public and private sectors to inform and advise on the development of the Strategy—including its core principles, vision, values, and an evaluation framework for implementation. Over the course of the project, SMEs have been engaged through the following venues:

### IEDS Steering Committee

#### DEFINITION

Assembled by Portland Mayor Ted Wheeler, the Steering Committee is the primary advisory body for the Inclusive Economic Development Strategy. Comprised of diverse subject-matter experts, advocates, and business leaders from public, private, and nonprofit sectors, committee members have provided input and strategic guidance to inform the vision, goals, objectives, and key strategies included in the IEDS.

### IEDS Leadership Roundtable

Assembled by Portland Mayor Ted Wheeler, the Leadership Roundtable is a complementary advisory body for the Inclusive Economic Development Strategy. Comprised of diverse community leaders and subject-matter experts from public, private, and nonprofit sectors, roundtable members have provided technical input to support the development of key strategies included in the IEDS.



## SME Interviews

Subject-matter Expert interviews have been designed to support conversations with subject-matter experts and advocates with a vested interest in the development of the IEDS. The goal of each interview has been to gather insights on equitable growth and climate resiliency to inform and shape key strategies and tactics to include in the Strategy.

## Caucused/Affinity Focus Groups

Caucused and affinity focus groups have been designed to assemble and engage community members who share demographics and affinity-based organizations. The goal of each focus group has been to gain insight into participants' unique and nuanced lived experiences and perspectives on equitable growth and climate resiliency to inform and shape key strategies and tactics to include in the Strategy.

IEDS Engagement Venues	Completed Sessions
Steering Committee*	6
Leadership Roundtable*	3
Subject Matter Expert Interviews	111
Caucused/Affinity Focus Groups	9

Over the course of the project, nearly 300 individuals and affinity groups have provided strategic insights and input to inform the development of the IEDS, in addition to place-based engagement completed through the Central City & Corridors project.

To encourage and incentivize engagement—and to ensure *new* community and SMEs voices are considered throughout the development of the IEDS, Prosper Portland developed an honoraria program to compensate individuals and groups in reciprocity for sharing their time and insights, and to increase their capacity to support initiatives aligned with their mission and values.

The IEDS project was allocated an honoraria budget of \$10,000. Honoraria has been offered at the following market rates for civic participation:

- \$75.00 per individual for 1 engagement activity; individuals have had the option to participate in multiple engagement activities such as committee meetings, SME interviews, and affinity focus groups
- \$150.00 - \$500.00 per organization for strategic partnerships to support community and subject-matter expert outreach and recruitment for engagement activities

The following individuals are eligible for honoraria:

- Steering Committee members
- Leadership Roundtable members
- Portland community members
- Portland private-sector subject-matter experts

The following individuals are not eligible for honoraria:

- Government employees including City of Portland and Prosper Portland employees
- City of Portland elected officials
- Registered lobbyists

In some instances, individuals have fit into both groups, in which honoraria eligibility has been evaluated based on their participation in specific engagement activities.

Additionally, honoraria are not applicable for engagement activities that are open to the general public. Examples include Prosper Portland Board meetings, City Council meetings, public meetings, and open houses.

To date, \$8,000.00 honoraria dollars have been utilized to compensate community members, subject-matter experts, advocates, and affinity groups for sharing their insights to support the development of the IEDS.

## KEY THEMES FROM ENGAGEMENT

As a result of community and subject-matter expert engagement—through committee meetings, subject-matter expert interviews, and focus groups—the consultant team surfaced several key themes to help inform the development of the IEDS. The following themes offer a small snapshot of the insights, perceptions, and attitudes community members, advocates, and subject-matter experts have about Portland and its future. Common and overlapping themes from engagement supplemented the market analysis and have shaped the objectives and strategies included in the IEDS.

### **Portland’s next growth plan must include stabilization strategies to protect our most vulnerable populations—and reduce the likelihood of widespread displacement.**

Above all else, community and subject-matter expert voices expressed their deep concerns with advancing a growth plan that does not take into account the need to stabilize current residents—particularly vulnerable populations at high risk of geographic and workforce displacement. Community members urged for ‘stabilization strategies’ to be included in the plan to ensure communities at risk of displacement are prioritized during IEDS implementation.

## **For recent young transplants, Portland outshines its peers and several major U.S cities.**

Portland's location, spatial efficiency, amenities, cutting-edge business sector, access to outdoor recreation, and commitment to mitigating climate change makes it an attractive place for young professionals. In focus groups, young professionals expressed enjoying an easier and more relaxed lifestyle compared to similar-sized cities in the Midwest and east coast of the United States.

**Investments are needed to strengthen and scale support for Portland's small business ecosystem.** As Portland's entrepreneurial community continues to diversify and grow, focused investments in business resource navigation are needed to scale tailored support for small businesses on the brink of growth. Long-term investments could generate more programs focused on easy to access and culturally agile technical assistance. Most importantly, investments that facilitate access to capital are needed to support small businesses in advancing economic opportunity strategies focused on generating living wage jobs for the region.

Portland's innovation is being overshadowed by a deepening livability and public safety crisis. Known for its high quality of life and thought-leadership in climate change mitigation and resiliency, Portland's widespread unaffordability, public safety concerns, and growing homelessness crisis continues to overshadow its research and innovation efforts—correlating to widespread urban exodus.

Portland's corporate sector key players should be engaged and invest in economic growth strategies. Workforce, research and development, and cluster-based initiatives facilitate an opportunity to engage homegrown companies in leading on enterprises that will advance IEDS goals and objectives.

Anti-growth narratives may deter or delay strategies designed to support economic opportunity and upward mobility for low-income and marginalized communities. Anti-growth sentiments continue to shape and influence conversations about intentional growth across industries. Thought-leadership from subject-matter experts and advocates is needed to reframe anti-growth narratives into smart-growth policy concepts.

## **CONCLUSION**

As a thought-leader and “first mover” in innovation that has led to some of the nation's most progressive, community-informed policies on transportation, climate mitigation and resiliency, and social services, Portland has a time-sensitive opportunity to bring together communities, government, and business leaders to co-create a blueprint for becoming a future-ready city. Utilizing civic participatory models as demonstrated through the IEDS will ensure inclusion, equity, climate resiliency, and community needs remain at the center of strategies and implementation designed to advance sustainable and equitable growth.

As the City of Portland proceeds with an equitable process for articulating a shared vision for the future of Portland, the IEDS will continue to be a key vehicle for incorporating community, advocate, and subject-matter expert insights and strategic direction. Additional opportunities to engage community partners will be considered as the IEDS reaches its final stage of development and an implementation framework is established.

### III. Appendix C: Additional Data

For various sections of the report, additional data and figures have been compiled that, while not as essential to the storyline, provide useful further insights into Portland’s assets, opportunities, and challenges. These additions are presented below, by market lever.

#### Innovation & Entrepreneurship

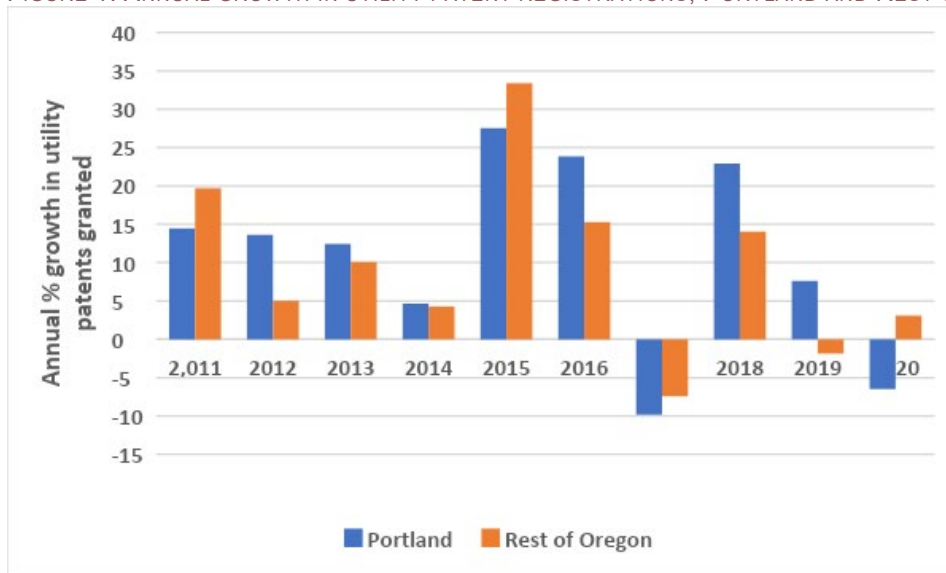
#### Firm Startup and Growth Data

TABLE 1: PATENTS BY OREGON CITY, 2011-2022 (OCT)

City	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Portland	1,984	2,271	2,580	2,901	3,036	3,872	4,796	4,325	5,317	5,722	5,351	2,645	44,800
Beaverton	367	463	475	500	596	734	884	774	857	840	842	423	7,755
Hillsboro	268	313	358	349	430	652	778	713	885	926	1,014	469	7,155
Lake Oswego	87	111	147	129	109	131	148	127	146	149	145	52	1,481
Tigard	73	86	68	83	65	97	115	88	112	86	80	39	992
West Linn	48	63	40	70	47	68	78	108	72	73	65	28	760
Sherwood	38	43	39	48	30	54	66	43	55	45	50	15	526
Tualatin	27	25	25	35	51	51	47	38	40	44	36	6	425
North Plains	10	20	16	25	26	29	27	23	38	45	50	18	327
Forest Grove	8	16	14	10	23	33	18	34	35	36	34	11	272
Newberg	10	26	18	33	17	22	20	34	22	17	23	8	250
Corvallis	2	5	25	40	25	26	33	27	23	22	16	4	248
Wilsonville	19	12	21	17	19	12	17	17	25	14	14	13	200
Milwaukie	10	12	8	4	13	8	13	8	18	13	19	7	133
Happy Valley		1		8	2	15	13	22	19	21	22	8	131
Bend	5	5	3	3	4	25	10	17	18	20	13	5	128
Oregon City	9	13	6	7	6	9	11	9	17	13	15	6	121
Banks	5	8	7	13	10	6	11	12	10	8	6	7	103
Oregon (all)	3,064	3,564	3,938	4,396	4,595	5,952	7,194	6,545	7,849	8,207	7,913	3,809	67,026

Source: USPTO

FIGURE 1: ANNUAL GROWTH IN UTILITY PATENT REGISTRATIONS, PORTLAND AND REST OF OREGON, 2011-2021



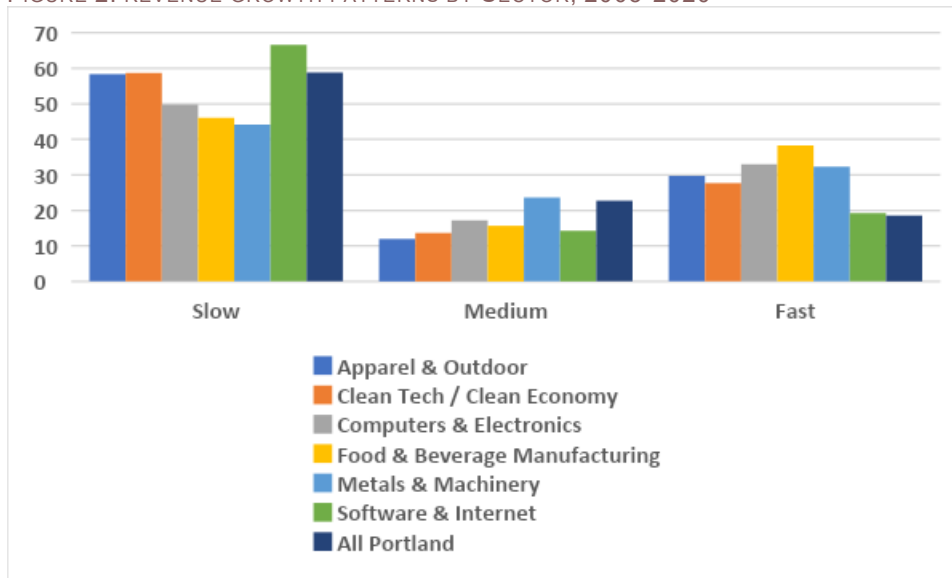
Source: USPTO

TABLE 2: EXPANDED LIST OF TOP PATENTING COMPANIES IN PORTLAND, 2011-2021

Assignee organization	Utility patents
Oregon Health & Science University	548
Electro Scientific Industries, Inc.	520
Lattice Semiconductor Corporation	296
Columbia Sportswear	215
ESCO Corporation	214
Tyfone, Inc.	178
Portland State University	174
Leatherman Tool Group, Inc.	167
Blount, Inc.	157
Sorel Corporation	126
Tripwire, Inc.	94
Pixelworks, Inc.	90
NASA	85
Pacific Light Technologies Corp.	83
LaCrosse Footwear, Inc.	83
Riverpoint Medical, LLC	78
Coast Cutlery Co.	78
Veris Industries, LLC	61
AgriNomics LLC	55
Daimler Trucks North America LLC	48
Total (all)	7,166

Source: USPTO

FIGURE 2: REVENUE GROWTH PATTERNS BY SECTOR, 2005-2020



Source: NETS<sup>1</sup>. Definitions: Slow growth is an average annual revenue growth of less than 2.5% annually; medium growth is 2.5% - 5% annually; fast growth is >5% annually.

1 The National Establishment Time Series is a data product based on Dunn & Bradstreet research on public and private companies. While it is not as accurate as census data, it does not suffer from the privacy limitations of Census data, and evaluations have found that it is appropriate for the analysis utilized here. See Barnatchez, Keith & Crane,



TABLE 3: STARTUPS IN PORTLAND BY SECTOR AND YEAR, 2005-2020

Year founded	Computers & electronics	Food & beverage	Software & Internet	Metals & Machinery	Clean Tech	Apparel & outdoors	Total selected sectors	All Portland	Sector %
2005	21	51	111	42	1,013	185	1,423	9,039	15.7
2006	18	37	63	33	608	98	857	5,592	15.3
2007	15	61	78	38	1,093	252	1,537	8,052	19.1
2008	19	104	99	46	1,289	410	1,967	11,397	17.3
2009	14	111	145	42	1,343	358	2,013	10,521	19.1
2010	29	291	242	88	3,149	999	4,798	28,936	16.6
2011	29	154	139	50	1,366	419	2,157	12,436	17.3
2012	14	104	121	32	944	361	1,576	7,476	21.1
2013	9	57	152	22	707	203	1,150	5,883	19.5
2014	7	52	141	19	643	199	1,061	5,179	20.5
2015	20	75	193	29	884	190	1,391	10,381	13.4
2016	21	68	187	40	1,249	306	1,871	11,172	16.7
2017	24	69	180	34	1,182	301	1,790	13,582	13.2
2018	16	78	128	33	1,247	384	1,886	17,960	10.5
2019	16	62	99	29	1,157	363	1,726	17,730	9.7
2020	9	32	69	12	777	235	1,134	14,774	7.7
<b>Total</b>	<b>281</b>	<b>1,406</b>	<b>2,147</b>	<b>589</b>	<b>18,651</b>	<b>5,263</b>	<b>28,337</b>	<b>190,110</b>	<b>14.9</b>

Source: NETS

TABLE 4: STARTUP PERSISTENCE, BY SECTOR, 2005-2020

Year Founded	Clean tech	Apparel & Outdoors	Software & Internet	Food & Beverage	Metals & Machinery	Computers & electronics	Total selected sectors	All Portland
2005	28.3	32.4	27.9	37.3	35.7	19.0	29.2	24.5
2006	30.9	31.6	36.5	24.3	42.4	22.2	31.4	26.2
2007	30.6	30.6	48.7	34.4	31.6	26.7	31.7	28.6
2008	36.4	33.2	50.5	41.3	30.4	21.1	36.4	27.5
2009	44.8	45.8	53.1	44.1	45.2	50.0	45.6	40.3
2010	36.1	37.3	46.7	29.9	39.8	58.6	36.7	33.3
2011	46.6	46.3	56.8	39.6	44.0	62.1	46.9	42.5
2012	60.4	64.0	57.0	51.9	68.8	57.1	60.5	56.4
2013	68.2	69.5	63.8	63.2	63.6	77.8	67.6	64.9
2014	70.6	70.4	69.5	84.6	68.4	85.7	71.2	73.4
2015	75.5	80.0	71.5	84.0	82.8	80.0	76.2	66.0
2016	80.6	80.4	81.3	80.9	85.0	76.2	80.7	82.0
2017	82.4	80.4	86.7	85.5	76.5	87.5	82.6	80.9
2018	93.7	94.5	93.8	91.0	90.9	87.5	93.7	88.5
2019	97.1	98.1	97.0	98.4	96.6	93.8	97.3	99.1
2020	100.0	100.0	100.0	100.0	100.0	100.0	100.0	102.0
<b>All years</b>	<b>58.3</b>	<b>59.7</b>	<b>65.5</b>	<b>54.3</b>	<b>56.7</b>	<b>60.5</b>	<b>58.9</b>	<b>60.8</b>

Source: NETS

TABLE 5: FIRM MOBILITY BETWEEN PORTLAND AND WASHINGTON STATE, 2005-2021

City	From Portland	To Portland	Net
VANCOUVER, WA	902	320	-582
SEATTLE, WA	110	152	42
CAMAS, WA	59	25	-34
WASHOUGAL, WA	44	6	-38
BATTLE GROUND, WA	34	7	-27
RIDGEFIELD, WA	29	6	-23
SPOKANE, WA	26	15	-11
BELLEVUE, WA	21	23	2
KENT, WA	19	6	-13
OLYMPIA, WA	16	10	-6
TACOMA, WA	14	16	2
BELLINGHAM, WA	13	9	-4
WOODLAND, WA	13	7	-6
LA CENTER, WA	13	1	-12
LONGVIEW, WA	11	12	1
BRUSH PRAIRIE, WA	10	5	-5
AUBURN, WA	10	4	-6
Total (all)	1605	832	-773

Source: NETS

## University innovation support

The innovation support systems in place at PSU and OHSU could provide additional insights and examples for how the region might improve connections within its innovation ecosystem. Additional details on each university are provided below.

### PSU innovation support

PSU's commercialization support activities are organized around Propel PSU, which operates within the Department of Research and Graduate Studies. Propel offers three core activities:<sup>2</sup>

- The PSU Office of Innovation & Intellectual Property (IP) is responsible for managing PSU IP, and in 2021 reported 106 active licenses and 86 patents – and, 222 invention disclosures and 11 startup companies since early 2000s.<sup>3</sup>
- The PSU Center for Entrepreneurship, which was created in 2012 to work with any of the PSU Schools and Colleges to provide students and faculty with a path to explore the Oregon startup ecosystem.<sup>4</sup>
- The Portland State Business Accelerator (PSBA).<sup>5</sup> Residents lease office space at the accelerator, while co-workers rent desk space. In both cases applications are approved based on a range of criteria, and residents are eligible for a range of services and networking opportunities. The PSBA claims some successes:<sup>6</sup> 140 startups have been served since 2007 (of which 70% are still active, and including 14 PSU spinouts), which secured \$180M in capital and generated \$75M in revenues along with 2,000 jobs. PSBA does not appear to have any inside track to

<sup>2</sup> <https://www.pdx.edu/research/propel-psu>

<sup>3</sup> Estimated since 2003; Portland State University's Office of Innovation & Intellectual Property.

<sup>4</sup> <https://jobs.partnersindiversity.org/company/portland-state-university-center-for-entrepreneurship-2130>

<sup>5</sup> See <https://www.pdx.edu/accelerator/what-we-offer>

<sup>6</sup> See <https://www.pdx.edu/accelerator/>

funding for its companies, and while \$180M in investment is helpful, it is a small percentage of the total \$8.2 billion that companies in the city have raised. So while useful, PSBA is not yet operating at a scale that can support transformative change in Portland.

PSU has two other science and technology centers that in part serve local companies:

- PSU's Digital City Testbed Center focuses on using technologies to make cities smarter, healthier, and more sustainable<sup>7</sup> – and is largely focused on research.<sup>8</sup>
- The PSU Center for Electron Microscopy and Nanofabrication (CEMN) is a central component in the Oregon Nanoscience and Microtechnology Institute, a collaboration between Oregon's research universities, the Pacific Northwest National Laboratories, and industry partners. Since its inception, CEMN has collaborated with over 60 companies.<sup>9</sup>

## OHSU innovation support<sup>10</sup>

OHSU operates an extensive and well-designed innovation support operation, managed by OHSU Innovates, with five core functions:

- Supporting startups, moving technologies through the early stages of development. Some appear on the road to success: Vico Therapies raised a \$31M A series round for developing RNA modulating therapies for rare neurological disorders, including spinocerebellar ataxia, Huntington's disease and Rett syndrome; Aronoma has received several SBIR awards, and its blood-thinning drug reported positive topline data for a Phase II clinical trial; and Vir Bio is collaborating with GkaxoSmithKline on a Phase I clinical trial for a vaccine vector platform.
- Securing and managing major partnerships. Aside from OHSU research undertaken for individual company projects, OHSU has built important wider partnerships: with GE Healthcare, focused on cardiovascular research, imaging, and big data; with AstroZeneca, where the Knight Cancer Center is one of three institutions worldwide in AstroZeneca's Partner of Choice program; and with BridgeBio to work on genetic conditions and diseases.
- Training and educating potential entrepreneurs. The OHSU Clinical and Translational Research Institute (OCTRI) manages the BIP Commercialization Readiness Course<sup>1</sup> ("BIP Corp"), using I-Corps@NCATS curriculum, a nationally vetted and evidence-based framework for commercializing academic life science technologies, which also connects to a network of 22 Clinical and Translational Science Award (CTSA) hubs<sup>11</sup> supporting translation and entrepreneurship activities.<sup>12</sup> The program reaches outside OHSU, which accounted for 57% of participants in 2021. Others come from PSU, Oregon State University, University of Oregon, Providence, and the Oregon Bioscience Incubator.
- Helping with funding. The Biomedical Innovation Program (BIP) is a partnership between the (OCTRI), OHSU Technology Transfer, and OHSU Collaborations and Entrepreneurship. It has made 54 awards totaling \$2.4 million for drug discovery and for devices and diagnostics.
- Technology transfer and licensing. Deals in the last two years have been recognized as outstanding by the Licensing Executives Society.

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<sup>7</sup> See <https://www.pdx.edu/digital-city/>

<sup>8</sup> e.g., the Smart Trees Collaboratory, a group of researchers working to measure and monitor the health of urban trees in Portland and identify their impacts on human health and wellbeing and social equity: <https://www.pdx.edu/digital-city/smart-trees-collaboratory>

<sup>9</sup> <https://www.pdx.edu/research/news/center-electron-microscopy-and-nanofabrication>

<sup>10</sup> For more detail, see: 2021 OHSU Innovates Impact Report

<sup>11</sup> <https://ncats.nih.gov/ctsa>

<sup>12</sup> <https://www.ohsu.edu/octri>

## Business Oregon innovation support

The following programs are operating under Business Oregon, the state's economic development agency.

- Signature Research Centers (SRCs) focused on emerging industry sectors where Oregon has innate advantages and are potential high-growth sectors in the future: Oregon Nanoscience & Microtechnologies Institute (ONAMI), Oregon Translational Research & Development Institute (OTRADI), and VertueLab (a full-service support center for cleantech startups located in Portland).<sup>13</sup>
- High Impact Opportunity Projects (HIOP) that support growth by removing barriers, supporting product development/testing, or expediting technology commercialization. OregonInC has identified the following industry sectors as priorities for HIOPs, many of which overlap with key sectors in Portland:<sup>14</sup>
  - Active Lifestyle (e.g., digital health, apparel and outdoor gear, and wearable technology)
  - Advanced Manufacturing (e.g., metals/advanced materials, chemicals/processes, and bioscience)
  - Natural Resources (e.g., agricultural technology, wood products, and food and beverage)
  - High Tech (e.g., smart technology, clean technology, and data/analytics)
- The SBIR Support Program helps small businesses access federal non-dilutive, but very competitive, funding. The program offers application support grants and matching grants for SBIR awardees. This includes Phase 0 applications funding and technical support from Vertue Labs.<sup>15</sup>
- University Innovation Research Fund (UIRF) helps Oregon's public universities compete for federal research funds by providing required local matching funds.<sup>16</sup>
- Commercialization Gap Fund provides investments in (pre-commercialization) companies to help commercialize their innovations in SRC or HIOP sectors.<sup>17</sup>
- Regional Innovation Hubs are partnerships that deliver programs, strategies, and connections to innovation-based entrepreneurs. PSU received a planning grant for one of the hubs, initially focused on assembling a comprehensive inventory of organizations, resources, and programming that exist for innovation-based entrepreneurs in the three-county region, conducting outreach and engagement with ecosystem partners, and surveying innovation-based entrepreneurs to identify service and resource gaps in the Metro region.<sup>18</sup>
- Centers of Innovation Excellence (CIE) support the growth and development of HIOP industries by catalyzing the commercialization and deployment of new products. The proposed relationship between the Centers of Excellence and the new Regional Innovation Hubs is summarized in Figure 4.

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<sup>13</sup> <https://www.oregon.gov/biz/programs/SignatureResearchCenters/Pages/default.aspx>. VertueLab is unusual among Oregon business support organizations in providing a detailed impact report and success stories. See <https://vertuelab.org/impact>

<sup>14</sup> <https://www.oregon.gov/biz/programs/HiOp/Pages/default.aspx>

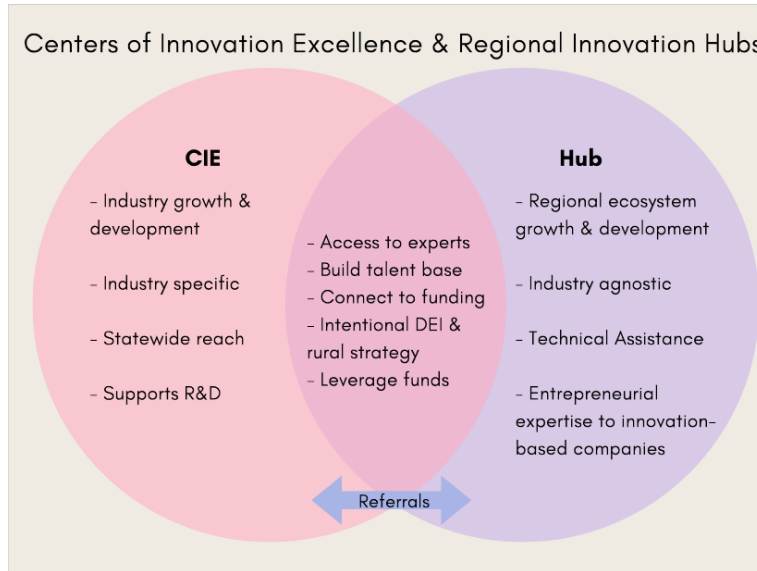
<sup>15</sup> <https://www.oregon.gov/biz/programs/SBIR-STTR/Pages/default.aspx>

<sup>16</sup> <https://www.oregon.gov/biz/programs/UIRF/Pages/default.aspx>

<sup>17</sup> <https://www.oregon.gov/biz/programs/CGF/Pages/default.aspx>

<sup>18</sup> [https://www.oregon.gov/biz/programs/Regional\\_Innovation\\_Hubs/Pages/default.aspx](https://www.oregon.gov/biz/programs/Regional_Innovation_Hubs/Pages/default.aspx)

FIGURE 3: RELATIONSHIP OF REGIONAL INNOVATION HUBS AND CENTERS OF INNOVATION EXCELLENCE



Source: *Business Oregon*

- The Innovate Collaborate Oregon (ICOregon) is a statewide network that promotes and supports innovation and entrepreneurship across Oregon, providing industry partners and investors with a centralized resource for licensing and investment opportunities across four major Oregon universities (OHSU, OSU, PSU, UO). It is unclear how well PSU is served by this.<sup>19</sup>

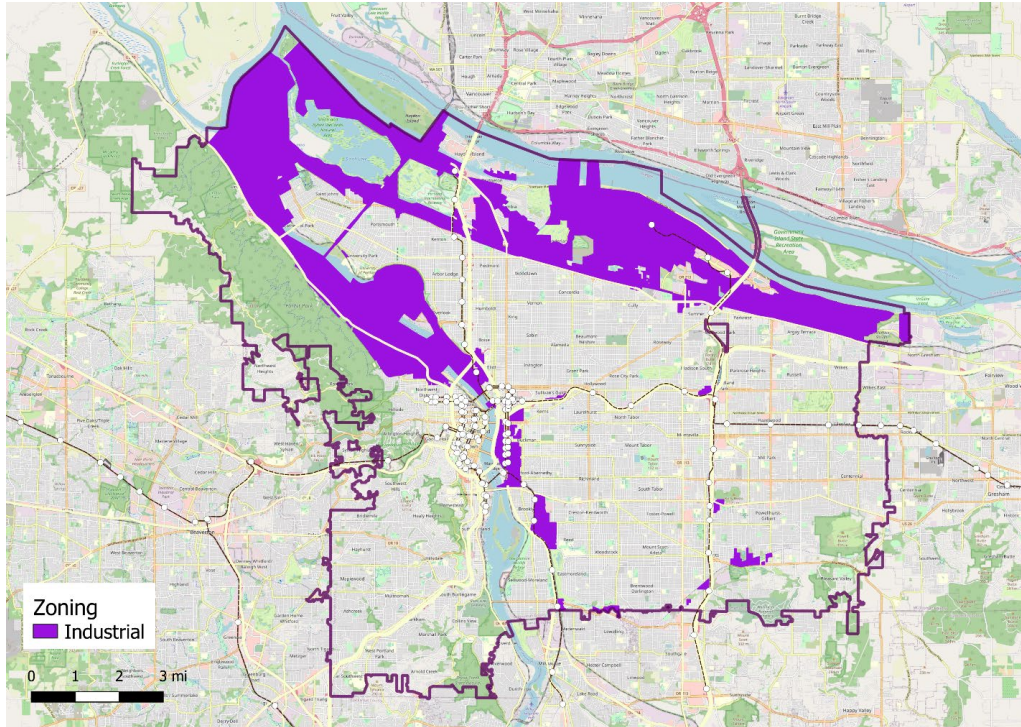
## Spatial Efficiency

Land use in Portland is discussed throughout the report; below, additional land use maps are provided outlining industrial zoning and “other” land uses.

<sup>19</sup> <http://www.icoregon.net/>

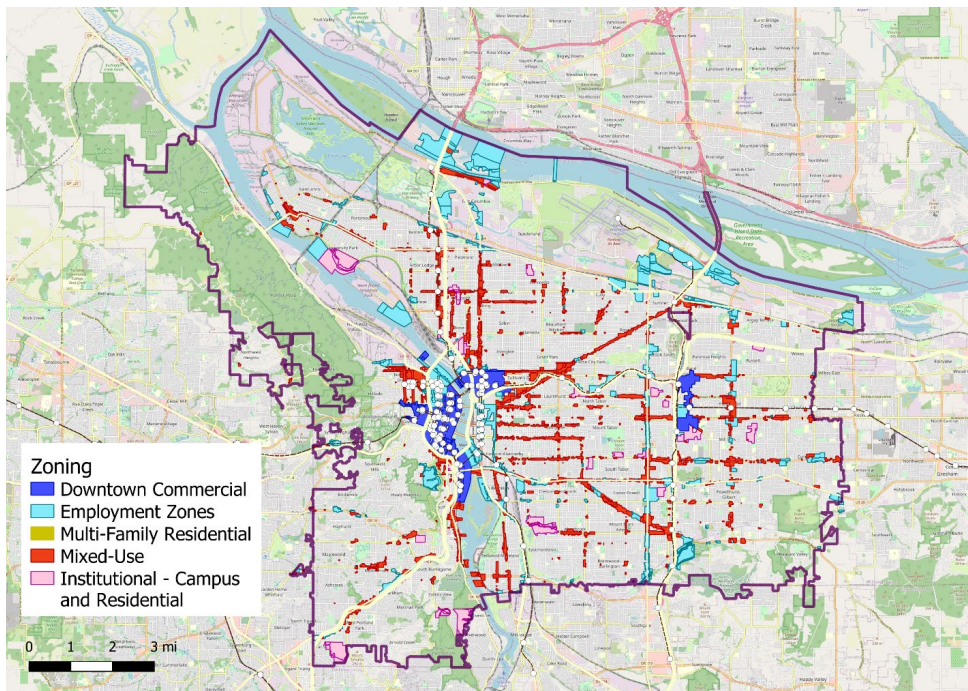


FIGURE 4: INDUSTRIAL ZONING MAP



Source: RW Ventures with data from Oregon Geospatial Data Clearing House and City of Portland's Corporate GIS page

FIGURE 5: COMMERCIAL, MIXED-USE, INSTITUTIONAL & OTHER: ZONING MAP



Source: RW Ventures with data from Oregon Geospatial Data Clearing House and City of Portland's Corporate GIS page

The primary land use in Portland is residential, with the plurality of all land in Portland being low-density zoning. As of June 2022, the City of Portland adopted a suite of ordinances that allows for increased density city-wide, which should create opportunities for workers to live closer to employment centers. These ordinances included: expanded accessory dwelling unit (ADU) ordinance to allow for double ADUs on lots; universal townhome legalization; cottage clusters; back-lot homes (plus-sized ADUs); and family-size 4-plexes (can build up to four 1,000 SF homes on a single standard lot).

Parking minimums and design review (specifically pushing parking underground) for new residential units, even those within walking distance of transit, have raised the cost of building those units by roughly \$50,000/unit vs. not requiring parking at all, costs that are then passed on to renters.

Adding to the inefficiency of Euclidean zoning is an overlay system which has seen little reconsideration of the value these overlays add to the Portland economy. For example, the River Industrial overlay zone requires development be river-dependent or river-related industries despite river-related industrial uses being less common today. This can include some of the few development sites in Portland greater than 5-10 acres – sites that could be ideal for modern manufacturing or logistics uses but sit within this overlay district. Many of these overlay districts were created decades ago and do not reflect technological or societal changes that have occurred since their conception.

Specific zoning and design guidelines do not always adequately consider market feasibility. Making development more consistent from a regulatory standpoint and streamlining the process can help lower costs for residents, businesses, and renters alike, positively impacting equity and opening the possibility to further enhance spatial efficiency.

## IV. APPENDIX D: NAICS

For each of the six clusters assessed in this report, the industry codes that were used for initial data pulls are listed in the charts below (along with their relevant sub-cluster).

### Athletic & Outdoor

INDUSTRY DESCRIPTION	NAICS	SUB-CLUSTER
Fiber, Yarn, and Thread Mills	313110	Textile Manufacturing
Broadwoven Fabric Mills	313210	Textile Manufacturing
Narrow Fabric Mills and Schiffli Machine Embroidery	313220	Textile Manufacturing
Nonwoven Fabric Mills	313230	Textile Manufacturing
Knit Fabric Mills	313240	Textile Manufacturing
Textile and Fabric Finishing Mills	313310	Textile Manufacturing
Fabric Coating Mills	313320	Textile Manufacturing
Textile Bag and Canvas Mills	314910	Apparel, Footwear, and Accessories Mfg.
Rope, Cordage, Twine, Tire Cord, and Tire Fabric Mills	314994	Textile Manufacturing
All Other Miscellaneous Textile Product Mills	314999	Apparel, Footwear, and Accessories Mfg.
Hosiery and Sock Mills	315110	Textile Manufacturing
Other Apparel Knitting Mills	315190	Textile Manufacturing
Cut and Sew Apparel Contractors	315210	Apparel, Footwear, and Accessories Mfg.
Men's and Boys' Cut and Sew Apparel Manufacturing	315220	Apparel, Footwear, and Accessories Mfg.
Women's, Girls', and Infants' Cut and Sew Apparel Manufacturing	315240	Apparel, Footwear, and Accessories Mfg.
Other Cut and Sew Apparel Manufacturing	315280	Apparel, Footwear, and Accessories Mfg.
Apparel Accessories and Other Apparel Manufacturing	315990	Apparel, Footwear, and Accessories Mfg.

Leather and Hide Tanning and Finishing	316110	Apparel, Footwear, and Accessories Mfg.
Footwear Manufacturing	316210	Apparel, Footwear, and Accessories Mfg.
Women's Handbag and Purse Manufacturing	316992	Apparel, Footwear, and Accessories Mfg.
All Other Leather Good and Allied Product Manufacturing	316998	Apparel, Footwear, and Accessories Mfg.
Artificial and Synthetic Fibers and Filaments Manufacturing	325220	Textile Manufacturing
Metal Kitchen Cookware, Utensil, Cutlery, and Flatware (except Precious) Manufacturing	332215	Outdoors Eqpt Mfg
Saw Blade and Handtool Manufacturing	332216	Outdoors Eqpt Mfg
Small Arms, Ordnance, and Ordnance Accessories Manufacturing	332994	Outdoors Eqpt Mfg
Motorcycle, Bicycle, and Parts Manufacturing	336991	Outdoors Eqpt Mfg
Jewelry and Silverware Manufacturing	339910	Apparel, Footwear, and Accessories Mfg.
Sporting and Athletic Goods Manufacturing	339920	Outdoors Eqpt Mfg
Sporting and Recreational Goods and Supplies Merchant Wholesalers	423910	Apparel/Outdoor Wholesaling
Jewelry, Watch, Precious Stone, and Precious Metal Merchant Wholesalers	423940	Apparel/Outdoor Wholesaling
Piece Goods, Notions, and Other Dry Goods Merchant Wholesalers	424310	Apparel/Outdoor Wholesaling
Men's and Boys' Clothing and Furnishings Merchant Wholesalers	424320	Apparel/Outdoor Wholesaling
Women's, Children's, and Infants' Clothing and Accessories Merchant Wholesalers	424330	Apparel/Outdoor Wholesaling
Footwear Merchant Wholesalers	424340	Apparel/Outdoor Wholesaling
Industrial Design Services	541420	Design Services
Other Specialized Design Services	541490	Design Services



## Computers & Electronics

<b>INDUSTRY DESCRIPTION</b>	<b>NAICS</b>	<b>SUB-CLUSTER</b>
Semiconductor Machinery Manufacturing	333242	Semiconductors
Photographic and Photocopying Equipment Manufacturing	333316	Computers and Peripherals
Electronic Computer Manufacturing	334111	Computers and Peripherals
Computer Storage Device Manufacturing	334112	Computers and Peripherals
Computer Terminal and Other Computer Peripheral Equipment Manufacturing	334118	Computers and Peripherals
Telephone Apparatus Manufacturing	334210	Communications Equipment
Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	334220	Communications Equipment
Other Communications Equipment Manufacturing	334290	Communications Equipment
Audio and Video Equipment Manufacturing	334310	Communications Equipment
Bare Printed Circuit Board Manufacturing	334412	Electronic Components
Semiconductor and Related Device Manufacturing	334413	Semiconductors
Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing	334416	Electronic Components
Electronic Connector Manufacturing	334417	Electronic Components
Printed Circuit Assembly (Electronic Assembly) Manufacturing	334418	Electronic Components
Other Electronic Component Manufacturing	334419	Electronic Components
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	334511	Electronic Components



Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use	334512	Process and Laboratory Instruments
Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	334513	Process and Laboratory Instruments
Totalizing Fluid Meter and Counting Device Manufacturing	334514	Process and Laboratory Instruments
Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	334515	Process and Laboratory Instruments
Analytical Laboratory Instrument Manufacturing	334516	Process and Laboratory Instruments
Other Measuring and Controlling Device Manufacturing	334519	Process and Laboratory Instruments
Blank Magnetic and Optical Recording Media Manufacturing	334613	Software Reproducing
Software and Other Prerecorded Compact Disc, Tape, and Record Reproducing	334614	Software Reproducing
Computer and Computer Peripheral Equipment and Software Merchant Wholesalers	423430	Computers and Peripherals

## Clean Economy

Note: The Clean Economy sub-clusters have some overlap; if an industry applies to more than one sub-cluster, all are listed.

INDUSTRY DESCRIPTION	NAICS	SUB-CLUSTER(S)
Soybean Farming	111110	Alternative Energies - MFG/Upstream Inputs
Oilseed (except Soybean) Farming	111120	Alternative Energies - MFG/Upstream Inputs
Corn Farming	111150	Alternative Energies - MFG/Upstream Inputs
Cotton Farming	111920	Alternative Energies - MFG/Upstream Inputs
Sugarcane Farming	111930	Alternative Energies - MFG/Upstream Inputs

Sugar Beet Farming	111991	Alternative Energies - MFG/Upstream Inputs
Timber Tract Operations	113110	Alternative Energies - MFG/Upstream Inputs
Forest Nurseries and Gathering of Forest Products	113210	Alternative Energies - MFG/Upstream Inputs
Logging	113310	Alternative Energies - MFG/Upstream Inputs
Support Activities for Forestry	115310	Alternative Energies - MFG/Upstream Inputs
Crude Petroleum Extraction	211120	Transition/Potential for Carbon Capture
Natural Gas Extraction	211130	Transition/Potential for Carbon Capture
Bituminous Coal and Lignite Surface Mining	212111	Transition/Potential for Carbon Capture
Bituminous Coal Underground Mining	212112	Transition/Potential for Carbon Capture
Anthracite Mining	212113	Transition/Potential for Carbon Capture
Drilling Oil and Gas Wells	213111	Transition/Potential for Carbon Capture
Support Activities for Oil and Gas Operations	213112	Transition/Potential for Carbon Capture
Support Activities for Coal Mining	213113	Transition/Potential for Carbon Capture
Hydroelectric Power Generation	221111	Alternative Energies - Power Generation ; Grid Modernization
Fossil Fuel Electric Power Generation	221112	Transition/Potential for Carbon Capture
Nuclear Electric Power Generation	221113	Alternative Energies - Power Generation

Solar Electric Power Generation	221114	Alternative Energies - Power Generation
Wind Electric Power Generation	221115	Alternative Energies - Power Generation
Geothermal Electric Power Generation	221116	Alternative Energies - Power Generation
Biomass Electric Power Generation	221117	Alternative Energies - Power Generation
Other Electric Power Generation	221118	Alternative Energies - Power Generation
Electric Bulk Power Transmission and Control	221121	Grid Modernization
Electric Power Distribution	221122	Grid Modernization
Sewage Treatment Facilities	221320	Transportation Systems Plus School Buses
Steam and Air-Conditioning Supply	221330	Grid Modernization
New Single-Family Housing Construction (except For-Sale Builders)	236115	Professional Services
New Multifamily Housing Construction (except For-Sale Builders)	236116	Professional Services
New Housing For-Sale Builders	236117	Professional Services
Residential Remodelers	236118	Professional Services
Industrial Building Construction	236210	Professional Services
Commercial and Institutional Building Construction	236220	Professional Services
Water and Sewer Line and Related Structures Construction	237110	Alternative Energies - MFG/Upstream Inputs ; Professional Services
Oil and Gas Pipeline and Related Structures Construction	237120	Transition/Potential for Carbon Capture
Power and Communication Line and Related Structures Construction	237130	Alternative Energies - MFG/Upstream Inputs ; Professional Services ; Grid Modernization
Other Heavy and Civil Engineering Construction	237990	Professional Services

Poured Concrete Foundation and Structure Contractors	238110	Professional Services
Structural Steel and Precast Concrete Contractors	238120	Professional Services
Framing Contractors	238130	Professional Services
Masonry Contractors	238140	Professional Services
Glass and Glazing Contractors	238150	Professional Services
Roofing Contractors	238160	Professional Services
Siding Contractors	238170	Professional Services
Other Foundation, Structure, and Building Exterior Contractors	238190	Professional Services
Electrical Contractors and Other Wiring Installation Contractors	238210	Professional Services ; Grid Modernization
Plumbing, Heating, and Air-Conditioning Contractors	238220	Sustainable Transportation MFG ; Professional Services
Other Building Equipment Contractors	238290	Professional Services
Drywall and Insulation Contractors	238310	Professional Services
Site Preparation Contractors	238910	Professional Services
Wet Corn Milling	311221	Alternative Energies - MFG/Upstream Inputs
Soybean and Other Oilseed Processing	311224	Alternative Energies - MFG/Upstream Inputs
Fats and Oils Refining and Blending	311225	Alternative Energies - MFG/Upstream Inputs
Beet Sugar Manufacturing	311313	Alternative Energies - MFG/Upstream Inputs
Cane Sugar Manufacturing	311314	Alternative Energies - MFG/Upstream Inputs
Fiber, Yarn, and Thread Mills	313110	Sustainable Transportation MFG
Broadwoven Fabric Mills	313210	Sustainable Transportation MFG

Fabric Coating Mills	313320	Sustainable Transportation MFG
Carpet and Rug Mills	314110	Sustainable Transportation MFG
All Other Miscellaneous Textile Product Mills	314999	Sustainable Transportation MFG
Leather and Hide Tanning and Finishing	316110	Sustainable Transportation MFG
Reconstituted Wood Product Manufacturing	321219	Energy Efficient Product Mfg
Wood Window and Door Manufacturing	321911	Energy Efficient Product Mfg
All Other Miscellaneous Wood Product Manufacturing	321999	Alternative Energies - MFG/Upstream Inputs
Pulp Mills	322110	Energy Efficient Product Mfg
Paper (except Newsprint) Mills	322121	Energy Efficient Product Mfg
Newsprint Mills	322122	Energy Efficient Product Mfg
Paperboard Mills	322130	Energy Efficient Product Mfg
Corrugated and Solid Fiber Box Manufacturing	322211	Energy Efficient Product Mfg
Folding Paperboard Box Manufacturing	322212	Energy Efficient Product Mfg
Other Paperboard Container Manufacturing	322219	Energy Efficient Product Mfg
Paper Bag and Coated and Treated Paper Manufacturing	322220	Energy Efficient Product Mfg
Stationery Product Manufacturing	322230	Energy Efficient Product Mfg
Sanitary Paper Product Manufacturing	322291	Energy Efficient Product Mfg

All Other Converted Paper Product Manufacturing	322299	Energy Efficient Product Mfg
Petroleum Refineries	324110	Sustainable Transportation MFG ; Transition/Potential for Carbon Capture
Petroleum Lubricating Oil and Grease Manufacturing	324191	Sustainable Transportation MFG
All Other Petroleum and Coal Products Manufacturing	324199	Transition/Potential for Carbon Capture
Industrial Gas Manufacturing	325120	Energy Storage Sustainable Transportation MFG
Other Basic Inorganic Chemical Manufacturing	325180	Alternative Energies - MFG/Upstream Inputs ; Energy Storage
Ethyl Alcohol Manufacturing	325193	Alternative Energies - MFG/Upstream Inputs
Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing	325194	Alternative Energies - MFG/Upstream Inputs
All Other Basic Organic Chemical Manufacturing	325199	Alternative Energies - MFG/Upstream Inputs
Plastics Material and Resin Manufacturing	325211	Energy Storage
Paint and Coating Manufacturing	325510	Alternative Energies - MFG/Upstream Inputs ; Sustainable Transportation MFG
Adhesive Manufacturing	325520	Alternative Energies - MFG/Upstream Inputs ; Sustainable Transportation MFG
Custom Compounding of Purchased Resins	325991	Transportation Systems Plus School Buses
All Other Miscellaneous Chemical Product and Preparation Manufacturing	325998	Energy Storage ; Sustainable Transportation MFG ;



		Transportation Systems Plus School Buses
Unlaminated Plastics Profile Shape Manufacturing	326121	Alternative Energies - MFG/Upstream Inputs ; Sustainable Transportation MFG
Laminated Plastics Plate, Sheet (except Packaging), and Shape Manufacturing	326130	Alternative Energies - MFG/Upstream Inputs
All Other Plastics Product Manufacturing	326199	Alternative Energies - MFG/Upstream Inputs ; Energy Storage ; Sustainable Transportation MFG
Tire Manufacturing (except Retreading)	326211	Sustainable Transportation MFG
Tire Retreading	326212	Sustainable Transportation MFG
Rubber and Plastics Hoses and Belting Manufacturing	326220	Sustainable Transportation MFG
Rubber Product Manufacturing for Mechanical Use	326291	Sustainable Transportation MFG
All Other Rubber Product Manufacturing	326299	Sustainable Transportation MFG
Flat Glass Manufacturing	327211	Sustainable Transportation MFG
Glass Product Manufacturing Made of Purchased Glass	327215	Alternative Energies - MFG/Upstream Inputs ; Sustainable Transportation MFG
Cement Manufacturing	327310	Energy Efficient Product Mfg
Concrete Block and Brick Manufacturing	327331	Energy Efficient Product Mfg
Concrete Pipe Manufacturing	327332	Energy Efficient Product Mfg

Abrasive Product Manufacturing	327910	Sustainable Transportation MFG
Mineral Wool Manufacturing	327993	Energy Efficient Product Mfg
Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	331210	Sustainable Transportation MFG ; Transition/Potential for Carbon Capture
Rolled Steel Shape Manufacturing	331221	Sustainable Transportation MFG
Aluminum Sheet, Plate, and Foil Manufacturing	331315	Sustainable Transportation MFG
Other Aluminum Rolling, Drawing, and Extruding	331318	Sustainable Transportation MFG
Nonferrous Metal (except Aluminum) Smelting and Refining	331410	Alternative Energies - MFG/Upstream Inputs
Copper Rolling, Drawing, Extruding, and Alloying	331420	Sustainable Transportation MFG
Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	331491	Sustainable Transportation MFG
Steel Investment Foundries	331512	Sustainable Transportation MFG
Other Nonferrous Metal Foundries (except Die-Casting)	331529	Sustainable Transportation MFG
Iron and Steel Forging	332111	Sustainable Transportation MFG
Nonferrous Forging	332112	Sustainable Transportation MFG
Metal Crown, Closure, and Other Metal Stamping (except Automotive)	332119	Sustainable Transportation MFG
Prefabricated Metal Building and Component Manufacturing	332311	Energy Efficient Product Mfg
Fabricated Structural Metal Manufacturing	332312	Energy Efficient Product Mfg

Plate Work Manufacturing	332313	Alternative Energies - MFG/Upstream Inputs ; Sustainable Transportation MFG ; Energy Efficient Product Mfg
Metal Window and Door Manufacturing	332321	Energy Efficient Product Mfg
Sheet Metal Work Manufacturing	332322	Sustainable Transportation MFG ; Energy Efficient Product Mfg
Power Boiler and Heat Exchanger Manufacturing	332410	Alternative Energies - MFG/Upstream Inputs ; Sustainable Transportation MFG ; Energy Efficient Product Mfg
Metal Tank (Heavy Gauge) Manufacturing	332420	Energy Storage ; Sustainable Transportation MFG ; Energy Efficient Product Mfg ; Transition/Potential for Carbon Capture
Hardware Manufacturing	332510	Sustainable Transportation MFG
Spring Manufacturing	332613	Sustainable Transportation MFG
Machine Shops	332710	Alternative Energies - MFG/Upstream Inputs ; Sustainable Transportation MFG
Precision Turned Product Manufacturing	332721	Alternative Energies - MFG/Upstream Inputs ; Sustainable Transportation MFG
Bolt, Nut, Screw, Rivet, and Washer Manufacturing	332722	Alternative Energies - MFG/Upstream Inputs ;

		Sustainable Transportation MFG
Metal Heat Treating	332811	Sustainable Transportation MFG
Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	332812	Sustainable Transportation MFG
Electroplating, Plating, Polishing, Anodizing, and Coloring	332813	Sustainable Transportation MFG
Industrial Valve Manufacturing	332911	Sustainable Transportation MFG ; Energy Efficient Product Mfg
Fluid Power Valve and Hose Fitting Manufacturing	332912	Sustainable Transportation MFG ; Energy Efficient Product Mfg
Plumbing Fixture Fitting and Trim Manufacturing	332913	Energy Efficient Product Mfg
Other Metal Valve and Pipe Fitting Manufacturing	332919	Sustainable Transportation MFG ; Energy Efficient Product Mfg
Fabricated Pipe and Pipe Fitting Manufacturing	332996	Sustainable Transportation MFG ; Energy Efficient Product Mfg
All Other Miscellaneous Fabricated Metal Product Manufacturing	332999	Sustainable Transportation MFG
Farm Machinery and Equipment Manufacturing	333111	Sustainable Transportation MFG
Oil and Gas Field Machinery and Equipment Manufacturing	333132	Alternative Energies - MFG/Upstream Inputs ; Transition/Potential for Carbon Capture
Semiconductor Machinery Manufacturing	333242	Alternative Energies - MFG/Upstream Inputs

Other Industrial Machinery Manufacturing	333249	Sustainable Transportation MFG
Other Commercial and Service Industry Machinery Manufacturing	333318	Sustainable Transportation MFG ; Energy Efficient Product Mfg
Industrial and Commercial Fan and Blower and Air Purification Equipment Manufacturing	333413	Sustainable Transportation MFG ; Energy Efficient Product Mfg
Heating Equipment (except Warm Air Furnaces) Manufacturing	333414	Energy Efficient Product Mfg
Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing	333415	Alternative Energies - MFG/Upstream Inputs ; Energy Efficient Product Mfg
Industrial Mold Manufacturing	333511	Sustainable Transportation MFG
Special Die and Tool, Die Set, Jig, and Fixture Manufacturing	333514	Sustainable Transportation MFG
Cutting Tool and Machine Tool Accessory Manufacturing	333515	Sustainable Transportation MFG
Machine Tool Manufacturing	333517	Sustainable Transportation MFG
Rolling Mill and Other Metalworking Machinery Manufacturing	333519	Sustainable Transportation MFG
Turbine and Turbine Generator Set Units Manufacturing	333611	Alternative Energies - MFG/Upstream Inputs
Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing	333612	Alternative Energies - MFG/Upstream Inputs ; Sustainable Transportation MFG
Mechanical Power Transmission Equipment Manufacturing	333613	Alternative Energies - MFG/Upstream Inputs ; Sustainable Transportation MFG

Other Engine Equipment Manufacturing	333618	Sustainable Transportation MFG
Air and Gas Compressor Manufacturing	333912	Sustainable Transportation MFG ; Transition/Potential for Carbon Capture
Measuring, Dispensing, and Other Pumping Equipment Manufacturing	333914	Sustainable Transportation MFG ; Transition/Potential for Carbon Capture
Conveyor and Conveying Equipment Manufacturing	333922	Sustainable Transportation MFG
Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing	333924	Sustainable Transportation MFG
Power-Driven Handtool Manufacturing	333991	Sustainable Transportation MFG
Welding and Soldering Equipment Manufacturing	333992	Sustainable Transportation MFG
Fluid Power Cylinder and Actuator Manufacturing	333995	Alternative Energies - MFG/Upstream Inputs
Fluid Power Pump and Motor Manufacturing	333996	Alternative Energies - MFG/Upstream Inputs
All Other Miscellaneous General Purpose Machinery Manufacturing	333999	Sustainable Transportation MFG
Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	334220	Sustainable Transportation MFG
Other Communications Equipment Manufacturing	334290	Sustainable Transportation MFG
Audio and Video Equipment Manufacturing	334310	Sustainable Transportation MFG
Bare Printed Circuit Board Manufacturing	334412	Alternative Energies - MFG/Upstream Inputs
Semiconductor and Related Device Manufacturing	334413	Alternative Energies - MFG/Upstream Inputs ;



		Energy Storage ; Grid Modernization
Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing	334416	Alternative Energies - MFG/Upstream Inputs ; Grid Modernization
Electronic Connector Manufacturing	334417	Alternative Energies - MFG/Upstream Inputs
Printed Circuit Assembly (Electronic Assembly) Manufacturing	334418	Alternative Energies - MFG/Upstream Inputs ; Sustainable Transportation MFG
Other Electronic Component Manufacturing	334419	Alternative Energies - MFG/Upstream Inputs ; Energy Storage ; Grid Modernization
Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use	334512	Energy Efficient Product Mfg
Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	334513	Sustainable Transportation MFG ; Energy Efficient Product Mfg ; Grid Modernization
Totalizing Fluid Meter and Counting Device Manufacturing	334514	Sustainable Transportation MFG ; Energy Efficient Product Mfg
Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	334515	Sustainable Transportation MFG ; Energy Efficient Product Mfg ; Grid Modernization
Other Measuring and Controlling Device Manufacturing	334519	Sustainable Transportation MFG ; Energy Efficient Product Mfg ; Grid Modernization
Electric Lamp Bulb and Part Manufacturing	335110	Sustainable Transportation MFG ; Energy Efficient Product Mfg

Residential Electric Lighting Fixture Manufacturing	335121	Energy Efficient Product Mfg
Commercial, Industrial, and Institutional Electric Lighting Fixture Manufacturing	335122	Energy Efficient Product Mfg
Other Lighting Equipment Manufacturing	335129	Energy Efficient Product Mfg
Small Electrical Appliance Manufacturing	335210	Energy Efficient Product Mfg
Major Household Appliance Manufacturing	335220	Energy Efficient Product Mfg
Power, Distribution, and Specialty Transformer Manufacturing	335311	Alternative Energies - MFG/Upstream Inputs ; Sustainable Transportation MFG ; Grid Modernization
Motor and Generator Manufacturing	335312	Alternative Energies - MFG/Upstream Inputs
Switchgear and Switchboard Apparatus Manufacturing	335313	Alternative Energies - MFG/Upstream Inputs ; Sustainable Transportation MFG ; Grid Modernization
Relay and Industrial Control Manufacturing	335314	Alternative Energies - MFG/Upstream Inputs ; Grid Modernization
Storage Battery Manufacturing	335911	Energy Storage/Sustainable Transportation MFG ; Grid Modernization
Other Communication and Energy Wire Manufacturing	335929	Sustainable Transportation MFG ; Grid Modernization
Current-Carrying Wiring Device Manufacturing	335931	Sustainable Transportation MFG ; Grid Modernization

Carbon and Graphite Product Manufacturing	335991	Energy Storage/Sustainable Transportation MFG
All Other Miscellaneous Electrical Equipment and Component Manufacturing	335999	Energy Storage/Sustainable Transportation MFG ; Grid Modernization
Automobile Manufacturing	336111	Sustainable Transportation MFG
Light Truck and Utility Vehicle Manufacturing	336112	Sustainable Transportation MFG
Heavy Duty Truck Manufacturing	336120	Sustainable Transportation MFG
Motor Vehicle Body Manufacturing	336211	Sustainable Transportation MFG
Truck Trailer Manufacturing	336212	Sustainable Transportation MFG
Motor Home Manufacturing	336213	Sustainable Transportation MFG
Travel Trailer and Camper Manufacturing	336214	Sustainable Transportation MFG
Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	336310	Sustainable Transportation MFG
Motor Vehicle Electrical and Electronic Equipment Manufacturing	336320	Sustainable Transportation MFG
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	336330	Sustainable Transportation MFG
Motor Vehicle Brake System Manufacturing	336340	Sustainable Transportation MFG
Motor Vehicle Transmission and Power Train Parts Manufacturing	336350	Sustainable Transportation MFG
Motor Vehicle Seating and Interior Trim Manufacturing	336360	Sustainable Transportation MFG
Motor Vehicle Metal Stamping	336370	Sustainable Transportation MFG

Other Motor Vehicle Parts Manufacturing	336390	Sustainable Transportation MFG
Aircraft Manufacturing	336411	Sustainable Transportation MFG
Aircraft Engine and Engine Parts Manufacturing	336412	Sustainable Transportation MFG
Other Aircraft Parts and Auxiliary Equipment Manufacturing	336413	Sustainable Transportation MFG
Railroad Rolling Stock Manufacturing	336510	Sustainable Transportation MFG
Ship Building and Repairing	336611	Sustainable Transportation MFG
Boat Building	336612	Sustainable Transportation MFG
Motorcycle, Bicycle, and Parts Manufacturing	336991	Sustainable Transportation MFG
Military Armored Vehicle, Tank, and Tank Component Manufacturing	336992	Sustainable Transportation MFG
All Other Transportation Equipment Manufacturing	336999	Sustainable Transportation MFG
All Other Miscellaneous Manufacturing	339999	Energy Storage Sustainable Transportation MFG
Metal Service Centers and Other Metal Merchant Wholesalers	423510	Sustainable Transportation MFG
Recyclable Material Merchant Wholesalers	423930	Transportation Systems Plus School Buses
Mixed Mode Transit Systems	485111	Transportation Systems Plus School Buses
Commuter Rail Systems	485112	Transportation Systems Plus School Buses
Bus and Other Motor Vehicle Transit Systems	485113	Transportation Systems Plus School Buses

Other Urban Transit Systems	485119	Transportation Systems Plus School Buses
School and Employee Bus Transportation	485410	Transportation Systems Plus School Buses
Special Needs Transportation	485991	Transportation Systems Plus School Buses
All Other Transit and Ground Passenger Transportation	485999	Transportation Systems Plus School Buses
Pipeline Transportation of Crude Oil	486110	Transition/Potential for Carbon Capture
Pipeline Transportation of Natural Gas	486210	Transition/Potential for Carbon Capture
Pipeline Transportation of Refined Petroleum Products	486910	Transition/Potential for Carbon Capture
All Other Pipeline Transportation	486990	Transition/Potential for Carbon Capture
Software Publishers	511210	Professional Services
Data Processing, Hosting, and Related Services	518210	Professional Services
Architectural Services	541310	Professional Services
Landscape Architectural Services	541320	Professional Services
Engineering Services	541330	Professional Services
Drafting Services	541340	Professional Services
Building Inspection Services	541350	Professional Services
Geophysical Surveying and Mapping Services	541360	Professional Services
Surveying and Mapping (except Geophysical) Services	541370	Professional Services
Testing Laboratories	541380	Professional Services
<b>Industrial Design Services</b>	<b>541420</b>	Professional Services
Custom Computer Programming Services	541511	Professional Services
Computer Systems Design Services	541512	Professional Services
Computer Facilities Management Services	541513	Professional Services

Other Computer Related Services	541519	Professional Services
Environmental Consulting Services	541620	Professional Services
Other Scientific and Technical Consulting Services	541690	Professional Services
Research and Development in Nanotechnology	541713	Green R+D/Innovation
Research and Development in Biotechnology (except Nanobiotechnology)	541714	Green R+D/Innovation
Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	541715	Green R+D/Innovation
Solid Waste Collection	562111	Transportation Systems Plus School Buses
Hazardous Waste Collection	562112	Transportation Systems Plus School Buses
Other Waste Collection	562119	Transportation Systems Plus School Buses
Hazardous Waste Treatment and Disposal	562211	Transportation Systems Plus School Buses
Solid Waste Landfill	562212	Transportation Systems Plus School Buses
Solid Waste Combustors and Incinerators	562213	Alternative Energies - Power Generation ; Transportation Systems Plus School Buses
Other Nonhazardous Waste Treatment and Disposal	562219	Alternative Energies - MFG/Upstream Inputs ; Transportation Systems Plus School Buses
Remediation Services	562910	Transportation Systems Plus School Buses
Materials Recovery Facilities	562920	Alternative Energies - MFG/Upstream Inputs ; Transportation Systems Plus School Buses
Septic Tank and Related Services	562991	Transportation Systems Plus School Buses



All Other Miscellaneous Waste Management Services	562998	Transportation Systems Plus School Buses
Junior Colleges	611210	Green R+D/Innovation
Colleges, Universities, and Professional Schools	611310	Green R+D/Innovation
Apprenticeship Training	611513	Green R+D/Innovation
Other Technical and Trade Schools	611519	Green R+D/Innovation
Vocational Rehabilitation Services	624310	Green R+D/Innovation
Environment, Conservation and Wildlife Organizations	813312	Professional Services

## Food & Beverage Manufacturing

INDUSTRY DESCRIPTION	NAICS	SUB-CLUSTER
Dog and Cat Food Manufacturing	311111	Food & Beverage Manufacturing
Other Animal Food Manufacturing	311119	Food & Beverage Manufacturing
Flour Milling	311211	Food & Beverage Manufacturing
Rice Milling	311212	Food & Beverage Manufacturing
Malt Manufacturing	311213	Food & Beverage Manufacturing
Wet Corn Milling	311221	Food & Beverage Manufacturing
Soybean and Other Oilseed Processing	311224	Food & Beverage Manufacturing
Fats and Oils Refining and Blending	311225	Food & Beverage Manufacturing
Breakfast Cereal Manufacturing	311230	Food & Beverage Manufacturing

Beet Sugar Manufacturing	311313	Food & Beverage Manufacturing
Cane Sugar Manufacturing	311314	Food & Beverage Manufacturing
Nonchocolate Confectionery Manufacturing	311340	Food & Beverage Manufacturing
Chocolate and Confectionery Manufacturing from Cacao Beans	311351	Food & Beverage Manufacturing
Confectionery Manufacturing from Purchased Chocolate	311352	Food & Beverage Manufacturing
Frozen Fruit, Juice, and Vegetable Manufacturing	311411	Food & Beverage Manufacturing
Frozen Specialty Food Manufacturing	311412	Food & Beverage Manufacturing
Fruit and Vegetable Canning	311421	Food & Beverage Manufacturing
Specialty Canning	311422	Food & Beverage Manufacturing
Dried and Dehydrated Food Manufacturing	311423	Food & Beverage Manufacturing
Fluid Milk Manufacturing	311511	Food & Beverage Manufacturing
Creamery Butter Manufacturing	311512	Food & Beverage Manufacturing
Cheese Manufacturing	311513	Food & Beverage Manufacturing
Dry, Condensed, and Evaporated Dairy Product Manufacturing	311514	Food & Beverage Manufacturing
Ice Cream and Frozen Dessert Manufacturing	311520	Food & Beverage Manufacturing
Animal (except Poultry) Slaughtering	311611	Food & Beverage Manufacturing
Meat Processed from Carcasses	311612	Food & Beverage Manufacturing

Rendering and Meat Byproduct Processing	311613	Food & Beverage Manufacturing
Poultry Processing	311615	Food & Beverage Manufacturing
Seafood Product Preparation and Packaging	311710	Food & Beverage Manufacturing
Retail Bakeries	311811	Food & Beverage Manufacturing
Commercial Bakeries	311812	Food & Beverage Manufacturing
Frozen Cakes, Pies, and Other Pastries Manufacturing	311813	Food & Beverage Manufacturing
Cookie and Cracker Manufacturing	311821	Food & Beverage Manufacturing
Dry Pasta, Dough, and Flour Mixes Manufacturing from Purchased Flour	311824	Food & Beverage Manufacturing
Tortilla Manufacturing	311830	Food & Beverage Manufacturing
Roasted Nuts and Peanut Butter Manufacturing	311911	Food & Beverage Manufacturing
Other Snack Food Manufacturing	311919	Food & Beverage Manufacturing
Coffee and Tea Manufacturing	311920	Food & Beverage Manufacturing
Flavoring Syrup and Concentrate Manufacturing	311930	Food & Beverage Manufacturing
Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing	311941	Food & Beverage Manufacturing
Spice and Extract Manufacturing	311942	Food & Beverage Manufacturing
Perishable Prepared Food Manufacturing	311991	Food & Beverage Manufacturing
All Other Miscellaneous Food Manufacturing	311999	Food & Beverage Manufacturing

Soft Drink Manufacturing	312111	Food & Beverage Manufacturing
Bottled Water Manufacturing	312112	Food & Beverage Manufacturing
Ice Manufacturing	312113	Food & Beverage Manufacturing
Breweries	312120	Food & Beverage Manufacturing
Wineries	312130	Food & Beverage Manufacturing
Distilleries	312140	Food & Beverage Manufacturing
Corrugated and Solid Fiber Box Manufacturing	322211	Other Food Related Manufacturing
Folding Paperboard Box Manufacturing	322212	Other Food Related Manufacturing
Other Paperboard Container Manufacturing	322219	Other Food Related Manufacturing
Paper Bag and Coated and Treated Paper Manufacturing	322220	Other Food Related Manufacturing
Nitrogenous Fertilizer Manufacturing	325311	Other Food Related Manufacturing
Phosphatic Fertilizer Manufacturing	325312	Other Food Related Manufacturing
Fertilizer (Mixing Only) Manufacturing	325314	Other Food Related Manufacturing
Pesticide and Other Agricultural Chemical Manufacturing	325320	Other Food Related Manufacturing
Plastics Bag and Pouch Manufacturing	326111	Other Food Related Manufacturing
Plastics Packaging Film and Sheet (including Laminated) Manufacturing	326112	Other Food Related Manufacturing
Unlaminated Plastics Profile Shape Manufacturing	326121	Other Food Related Manufacturing

Polystyrene Foam Product Manufacturing	326140	Other Food Related Manufacturing
Urethane and Other Foam Product (except Polystyrene) Manufacturing	326150	Other Food Related Manufacturing
Plastics Bottle Manufacturing	326160	Other Food Related Manufacturing
All Other Plastics Product Manufacturing	326199	Other Food Related Manufacturing
Glass Container Manufacturing	327213	Other Food Related Manufacturing
Metal Kitchen Cookware, Utensil, Cutlery, and Flatware (except Precious) Manufacturing	332215	Other Food Related Manufacturing
Metal Can Manufacturing	332431	Other Food Related Manufacturing
Other Metal Container Manufacturing	332439	Other Food Related Manufacturing
Farm Machinery and Equipment Manufacturing	333111	Other Food Related Manufacturing
Food Product Machinery Manufacturing	333241	Other Food Related Manufacturing
Refrigeration Equipment and Supplies Merchant Wholesalers	423740	Food-Related Distribution
Farm and Garden Machinery and Equipment Merchant Wholesalers	423820	Food-Related Distribution
General Line Grocery Merchant Wholesalers	424410	Food-Related Distribution
Packaged Frozen Food Merchant Wholesalers	424420	Food-Related Distribution
Dairy Product (except Dried or Canned) Merchant Wholesalers	424430	Food-Related Distribution
Poultry and Poultry Product Merchant Wholesalers	424440	Food-Related Distribution
Confectionery Merchant Wholesalers	424450	Food-Related Distribution
Fish and Seafood Merchant Wholesalers	424460	Food-Related Distribution
Meat and Meat Product Merchant Wholesalers	424470	Food-Related Distribution

Fresh Fruit and Vegetable Merchant Wholesalers	424480	Food-Related Distribution
Other Grocery and Related Products Merchant Wholesalers	424490	Food-Related Distribution
Grain and Field Bean Merchant Wholesalers	424510	Food-Related Distribution
Livestock Merchant Wholesalers	424520	Food-Related Distribution
Other Farm Product Raw Material Merchant Wholesalers	424590	Food-Related Distribution
Beer and Ale Merchant Wholesalers	424810	Food-Related Distribution
Wine and Distilled Alcoholic Beverage Merchant Wholesalers	424820	Food-Related Distribution
Farm Supplies Merchant Wholesalers	424910	Food-Related Distribution
Refrigerated Warehousing and Storage	493120	Food-Related Distribution
Farm Product Warehousing and Storage	493130	Food-Related Distribution

## Metals & Machinery

INDUSTRY DESCRIPTION	NAICS	SUB-CLUSTER
Abrasive Product Manufacturing	327910	Primary Metal
Iron and Steel Mills and Ferroalloy Manufacturing	331110	Primary Metal
Iron and Steel Pipe and Tube Manufacturing from Purchased Steel	331210	Primary Metal
Rolled Steel Shape Manufacturing	331221	Primary Metal
Steel Wire Drawing	331222	Primary Metal
Alumina Refining and Primary Aluminum Production	331313	Primary Metal
Secondary Smelting and Alloying of Aluminum	331314	Primary Metal
Aluminum Sheet, Plate, and Foil Manufacturing	331315	Primary Metal
Other Aluminum Rolling, Drawing, and Extruding	331318	Primary Metal
Nonferrous Metal (except Aluminum) Smelting and Refining	331410	Primary Metal
Copper Rolling, Drawing, Extruding, and Alloying	331420	Primary Metal



Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	331491	Primary Metal
Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	331492	Primary Metal
Iron Foundries	331511	Primary Metal
Steel Investment Foundries	331512	Primary Metal
Steel Foundries (except Investment)	331513	Primary Metal
Nonferrous Metal Die-Casting Foundries	331523	Primary Metal
Aluminum Foundries (except Die-Casting)	331524	Primary Metal
Other Nonferrous Metal Foundries (except Die-Casting)	331529	Primary Metal
Iron and Steel Forging	332111	Fabricated Metal
Nonferrous Forging	332112	Fabricated Metal
Custom Roll Forming	332114	Fabricated Metal
Powder Metallurgy Part Manufacturing	332117	Fabricated Metal
Metal Crown, Closure, and Other Metal Stamping (except Automotive)	332119	Fabricated Metal
Metal Kitchen Cookware, Utensil, Cutlery, and Flatware (except Precious) Manufacturing	332215	Fabricated Metal
Saw Blade and Handtool Manufacturing	332216	Fabricated Metal
Prefabricated Metal Building and Component Manufacturing	332311	Fabricated Metal
Fabricated Structural Metal Manufacturing	332312	Fabricated Metal
Plate Work Manufacturing	332313	Fabricated Metal
Metal Window and Door Manufacturing	332321	Fabricated Metal
Sheet Metal Work Manufacturing	332322	Fabricated Metal
Ornamental and Architectural Metal Work Manufacturing	332323	Fabricated Metal
Power Boiler and Heat Exchanger Manufacturing	332410	Fabricated Metal
Metal Tank (Heavy Gauge) Manufacturing	332420	Fabricated Metal

Metal Can Manufacturing	332431	Fabricated Metal
Other Metal Container Manufacturing	332439	Fabricated Metal
Hardware Manufacturing	332510	Fabricated Metal
Spring Manufacturing	332613	Fabricated Metal
Other Fabricated Wire Product Manufacturing	332618	Fabricated Metal
Machine Shops	332710	Fabricated Metal
Precision Turned Product Manufacturing	332721	Fabricated Metal
Bolt, Nut, Screw, Rivet, and Washer Manufacturing	332722	Fabricated Metal
Metal Heat Treating	332811	Fabricated Metal
Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	332812	Fabricated Metal
Electroplating, Plating, Polishing, Anodizing, and Coloring	332813	Fabricated Metal
Industrial Valve Manufacturing	332911	Fabricated Metal
Fluid Power Valve and Hose Fitting Manufacturing	332912	Fabricated Metal
Plumbing Fixture Fitting and Trim Manufacturing	332913	Fabricated Metal
Other Metal Valve and Pipe Fitting Manufacturing	332919	Fabricated Metal
Ball and Roller Bearing Manufacturing	332991	Fabricated Metal
Small Arms Ammunition Manufacturing	332992	Fabricated Metal
Ammunition (except Small Arms) Manufacturing	332993	Fabricated Metal
Small Arms, Ordnance, and Ordnance Accessories Manufacturing	332994	Fabricated Metal
Fabricated Pipe and Pipe Fitting Manufacturing	332996	Fabricated Metal
All Other Miscellaneous Fabricated Metal Product Manufacturing	332999	Fabricated Metal
Farm Machinery and Equipment Manufacturing	333111	Machinery
Lawn and Garden Tractor and Home Lawn and Garden Equipment Manufacturing	333112	Machinery
Construction Machinery Manufacturing	333120	Machinery

Mining Machinery and Equipment Manufacturing	333131	Machinery
Oil and Gas Field Machinery and Equipment Manufacturing	333132	Machinery
Food Product Machinery Manufacturing	333241	Machinery
Semiconductor Machinery Manufacturing	333242	Machinery
Sawmill, Woodworking, and Paper Machinery Manufacturing	333243	Machinery
Printing Machinery and Equipment Manufacturing	333244	Machinery
Other Industrial Machinery Manufacturing	333249	Machinery
Optical Instrument and Lens Manufacturing	333314	Machinery
Photographic and Photocopying Equipment Manufacturing	333316	Machinery
Other Commercial and Service Industry Machinery Manufacturing	333318	Machinery
Industrial and Commercial Fan and Blower and Air Purification Equipment Manufacturing	333413	Machinery
Heating Equipment (except Warm Air Furnaces) Manufacturing	333414	Machinery
Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing	333415	Machinery
Industrial Mold Manufacturing	333511	Machinery
Special Die and Tool, Die Set, Jig, and Fixture Manufacturing	333514	Machinery
Cutting Tool and Machine Tool Accessory Manufacturing	333515	Machinery
Machine Tool Manufacturing	333517	Machinery
Rolling Mill and Other Metalworking Machinery Manufacturing	333519	Machinery
Turbine and Turbine Generator Set Units Manufacturing	333611	Machinery

Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing	333612	Machinery
Mechanical Power Transmission Equipment Manufacturing	333613	Machinery
Other Engine Equipment Manufacturing	333618	Machinery
Air and Gas Compressor Manufacturing	333912	Machinery
Measuring, Dispensing, and Other Pumping Equipment Manufacturing	333914	Machinery
Elevator and Moving Stairway Manufacturing	333921	Machinery
Conveyor and Conveying Equipment Manufacturing	333922	Machinery
Overhead Traveling Crane, Hoist, and Monorail System Manufacturing	333923	Machinery
Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing	333924	Machinery
Power-Driven Handtool Manufacturing	333991	Machinery
Welding and Soldering Equipment Manufacturing	333992	Machinery
Packaging Machinery Manufacturing	333993	Machinery
Industrial Process Furnace and Oven Manufacturing	333994	Machinery
Fluid Power Cylinder and Actuator Manufacturing	333995	Machinery
Fluid Power Pump and Motor Manufacturing	333996	Machinery
Scale and Balance Manufacturing	333997	Machinery
All Other Miscellaneous General Purpose Machinery Manufacturing	333999	Machinery
Automobile Manufacturing	336111	Vehicle
Light Truck and Utility Vehicle Manufacturing	336112	Vehicle
Heavy Duty Truck Manufacturing	336120	Vehicle
Motor Vehicle Body Manufacturing	336211	Vehicle
Truck Trailer Manufacturing	336212	Vehicle
Motor Home Manufacturing	336213	Vehicle
Travel Trailer and Camper Manufacturing	336214	Vehicle

Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	336310	Vehicle
Motor Vehicle Electrical and Electronic Equipment Manufacturing	336320	Vehicle
Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing	336330	Vehicle
Motor Vehicle Brake System Manufacturing	336340	Vehicle
Motor Vehicle Transmission and Power Train Parts Manufacturing	336350	Vehicle
Motor Vehicle Seating and Interior Trim Manufacturing	336360	Vehicle
Motor Vehicle Metal Stamping	336370	Vehicle
Other Motor Vehicle Parts Manufacturing	336390	Vehicle
Aircraft Manufacturing	336411	Vehicle
Aircraft Engine and Engine Parts Manufacturing	336412	Vehicle
Other Aircraft Parts and Auxiliary Equipment Manufacturing	336413	Vehicle
Guided Missile and Space Vehicle Manufacturing	336414	Vehicle
Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing	336415	Vehicle
Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	336419	Vehicle
Railroad Rolling Stock Manufacturing	336510	Vehicle
Ship Building and Repairing	336611	Vehicle
Boat Building	336612	Vehicle
Motorcycle, Bicycle, and Parts Manufacturing	336991	Vehicle
Military Armored Vehicle, Tank, and Tank Component Manufacturing	336992	Vehicle
All Other Transportation Equipment Manufacturing	336999	Vehicle

## Software

<b>INDUSTRY DESCRIPTION</b>	<b>NAICS</b>	<b>SUB-CLUSTER</b>
Software Publishers	511210	Software Publishers
Data Processing, Hosting, and Related Services	518210	Data Processing, Hosting, and Related Services
Internet Publishing and Broadcasting and Web Search Portals	519130	Internet Publishing and Broadcasting and Web Search Portals
Custom Computer Programming Services	541511	Custom Computer Programming Services
Computer Systems Design Services	541512	Computer Systems Design Services
Computer Facilities Management Services	541513	Computer Facilities Management Services
Other Computer Related Services	541519	Other Computer Related Services