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Prosperity and Industrial Development: Review of Concepts and Measurements

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Prosperity and Industrial Development: Review of Concepts and Measurements

NeRC

Northwest Economic Research Center
College of Urban and Public Affairs

September 2017

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The Port of Portland is a special district governmental entity that has served the Oregon counties of the Portland metropolitan statistical area directly, and the

state and region in broader ways, since 1891. The mission of the Port is to enhance the region's economy and quality of life by providing efficient cargo and air passenger access to national and global markets, and by promoting industrial development.

NeRC

NERC is based at Portland State University in the College of Urban and Public Affairs. The Center focuses on economic research that supports public-policy decision-making, and relates to issues important to Oregon and the Portland Metropolitan Area. NERC serves the public, nonprofit, and private sector community with high quality, unbiased, and credible economic analysis. Dr. Tom Potiowsky is the Director of NERC, and also serves as the Chair of the Department of Economics at Portland State University. Dr. Jenny H. Liu is NERC's Assistant Director and Assistant Professor in the Toulon School of Urban Studies and Planning. This report was researched by Emma Willingham and Peter Hulseman, and written by Emma Willingham.

Executive Summary

This report, researched and written for the Port of Portland by the Northwest Economic Research Center, summarizes local efforts to measure and improve regional prosperity, both within and outside of Portland, Oregon, and offers a framework for assessing varying industrial land uses with respect to prosperity. As part of this review, definitions of prosperity from a variety of sources are presented. The purpose of the report is dual: First, a context for community and regional economic prosperity is established via the review of existing definitions and initiatives, and secondly, NERC offers a framework for assessing specific uses in terms of prosperity drivers. This framework suggests factors related to prosperity for the Port to use in evaluating industrial property development, in the form of a table that categorizes and lists variables derived from a review of prosperity initiatives, with additions deemed relevant to industrial land use. The table can be found on pg. 15.

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Background

Even in an era where data has never been more expansive or available, the challenge of using it effectively to assess human welfare, particularly with the goal of improvement, proves complex. On the international stage, analysts are increasingly turning away from gross domestic product (or GDP; the traditional measure of prosperity) and towards measures that attempt to incorporate human wellbeing to a greater degree. While the relative simplicity of GDP is appealing, it has become clear that it cannot necessarily be tied in a consistent way to the welfare of a society. For example, while the United States' GDP has risen consistently, many argue that the standard of living has not increased apace for the bulk of the population. When scaling the consideration of relative wellbeing down to the local level, the same concerns emerge: how can a local entity ensure that resources are best used to benefit the regional population as a whole, or assess the contribution of various efforts?

The Port of Portland is a special district governmental entity that oversees aviation and marine activities in the Portland metropolitan statistical area, including four marine terminals and three airports. Additionally, the Port owns eight industrial parks (many collocated with ports and airports), which are not yet fully developed. In addition to operating these facilities, the Port engages in many community- and environmentally-oriented programs. Boosting local prosperity is one of the key focus areas in the Port's five-year strategic plan. As such the Port is interested in understanding various ways it can measure and assess their industrial development activities' contributions to prosperity and equity to the greater community. To that end the Port has engaged the Northwest Economic Research Center (NERC) to identify ways to evaluate local and regional economic prosperity, and suggest indicators of prosperity that are consistent with other comparable partners' measures. The intent is not for NERC to recommend a specific framework or set of metrics, but rather to develop a discussion document. The purpose of this document is to identify a variety of constructs, measures, and tradeoffs for the Port to consider related to its industrial development activities.

In the case of industrial land use, while one facility type offers very high-wage jobs, attending to the equity component of prosperity might entail additionally considering the number of jobs provided, and the skill level required to fulfill them. Prosperity cannot be defined by the flow of money alone. Most measurement of prosperity has centered around the concept of economic development, and while industrial land use is an element of such development, the range of measures considered in the referenced literature is thus much broader in scope than required for analysis of land use alone. This report first describes regional efforts to define and measure prosperity (both in and outside of this region), in terms of economic development and with factors related to industrial land use highlighted in local examples, and next offers a potential framework for assessing the contributions to prosperity of a given land use, and the inherent tradeoffs between uses.

Existing Prosperity Measures and Definitions

This section provides summaries of regional approaches to prosperity, in Portland and other metropolitan areas. For an overview of two renowned international approaches, see the Appendix. These applications tend to be in the realm of economic development, but many of the concepts are transferrable to industrial land development.

MAPC Regional Indicators Project

The Metropolitan Area Planning Council (MAPC) for the City of Boston, MA, defines prosperity as “a well-rounded regional economy that provides opportunities for every resident to earn a living and build wealth.”

In order to meet the goals set forth in the City’s comprehensive plan for 2030, the MAPC has developed a set of regional indicators for prosperity. Notably, the indicators illuminate areas of inequity in order to increase resilience. Employment and wages by sector are the primary areas of focus, and special attention is given to low-wage sectors where the number of jobs is growing, but the average wage is falling—a likely sign of growing income inequality. Additionally, the share of jobs by skill group is considered, in order to separate odds of unemployment by educational attainment. All variables are compared with other metro areas, in order to emphasize regional strengths and weaknesses. Specifically, the chosen indicators are as follows:

- Job growth by sector
- Wage growth by sector
- Labor force participation rate
- Unemployment
- Homeownership rate
- Educational attainment

Many of the more aggregate measures above are considered by socioeconomic status and race, allowing analysis of shifts in equity and gaps between different groups. Data is derived from US Census sources, the Massachusetts Executive Office of Labor and Workforce Development, and the US Bureau of Labor Statistics. No single prosperity metric is constructed, but rather the set of indicators are presented together and interpreted.

Prosperity at a Crossroads: Greater Kansas City, MO

This report describes regional prosperity as “a high quality of life; good jobs in [diverse] industries [...] and a predictably reliable economy for attracting and retaining businesses and talent.”

The second regional approach was directed by members of the renowned Brookings Institution and the Mid-America Regional Council, in partnership with Prof. Peter J. Eaton of the University of Missouri-Kansas City Department of Economics. The motivation for this analysis was to re-situate Greater Kansas City in the context of increasing globalization, and ensure that a strong economy with some troubling indicators remains strong going forwards.

Authors note that for many areas around the US, recovery from the Great Recession has been uneven, and that asymmetrical growth serves to illuminate areas of the country and economy that have not adjusted to a changing global landscape. Greater Kansas City is one such area, where growth has lagged behind the national level for a decade and the Recession was more sharply felt than at the larger scale. What began as a 6.6% productivity advantage in the 1990s (\$64,905 in output per worker per year,

compared to \$60,864 nationally) grew to 8.2% in 2002, before declining and eventually disappearing by 2011. The advantage is specifically attributed to the telecommunication sector, which flourished before the turn of the century and has declined in years since, resulting in negative spillover effects.

This analysis is geared towards markets and industry, specifically that in the urban metro area, which leads state growth. A key concern is the identification of effective investment strategies that the state can carry out, given the decreasing share of federal budget dedicated to discretionary spending (forecast by the CBO to fall from 36% in 2012 to 24% in 2023, due to increased entitlement and interest spending). The analysis identifies three key regional economic drivers and three primary enablers of those drivers: the creation and expansion of traded industry clusters, promotion of innovation, and enhanced human capital can all be furthered through effective strategies for infrastructure, governance, and social cohesion and equity.

Traded industry sectors are those that export most in the region, indicating comparative advantages and potential for growth. Thus, the report highlights the export ratio (both foreign and domestic) as a major area of focus, and notes that said ratio has fallen, leaving the region increasingly dependent on local demand. Additionally, those exports produced are manufactured by a small number of firms, lessening the “intra-regional competition” that can produce a draw for higher-quality inputs and innovation. Additionally, traded sectors have grown more slowly than the national rate, resulting in a market share reduction. The variables discussed in relation to the identified traded industry clusters are:

- Foreign and domestic imports and exports in 2011
- Regional foreign and domestic trade surplus over time
- Establishments per 1000 jobs by sector (compared to US average)
- Employment growth by sector
- Growth in economic output by sector
- Change in share of US output and employment

Next, the focus turns to innovation. Similarly to the above, a small number of firms are responsible for producing a very large share of patents; this indicates “thin” sectors of innovation that are unlikely to gain the kind of traction that draws human and physical capital to a region. On the other hand, Kansas City displayed a higher-than average tech startup density in 2010, with most firms located in the high tech sector (specifically, information, communications, and technology). This is attributed by the authors to the large number of Sprint spinoff firms that emerged in the early 2000s. Nonetheless, overall business creation (the “establishment birth rate”) lagged behind the average observed in the nation’s largest 100 metropolitan areas since the brief 2001 recession. The variables used to represent innovation include:

- Patent grants by category
- Share of patents by firm
- High-tech startup density (normalized to national rate)
- Establishment births per 10,000 jobs

The final economic driver discussed is human capital. While Bachelor’s degree attainment exceeds the rate observed in top 100 metropolitan regions and nation as a whole, local skilled workforce demand exceeds supply. While wages are higher than average, net migration was actually negative over the 2010-2013 period, notably among those with postsecondary education and especially graduate degrees.

Local educational attainment displays a prominent race gap, with white and Asian citizens more than twice as likely to have a bachelor's degree. This gap is also observed in incomes, and has widened in the last decade (as it has nationally). Variables examined to assess human capital are as follows:

- Educational attainment rates by race
- Job openings by education level
- Net domestic migration by educational attainment
- Median household income
- Middle class race pay gap

Sacramento 2006 Prosperity Index

The Sacramento Regional Research Institute (SRRI) defines the new view of prosperity as “provid[ing] a much broader accounting of assets that include[s] all the traditional factors, but also embrace[s] other important locational characteristics such as education, workforce, environment, and investment.”

This index was created by the Sacramento Regional Research Institute in 2006 in order to assess Sacramento's relative position among identified competitive regions. Contributing factors to the Index are split into three categories, each with key indicators:

Business:

- Job growth
- Office vacancy rate
- Payroll growth
- Establishment growth
- Unemployment rate
- Venture capital investment

People:

- College enrollment
- Population growth
- Graduation rate
- Educational attainment
- Median Household income
- Household income spread

Place:

- Air quality
- Commute time
- Crime rate
- Charitable contributions
- Fair market rent growth
- Housing affordability

Every region is assigned each indicator score based on its relative position: the lowest-scoring region receives a one and the highest receives a ten, with all other areas receiving scores calculated as percentages of the highest-ranking region. After each indicator is thus ranked, the subindices (above) are scored as simple averages of their six components, and the overall Prosperity Index value is a simple average of all eighteen indicator variable scores.

Metro Monitor 2017

This dashboard-style website measures relative prosperity (more narrowly defined than elsewhere in this report) using the year-over-year change in gross metropolitan product per job and per capita, and average annual wage.

The Brookings Institute Metro Monitor website, accompanied by a report, provides a dashboard-style tool that shows performance rankings for the largest 100 U.S. metropolitan areas over the 2010-2015 period, considering three categories, each of which is tracked via the change in three indicator variables:

Growth:

- Job growth
- Gross metropolitan product (GMP)
- Jobs at young firms (open \leq 5 yrs)

Prosperity:

- Productivity (GMP per job)
- Standard of living (GMP per capita)
- Average annual wage

Inclusion:

- Employment rate
- Median wage
- Relative poverty

Portland ranks 30th in Growth and 29th in Inclusion, but only 76th in Prosperity, with the 94th rank in standard of living and 100th rank in productivity, because variables fell, respectively, 2% and 7.3% over the analysis period (recall that it is change, and not level, that this dashboard tracks; Portland has one of the highest GMPs in the sample). One interesting aspect of this approach is that it can illuminate potential market distortions: Portland's wages grew by 8.5% over the same period that productivity fell by 7.3%, and this pattern was observed elsewhere: the troubling productivity gap observed since the recent recession (with productivity growing more rapidly than wages) has closed and then some, with average annual wages outstripping productivity on a national basis starting in the second half of 2014.

Local Prosperity Metrics

There are many city-wide and neighborhood initiatives to increase prosperity in the metro area. The measures used to monitor prosperity, predominately those most closely related to industrial development, are summarized below.

The 2012 Portland Plan outlines a broad set of goals and directives for enhancing public welfare. The four core priorities are prosperity, education, health, and equity; and the specific core measures identified to track progress in those areas are:

1. Equity and inclusion: income distribution and diversity index
2. Resident satisfaction
3. Educated youth: four-year graduation rate
4. Self-sufficient households: median household income compared to Self-Sufficiency Index and federal poverty level
5. Growing business: export production
6. Job growth: unemployment, traded sector business growth, relevant infrastructure development, land supply, education and job training
7. Transit and active transportation: percent of individuals working from home or using alternative transport to commute
8. Reduced carbon emissions: percent change relative to 1990 baseline
9. Complete neighborhoods: 20 Minutes Neighborhood Index
10. Healthier people: percent of population at healthy weight, percent meeting federal diet physical activity guidelines
11. Safer city: reported sense of safety, serious crimes per 1,000 citizens
12. Healthy watersheds: Portland Water Quality Index, percent effective impervious area by watershed, tree canopy percentage

In June of 2016, the 2035 Comprehensive Plan for Portland was officially adopted as the primary tool for fulfilling the goals outlined in the 2012 Portland Plan. Five primary areas are addressed: economic

prosperity, human health, environmental health, equity, and resilience. In the former category, the Plan recommends investment in brownfield remediation, increased business and employment sites in East Portland, and the preservation of existing industrial sites (accompanied by intensification of use).

The same month, the Portland Bureau of Planning and Sustainability (BPS) released an Economic Opportunity Analysis to estimate the demand for “employment land” (traditional commercial and industrial land). This report notes a forecast shortage of industrial land.

Another local approach to prosperity is provided by the 2009 City of Portland Neighborhood Economic Development Strategy, which was adopted by the Portland Development Commission (now Prosper Portland) in 2009. This strategy emphasizes taking a proactive approach to equity by focusing on disadvantaged groups and neighborhoods. “Priority neighborhoods” might display lagging commercial investment, increased poverty, gentrification pressure, substantial infrastructure change going forwards, or local businesses losing ground to suburban or “big box” competitors. By addressing these areas first, Prosper Portland’s approach attempts to bring up areas that aggregate growth has left behind. Specifically, the focus shifts from traded sector businesses, which are key to the economic growth of the metropolitan area, to neighborhood businesses, which may or may not export goods and services.

In 2015, the Portland Development Commission released the 2015-2020 Strategic Plan, which lays out ways in which to direct resources to increase the number of households with income sufficient to their needs, while simultaneously increasing physical access to employment, public amenities, and vital services. In order to accomplish these goals, PDC emphasizes the consideration of equity (assisting disadvantaged neighborhoods and groups first), promotion of economic growth via traded sector expansion, and necessary collaboration between public and private entities. Table 1, which is Table 2 from this report, shows how the PDC illustrates the characteristics of traded sectors. Note the inclusion of the location quotient¹, which describes the geographic concentration of a given industry in a certain area, in comparison to the rest of the nation: this is a useful way to identify sectors of particular local strength. (Date for this table is from the Bureau of Labor Statistics’ Quarterly Census of Employment and Wages [QCEW] for Multnomah County, and available via special request process, as many component sectors are too small for public disclosure.)

¹ To learn more about the location quotient, visit https://data.bls.gov/cew/doc/info/location_quotients.htm

Table 1: Target Cluster Matrix (Table 2 on pg. 29 in PDC Strategic Plan)

| | CLUSTER | TYPES OF FIRMS/JOB | TOTAL CURRENT EMPLOYMENT | LOCATION QUOTIENT (1) | 10-YR HISTORIC EMPLOYMENT GROWTH | 5-YR PROJECTED EMPLOYMENT GROWTH | % MIDDLE JOBS (2) | # MIDDLE JOBS | % QUALITY JOBS (3) | # QUALITY JOBS |
|---------------|--------------------|--|--------------------------|-----------------------|----------------------------------|----------------------------------|-------------------|---------------|--------------------|----------------|
| Traded Sector | ATHLETIC & OUTDOOR | Apparel & footwear mfg; bike and handtool mfg; specialized design services | 7,700 | 2.5 | 50% | 6% | 7% | 558 | 21% | 1,615 |
| | METALS & MACHINERY | Primary & fabricated metal; machinery mfg; transportation equipment | 14,285 | 1.0 | -5% | 5% | 30% | 4,320 | 47% | 6,778 |
| | GREEN CITIES | Arch & engineering; environ consult; power generation; instruments & equip mfg; waste collection | 12,702 | 1.0 | 24% | 16% | 26% | 3,325 | 64% | 8,110 |
| | TECHNOLOGY & MEDIA | Software; digital media & film; computer systems design; data processing | 14,763 | 1.4 | 60% | 19% | 11% | 1,578 | 58% | 8,619 |
| Local Serving | HEALTHCARE | Doctors and nurses; personal care aides; social service assistants | 71,191 | 1.0 | 17% | 15% | 17% | 12,113 | 35% | 25,129 |

(1) Location quotient demonstrates the concentration of a cluster or industry in comparison to the rest of the country. A LQ of over 1 shows a higher concentration than the rest of the country, while lower than 1 shows less concentration. Industries with a LQ's of 1.2 or above are considered significantly concentrated.
 (2) Middle Job equals an occupation where average wage/salary is \$42K a year or higher, but requires less than a Bachelor's Degree; \$42K a year approximately equates to 200% of 2014 federal poverty level for a family of 3-4; Also consistent with local self-sufficiency standards for average family size in Multnomah County
 (3) A quality job equals an occupations where average wage/salary in \$42K a year or higher.

Greater Portland Inc, a local merger of two economic development organizations (the private Greenlight Greater Portland and public Portland Regional Partners) released a five-year action plan for increasing prosperity in Portland in 2015, titled Greater Portland 2020. This economic development strategy starts by assessing the baseline state of Portlanders striving to “live, work, visit, and do business,” before moving on to assess future growth from that baseline, and finally addressing identified target industries as areas where Greater Portland Inc. should focus resources. Said target industries are Metal and Machinery, Computers and Electronics, Clean Tech, Athletic and Outdoor, Software and Media, and Health Sciences and Technology.

This analysis is comparative in nature: as the key concept is competitiveness, factors are considered in the context of nine other metropolitan areas, including Austin, TX, and San Jose, CA. Surveys of both the general public and Greater Portland Inc Steering Committee are the primary guiding sources, presented in tandem with economic and demographic data. The focus is on business, but the Plan cites factors relevant to quality of life as well. Of special note are the five most successful and least successful economic development activities (according to the aforementioned surveys) in Portland, listed below:

Most Successful:

1. Quality of life
2. Entrepreneurship and innovation
3. International exports and foreign direct investment
4. Existing business retention
5. Talent attraction and retention

Least Successful:

1. Industrial site development
2. Competitive business climate
3. External marketing and communications
4. Infrastructure development (including transportation, utilities, and technology)
5. Incentives and policy

A different kind of prosperity initiative is provided in Greater Portland Pulse from the Portland State University Institute of Metropolitan Studies (IMS). This initiative and accompanying website provides a comprehensive set of indicators for prosperity ranging across the full expanse of the definition, from crime to transportation access to the environment. As such, rather than providing a specific definition or assessment of prosperity, Greater Portland Pulse provides a data repository for use by those who seek to create and refine prosperity initiatives. Altogether, data from the most reliable sources are presented for forty-three distinct factors, often broken out into demographic categories (such as age and race). The broad categories into which these variables are assigned are:

- Business Prosperity
- Community Resilience
- Educated and Informed Community Members
- Equity
- Healthy Natural Environment
- Healthy People
- Individual and Family Prosperity
- Quality Housing
- Responsive Transportation System
- Safe Communities
- Strong Sense of Community
- Thriving Kids

The way in which variables are assigned to these categories provides additional insight: variables are assigned to each category that they are considered relevant to by IMS researchers. For example, adult education levels appear under every category *except* for Healthy Natural Environment, Quality Housing, Responsive Transportation System, Safe Communities, and Strong Sense of Community, because the authors consider adult education levels to be relevant to all other categories. Greater Portland Pulse offers a useful starting point for individuals and entities seeking to form or strengthen ideas and initiatives about prosperity.

Combining the above local strategies, certain recurring themes relevant to this analysis emerge: the factors representing goals held by a broad set of parties and interests, which are vital to the creation of the matrix on pg. 15.

These factors are:

1. Job creation
 - a. Number of jobs
 - b. Proximity to low-income areas
 - c. Number of positions offering wages over the median.
2. Environmental mitigation & enhancement
 - a. Low-carbon or -emission use
 - b. Brownfield redevelopment
 - c. Intensified use of industrial land
3. Traded sector growth: Exported goods and services, including
 - a. Athletic & Outdoor Gear and Apparel
 - b. Green Products & Services
 - c. Technology & Media
 - d. Metals & Machinery
 - e. Distribution centers (that distribute outside of the region)
 - f. Health technology and services

Contributors to Prosperity in Portland

In Portland, the above factors are influenced by a wide range of groups. The Port of Portland is one of many public, private, and non-profit entities contributing to regional prosperity. In other words, it alone is not the only entity responsible for driving prosperity, and as a result should focus on those elements of prosperity to which it can directly contribute. Recall that this is not an exhaustive list of all contributors to prosperity, but instead only those factors which are arguably influenced by industrial land use, and which appeared previously in the review of local prosperity initiatives.

While a complete accounting of all agencies would be neither practical nor suitable to this analysis, some entities that interact with a wide swath of prosperity factors could provide useful reference with regard to increasing prosperity within the City. Relevant public agencies are:

Portland Business Alliance: Serving as the Greater Portland Chamber of Commerce, this coalition of business leaders works to influence local legislation to support commerce and community health, and additionally participates in many programs that invest in local human capital, like workforce and public service training initiatives and professional development workshops. Finally, as the face of Portland business, the Alliance organizes trade missions to key economic partner nations.

Prosperity factors impacted include:

- Economic vitality
- Human capital growth
- Traded sector growth
- Establishment “birth rate”
- Diversity of markets

Oregon Metro: This regional special-district metropolitan planning organization oversees land use, transportation, natural areas, waste services, and geographic information services (GIS), as well as managing key local amenities (for example the Convention Center and Oregon Zoo) in the Oregon component of the Portland-Vancouver-Hillsboro metropolitan area. The contributing factors to prosperity that fall in whole or in part to their purview include:

- Job growth
- Human capital growth
- Environmental quality
- Access to transportation
- Access to green space
- Commute time
- Neighborhood completeness
- Housing affordability

Central City Concern: This nonprofit agency seeks to address prosperity by alleviating homelessness, and thus poverty, by creating and implementing strategies to increase access to housing, support lifestyle change, and provide assistance with healthcare and employment. Prosperity factors addressed include:

- Social equity
- Crime rate
- Homelessness rate
- Physical and mental health
- Human capital growth

Greater Portland Inc: This public-private partnership organization seeks to advance the economy in the Portland metropolitan statistical area through job growth and investment by attracting new firms to Portland and expanding existing firms. Specifically, they provide expertise and resources to interested

businesses, with the goal of enhancing regional competitiveness in aggregate. Prosperity factors impacted include:

- Job growth
- Economic vitality
- Traded sector growth
- Wage growth

City of Portland: The many city bureaus influence every factor of prosperity through local governance and city programs. The bureaus most directly geared towards one or more of the factors referenced in this report (leaving out necessary administrative, logistical, and finance functions) are:

- *Bureau of Development Services:* Housing affordability, neighborhood completeness, commute time, and business and job growth via the application of building codes.
- *Bureau of Environmental Services:* Public health, environmental quality.
- *Office of Equity and Human Rights:* Social equity, human capital.
- *Bureau of Parks and Recreation:* Provision and management of green space.
- *Portland Police Bureau:* Crime rate, social equity.
- *Prosper Portland (formerly Portland Development Commission):* Business, job, wage, human capital, and traded sector growth; neighborhood completeness, economic vitality, social equity.
- *Portland Bureau of Transportation:* Public health, commute time, social equity.
- *Portland Housing Bureau:* Housing affordability, homeownership, homelessness.
- *Portland Bureau of Planning and Sustainability:* Environmental quality, public health, social equity, economic vitality, neighborhood completeness.
- *Office of Neighborhood Involvement:* All factors, by providing a direct communication channel between neighborhood residents and city bureaus.

To summarize the report up to this point, prosperity is a complex concept with many contributing economic and social factors and entities, both public and private. The kinds of metrics most frequently found in use in the region center around jobs, income, surrogates for job quality, impact on the environment, and traded sector growth.

In the next section, a method for applying and considering prosperity factors in connection with industrial land use is developed using the factors identified in the previous sections as important to the region, with choice additions from the broader literature. Based on the analysis provided here and with consideration to the decisions faced by the Port regarding land use, NERC suggests thinking about developing two sets of factors, one for evaluating land acquisition and site planning and the other for targeting specific firms or uses.

Matrix for Assessing Industrial Land Use Contribution

Below, two matrices are presented: the first weights three potential industrial land uses, using sectoral characteristics, while the second provides a full range of potential factors that could be considered in light of a given site acquisition or use assessment. In other words, Table 2 demonstrates how uses differ with regard to select prosperity factors, while Table 3 provides a more complete set of factors for consideration, that cannot readily be assessed without detailed information on a specific facility. NERC recommends that when considering a particular use, the Port weight factors in accordance with stakeholder interests.

The factors in the second table are chosen because they appear in significant Portland planning documents, described above, and additionally are tied to industrial land use. The factors in Table 2 are selected from those in Table 3 for the purpose of offering an actual comparison, using real available sectoral values.

These tables are not intended to be recommendations of a specific framework or set of metrics. Instead, the intent is to suggest a construct and a wide array of sample metrics for the Port to consider as it develops its own metrics or criteria.

Table 2: Example of Tradeoffs Between Uses

| NAICS Sector | Average Jobs per Facility | Average Annual Earnings | Traded Sector? | Job Density* (SF/worker) |
|---|---------------------------|-------------------------|-----------------|--------------------------|
| Transportation Equipment Manufacturing: Motor Vehicle Parts | 48 | \$59,189 | Yes | 1,700 |
| Footwear Manufacturing: Hiking Boots | 30 | \$46,499 | Yes | 1,089 |
| General Warehousing: Distribution Center | 43 | \$44,179 | No [†] | 1,274 |
| Averages | 46 ^{*†} | \$53,946 [‡] | -- | 1,397 |

* These values are from a 2001 California study. Values should be chosen on a case-by-case basis whenever possible.

† The designation of “traded sector” depends on whether or not the goods processed are distributed inside or outside of the region. In the former case, the sector is not considered to be traded, while in the latter case, it is. Here it is assumed that goods are distributed within the region.

*† Weighted by number of facilities

‡ Weighted by number of sector employees

Table 2 illustrates the kind of tradeoffs inherent to considering a broad definition of prosperity and its contributing factors. For example, while a motor vehicle parts manufacturer would provide a higher number of jobs at a wage higher than that in the other uses considered, it has a lower job density, and would therefore require a larger amount of land to sustain the jobs it provides than a distribution center. Traded industries enhance regional competitiveness, but in some cases are eligible for property tax exemptions, so increased relative strength comes at the cost of tax revenue. Along similar lines, is it more beneficial to regional prosperity to create a larger number of jobs, or a smaller number of higher-wage jobs? The answer is not clear, and in fact is likely to depend upon the economic context in which the decision takes place.

Moving to Table 3, below, a wider range of tradeoffs becomes apparent—tradeoffs between, for example, emissions and job density or wages and export potential require careful consideration. In such apples-to-oranges comparisons, the final decision will depend upon case-specific weighting by relevant stakeholders, within the context of local economic and demographic trends.

Table 3: Comprehensive Set of Relevant Indicators

| Prosperity Factors | |
|--|---|
| Facility/Company Assessment Factors | |
| PEOPLE | Number of Jobs |
| | Worker Income (Annual or Hourly) |
| | Presence of Career Ladder |
| | Job Skill Distribution |
| PLACE | Job Density (SF/worker) |
| | Public Benefit Agreement |
| | Low Emission Use |
| | Community Amenities |
| | Workforce Training |
| | Impervious Ground Area |
| BUSINESS | Traded Sector (Domestic or International) |
| | International Trade |
| | New or Preexisting Firm |
| | Property Tax Generation |
| Site Acquisition/Planning Factors | |
| PEOPLE | Number of Jobs |
| | Worker Income (Annual or Hourly) |
| | Job Skill Distribution |
| PLACE | Commute Time (maintains or decreases) |
| | Brownfield/Redevelopment |
| | Priority Neighborhood/Location |
| | Job Density (SF/worker) |
| | Low Emission Use |
| BUSINESS | Traded Sector (Domestic or International) |
| | International Trade |
| | New or Preexisting Firm |
| | Property Tax Generation |

Below, each factor is defined in detail. When specific information about a factor is not available, NERC recommends the use of NAICS sector averages, or an estimate based on existing similar uses. **When describing which direction (less or more) of a given factor is conducive to increased prosperity, the factor is considered in isolation: there is no weighting present in this table.** So, for example, if impervious ground area is considered irrelevant by interested parties, then its value in this table is irrelevant and it doesn't matter whether there is less or more of it. Likewise, if the Port determines that increasing jobs for lower-skilled workers is the single salient factor in a given use, then the other factors, including all of those in the "People" category, are not important and their relative value does not matter. The factors below are listed in alphabetical order, and many appear under both facility and site selection. **As referenced above, the preferred direction (less/more) on any given factor is specific to that factor and its application is situational. For example, if one uses the measure on brownfield and redevelopment to evaluate a site or a use, the preferred direction is brownfield over greenfield. That, however, is not meant to suggest that in every instance a brownfield site is preferred to a greenfield site.**

Brownfield/Redevelopment: Cleaning and using sites that have been historically contaminated or are not optimally used provides prosperity value by increasing density and/or enhancing the environmental quality of the city. Development of brownfield sites is preferable to the development of sites not located in a brownfield, and redevelopment of sites that are not optimally used is preferable to development of new site.

Community Amenities: The provision of amenities to the community is preferred. This factor is similar to the Public Benefit Agreement described above, but without the formal agreement.

Commute Time: Sites that are more easily accessible to those employed there provide greater benefit, in the form of avoided transportation cost. The key is not the distance, but the time spent, so access to efficient public transportation is one aspect of this factor. Sites that are more accessible to residential communities are preferred over sites that are less accessible. (Additionally, it is important that said community have housing that is affordable to employees working at said site, and consideration of Job Skill Community Match is a more refined factor related to the same idea.)

Impervious Ground Area: Areas where water cannot penetrate to deeper levels of the soil, such as areas covered in cement, cause runoff, which both imposes strain on waste water infrastructure and circumvents the natural watershed process. Uses with lower areas of impervious ground are preferred to uses with higher areas of impervious ground.

International Trade: A firm that trades internationally is preferred to a firm that trades exclusively or predominately on a domestic basis, as international competitiveness lends greater stability than domestic competitiveness alone.

Job Density (SF/worker): This describes the average job density within the industrial use under consideration. As density in the metropolitan core is necessary to further growth, higher job density is preferred to lower job density.

Job Skill Distribution: This factor describes the type of jobs provided, ideally in relation to the demographics of the area in which the facility is placed. Unlike the previous measures, there is no straightforward "more vs. less" hierarchy—rather, the preferred composition will depend on the

characteristics of the local population, and stakeholder concerns. Additionally, this factor implies consideration of worker accessibility, or commute time, by placing facilities near those who are eligible or able to fulfill employment positions. There is certainly an argument that higher skill (and thus wage) positions offer a greater contribution to prosperity than low wage jobs, regardless of site, but broader consideration is valuable even so, and income is addressed separately in the table.

Low emission use: Due to the difficulty of assessing emissions in many cases, this is presented as a binary option. If a facility falls in a sector known for low emissions, then it is preferred to a facility that does not.

New or Preexisting Firm: Economic diversity (meaning a large number of individual firms) offers local economies versatility in the face of economic downturns, and is emphasized in many of the prosperity initiatives described in this report. A new business is generally preferred to an existing business, but supporting existing firms that contribute substantially to local prosperity is valuable as well.

Number of Jobs: This is the quantity of employment sustained by the use in question. More jobs are preferred to less jobs.

Presence of Career Ladder: This refers to upwards mobility within the industry or facility under consideration, typically via job training programs. Firms or entities that emphasize upwards mobility are preferred.

Public Benefit Agreement: Also termed “community benefit agreements,” these contracts between developers and community groups set terms for new facilities (including specific amenities, mitigation techniques, etc.) in order to ensure that new construction best serves the community in which it is located. The presence of a public benefit agreement is preferred to the absence of one. This attribute should be heavily weighted, because it delineates community needs in a more specific way than other factors on this list.

Traded Sector (Domestic or International): Industry sectors that have a positive trade balance in Portland, meaning that the local economy exports more of the good or service than it imports, indicate areas of competitive advantage and represent Portland’s greatest potential for sustained economic growth. Such sectors include Metals and Machinery, Athletic and Outdoor Gear and Apparel, Clean/Green Products and Services, Health Products and Service, and Software and Technology. Distribution centers can be considered “traded” if they distribute goods outside of the region, because in that case they operate as exporters. For firms that do not fall into noted traded sectors, the industry location quotient (see footnote on pg. 7) can serve as useful proxy to assess the local strength of a given use. A traded sector industry use is preferred to a non-traded sector industry use, and in most cases, a high location quotient indicates a more-traded sector.

Property Tax Generation: The amount of property taxes generated by a given use is relevant to local prosperity, as additional revenues provided vital public funding. A use that generates higher property tax revenues is preferable to a use that provides lower revenues.

Priority Neighborhood/Location: These neighborhoods are defined in the Prosper Portland’s Neighborhood Prosperity Initiative (not included in this report due to similarity with other local prosperity initiatives) as areas with lagging commercial investment, higher-than-citywide poverty rates, and a higher concentration of minority-owned or neighborhood-serving businesses. Neighborhoods already in Urban Renewal Areas are not considered. Prosper Portland does not provide a complete list

or map of these areas, but select several as sites for Neighborhood Prosperity Initiatives. Those selected can be found on the Neighborhood Prosperity Initiative page of Prosper Portland's website. Additionally, sites can be identified by stakeholders and community organizations as disadvantaged in the ways described by Prosper Portland.

Worker Income (Annual or Hourly): This is the value of average annual earnings for a worker in the given use or industry sector under consideration (constructed if possible using a weighted average across position types). Higher earnings are preferred to lower earnings.

Workforce Training: This is the presence of such programs in a given firm, and more specifically identifies the programs often intrinsic to an effective career ladder. A firm that provides workforce training, especially when demographically consistent with the neighborhood in question (i.e., applicable to the job skill level in the community).

Summary

In recent years, the definition of prosperity has widened beyond the traditional consideration of income alone, to include concepts like equity, health, and environmental integrity. When considered on a regional basis, prosperity can be enhanced in ways tailored to the current state and unique needs of a particular metropolitan area, although many factors of prosperity are common across said areas. When assessing the specific contributions of industrial land use in Portland, the three basic factor categories are job growth, environmental mitigation and enhancement, and trade sector growth. Sometimes, improving upon a factor in one of these categories will necessitate a tradeoff with another category or factor, and such tradeoffs must be assessed with careful consideration of stakeholder priorities (Tables XX and XX illustrate such tradeoffs). For example, in Table 2, the automotive parts manufacturing facility scores above average on number of jobs and annual earnings, and is a traded sector, but has a lower job density than other proposed uses. On the other hand, while the distribution center scores lower in terms of jobs and earnings, and is not a traded sector (in this case), it constitutes a denser use of industrial land—a stated city priority informed by the industrial land shortage forecast by BPS.

Appendix: International Measures

Several international prosperity measures exist, the Legatum Prosperity Index™ being the most prominent. While very useful to compare across countries, such measures commonly assess variables such as child mortality, disease prevalence, and government corruption that are not relevant to industrial land use. The following are the two most prominent international approaches.

Legatum Prosperity Index™

This renowned index is a product of the Legatum Institute, a private investment firm headquartered in Dubai, UAE. Since 2007, the Index has been used to rank 149 nations using a proprietary method that assigns weights to a variety of variables and then aggregates to a single metric. The metric incorporates 104 distinct variables across nine subindices, listed below. While the variables are assigned weights between 0.5 and two, based on importance, the subindices are all weighted equally.

- Economic quality
- Business environment
- Governance
- Education
- Health
- Safety and security
- Personal freedom
- Social capital
- Natural environment

Human Development Index

The Human Development Index, or HDI, was created in 1990 by the United Nations Development Programme to assess changes in human wellbeing (development) without relying on purely economic measures. Only four variables across three categories are considered: life expectancy at birth, expected years of schooling upon entry and mean years of education in adults aged 25 and up, and gross national income per capita (log-transformed to reflect the diminishing importance of change at higher economic levels). The calculations can be easily performed in Excel, and the UN provides a tool on their website for doing exactly that.

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